

Pre-hospital Emergency Services Current Awareness Update Issue 22, January & February 2014



A New Year, a New Start...

I would like to welcome former and new readers to the latest issue of the **Pre-Hospital Emergency Services Current Awareness Update**. Some readers may have noticed the rather lengthy delay in publication of this Update. To address the gap, and hopefully make amends, this issue is accompanied by a **Supplement** covering a selection of papers from open access sources published between May and December last year. The next issue will be published in May, covering March and April 2014.

The aim of this Current Awareness Update is to provide a digest of information supporting evidence based practice in pre-hospital emergency services, focusing upon resources from open access and NHS Evidence journals which are freely available to Ambulance Trust staff, whether or not they have access to a dedicated library service.

In this issue:

- **What's New**
Highlighting **News, Policy, Reports, Guidelines & Toolkits**
- **Focus On... the Australasian Journal of Paramedicine**
- **Pre-Hospital Care Research Forum Podcasts**
- **Research & Best Practice**
Each issue provides summaries of a selection of recent research from open access and Athens resources which are relevant to pre-hospital and emergency care.

I hope that you find the *Pre-Hospital Emergency Services Current Awareness Update* useful.

Feedback

The *Emergency Services Current Awareness Update* is produced bi-monthly by:

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This Current Awareness Update was commissioned by the National Ambulance Research Steering Group comprising of research leads from ambulance trusts in England, Scotland and Wales and other experts and groups supporting pre-hospital research. The aim of the group is to support the strategic development of ambulance and pre-hospital research whether leading, collaborating in or using research.

What's New?

The wide-ranging inquiry into urgent and emergency care in England – the **Urgent and Emergency Care Review** - is underway and has generated a number of reports. These are listed below, with links to the full text if you wish to explore further;

Urgent and Emergency Care Review

High quality care for all, now and for future generations: transforming urgent and emergency care services in England

In January 2013 Professor Sir Bruce Keogh announced a review into the way the NHS in England responds to and receives emergency patients, called the Urgent and Emergency Care Review.

 www.england.nhs.uk/ourwork/pe/uec-england/

The Review has developed an evidence base for change, emerging principles on how a future system might be shaped, objectives which the new system would seek to achieve, and possible implementation options.

Evidence base

Section 8.2 of this document looks at **Pre-hospital emergency care**

 www.england.nhs.uk/wp-content/uploads/2013/06/urg-emerg-care-ev-bse.pdf

Emerging Principles

 <http://www.england.nhs.uk/wp-content/uploads/2013/06/uec-emerg-princ.pdf>

Urgent and emergency services: Second Report of Session 2013–14

Volume I - this report suggests that growing demand on A&E departments will make them unsustainable if effective action is not taken quickly to relieve the pressures on them. It raises concerns at low staffing levels in emergency departments, and questions the role NHS 111 will play in the system.

Section 7 of this report looks in detail at ambulance services covering:

Improving emergency care

Demand

Staffing

Developing the functions of ambulance services

Incentives

 www.publications.parliament.uk/pa/cm201314/cmselect/cmhealth/171/171.pdf

Volume II collates **written evidence submissions** to support the inquiry from organisations such as the King's Fund and the NHS Confederation. Submissions are also available from:

South Western Ambulance Service NHS Foundation Trust

North East Ambulance Service NHS Foundation Trust

Priority Dispatch

College of Paramedics

Emergency Medicine Trainee Association

London Ambulance Service NHS Trust

All submissions can be read at:

 www.publications.parliament.uk/pa/cm201314/cmselect/cmhealth/171/171vw01.htm

Transforming urgent and emergency care services in England: urgent and emergency care review - end of phase 1 report November 2013

This report proposes a new blueprint for local services which aims to make care more responsive and personal for patients, as well as delivering better clinical outcomes and enhanced safety.

Extracts Relevant to Ambulance Services

Of the 9 million emergency “999” calls made last year, 7 million resulted in an emergency ambulance journey. Ambulance services are highly valued for the speed of their service and the skills of paramedics, but these skills are incompletely used when, in some cases, an ambulance simply drives a patient to hospital.

By supporting and developing paramedics, and providing direct access to the expertise of general practitioners and specialists, around half of all 999 calls which require an ambulance to be dispatched could be managed at the scene, avoiding an unnecessary trip to hospital.

However, there is a great deal of variation around the country in the number of paramedics available, access to GPs and the frequency with which patients are transported to hospital.

This must be improved so that ambulances can become and are seen as a community-based mobile urgent treatment service, rather than solely a means of transportation.

To avoid people choosing to queue in A&E, or being taken to hospital unnecessarily to receive the treatment they need, the service outside hospital must be improved and enhanced.

To achieve this, we will need to:

Develop 999 ambulances so they become mobile urgent treatment services, not just urgent transport services.

We know that paramedics can now deliver treatments that would only have been done by doctors 10 years ago, whilst with the support of improved community services they can safely manage many more people at scene. This gives us both more options to treat people at home, and to travel further to reach specialist care. There are opportunities for extending paramedic training to better assess, prescribe for and manage patients with exacerbations of chronic illnesses and work more closely with GPs and community teams.

 www.nhs.uk/NHSEngland/keogh-review/Documents/UECR.Ph1Report.FV.pdf

Additional Reports and Briefings

Emergency preparedness, resilience and response: a guide for ambulance commissioners

This briefing supports commissioners by outlining the scope and importance of emergency preparedness, resilience and response (EPRR) and their own role in it, key questions and answers regarding EPRR, and sources of further information and guidance. It draws on the national specification for ambulance emergency preparedness, published in 2012 by the National Ambulance Resilience Unit (NARU), and the NHS Commissioning Board's newly published core standards for EPRR.

 www.nhsconfed.org/Publications/briefings/Pages/EPRR-guide.aspx

Review of Major Trauma Networks reveals increase in patient survival rates

A press release from NHS England commented on the findings of a national independent audit by the Trauma Audit and Research Network (TARN), part of The University of Manchester, which showed that 20 per cent more patients were now surviving severe trauma since the introduction of Major Trauma Networks in 2010.

 www.england.nhs.uk/2013/06/25/incr-pati-survi-rts/

Association of Air Ambulances - Framework for a High Performing Air Ambulance

This framework was originally published in 2008, setting out operations and detailing critical core areas of competence and how operations were managed. The Framework has now been updated and outlines:

What is Pre-Hospital Care - Background to Air Ambulances - Trustees and Governance Models

Clinical Standards and Governance - Operational Management – Dispatch - Staff and Training - Conclusions

 www.associationofairambulances.co.uk/resources/events/AOAA-Framework%202013-OCT13-%20Final%20Document.pdf

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Major trauma and the use of tranexamic acid in children statement

This statement produced by the Royal College of Paediatrics and Child Health, the NPPG Medicines Committee and the Clinical Standards Committee provides guidance on the dose of tranexamic acid (TXA) for children in major trauma to ensure consistency with adult trauma.

 www.rcpch.ac.uk/system/files/protected/page/121112_TXA%20evidence%20statement_final%20v2.pdf

Resuscitation Council Guidelines and Resources

The following new resources are available on the Resuscitation Council website:

Defibrillation of patients with implanted neurostimulators

Advice issued by the MHRA with input from the Resuscitation Council.

 www.mhra.gov.uk/Publications/Safetyguidance/Otherdevicesafetyguidance/CON266121

A guide to Automated External Defibrillators (AEDs)

This guide provides information about AEDs and how they can be deployed in the community to help resuscitate a victim of cardiac arrest.

 www.resus.org.uk/pages/AED_Guide.pdf

Lifesaver

This free, interactive, live-action film teaches CPR that you play like a game on your computer, smartphone or tablet from the Resuscitation Council.

 www.resus.org.uk/pages/lifeSaver.htm

Quality Standards for CPR training and practice

 www.resus.org.uk/pages/QSCPR_Main.htm

Use of Adrenaline in out-of-hospital cardiac arrest

This statement supports the need for a randomised, controlled trial of adrenaline versus placebo in out-of-hospital cardiac arrest.

 www.resus.org.uk/pages/adrenalineVersusPlacebo.htm

The Faculty of Pre-hospital Care has published **Consensus Statements** outlining evidence and emerging best practice for specific areas of pre-hospital practice.

An accompanying paper for each has been published in the Emergency Medicine Journal.

Minimal Patient Handling

This statement outlines the emerging best practice for the safe and effective packaging of a pre-hospital trauma patient while providing spinal immobilisation. Current practice commonly involves a cervical collar and blocks secured to a rigid spinal board. Immobilisation using a scoop stretcher or vacuum mattress are increasingly common alternatives.

 www.fphc.co.uk/content/Portals/0/Documents/2013-12%20Consensus%20Handling%20v8.pdf

Moss R, Porter K, Greaves I. **Minimal patient handling: a faculty of pre-hospital care consensus statement.** Emergency Medicine Journal 2013; 30:1065-1066, doi:10.1136/emmermed-2013-203205 <http://emj.bmj.com/content/30/12/1065.abstract.html?etoc>

Pharmacologically Assisted Laryngeal Mask Consensus Outcome

In the non-arrested patient the gold standard for definitive pre-hospital airway management is pre-hospital rapid sequence induction and tracheal intubation (RSI) delivered by a competent clinical team.

 www.fphc.co.uk/content/Portals/0/Documents/2013-12%20PALM%20Consensus%20COMPLETE.pdf

Moss R, Porter K, Greaves I. **Pharmacologically assisted laryngeal mask insertion: a consensus statement.** Emergency Medicine Journal 2013; 30:1073-1075, doi:10.1136/emmermed-2013-203215 <http://emj.bmj.com/content/30/12/1073.extract.html?etoc>

Pre-hospital Management of Pelvic Fractures

Massive haemorrhage associated with unstable pelvic fractures remain a significant cause of morbidity and mortality in the UK. Pelvic binding devices allow pre-hospital stabilisation. This consensus statement aims to provide guidance on the early management of pelvic injuries and the use of these devices.

 www.fphc.co.uk/content/Portals/0/Documents/2013-12%20Pelvic%20Consensus%20COMPLETE.pdf

Scott I, Porter K, Laird C et al. **The pre-hospital management of pelvic fractures: initial consensus statement.** Emergency Medicine Journal 2013; 30:1070-1072, doi:10.1136/emmermed-2013-203211 <http://emj.bmj.com/content/30/12/1070.extract.html?etoc>

Pre-hospital Spinal Immobilisation

This paper reviews the current evidence available on the practice of spinal immobilisation in the pre-hospital environment.

 www.fphc.co.uk/content/Portals/0/Documents/2013-12%20Spinal%20Consensus%20COMPLETE.pdf

Connor D, Greaves I, Porter K et al. **Pre-hospital spinal immobilisation: an initial consensus statement.** Emergency Medicine Journal 2013; 30:1067-1069, doi:10.1136/emmermed-2013-203207 <http://emj.bmj.com/content/30/12/1067.abstract.html?etoc>

Formerly published as the **Journal of Emergency Primary Health Care**, the **Australasian Journal of Paramedicine** (AJP) is an open access*, peer-reviewed**, international journal which aims to advance and promote the science of pre-hospital care research, management, education, clinical practice, policy, and service delivery. It is the official international journal of Paramedics Australasia, the professional body for paramedics across Australasia. Along with its new name, the journal has a new editor and editorial team driving a new direction for the journal.

**Open Access publishing allows readers to access papers free of charge, without print or online journal subscription charges to enable high-quality research findings to be widely disseminated and freely available.*

***Peer Review is a form of self-regulation whereby research is evaluated before approval for publication by one or more people of comparable competence to the author(s) within a relevant field. Peer review methods aim to maintain quality, improve performance, and provide credibility.*

The published issues of the journal are listed below and overleaf. The titles of the papers are listed beneath each issue. All can be freely read online or downloaded from the links provided:

Current Issue: Volume 11, Issue 2 (2014)

 <http://ro.ecu.edu.au/jephc/>

Journal Articles

Effect of Simulation on the Clinical Competence of Swedish Ambulance Nurses

Gaining a new respect for the other guys: scripted scenarios for inter professional education in paediatric emergencies

Community paramedicine: higher education as an enabling factor

The accuracy of undergraduate paramedic students in measuring blood pressure: A pilot study

Editorials

Where is pre-hospital care heading?

Simulation in paramedic education – is it the panacea?

Volume 10, Issue 1 (2013)

 <http://ro.ecu.edu.au/jephc/vol10/iss1/>

Epidemiology of injuries at the Australian 24 hour mountain bike championships

Mass Gathering Public Health and Emergency Medicine Literature Review: Levels of Evidence.

Management of ankle injuries in the pre-hospital environment - A review of the literature

Self-insertion of a screw driver in the rectum for sexual purpose, a case report

Bystander Experiences at and after a Motor Vehicle Accident: A review of the literature

Lessons About Work Readiness From Final Year Paramedic Students in an Australian University

Development and implementation of Victorian pre-hospital Clinical Practice Guidelines: the supraventricular tachycardia example.

Facilitating Rapport through Real Patient Encounters in Health Care Professional Education

Rural Residents' Perception about the Coverage, Cost and Access of Ambulance Services

Open Access Journals – The way forward for out-of-hospital research publications

Discover the UCLA Pre-hospital Care Research Forum Podcasts

Pre-hospital Care Research Forum at the University of California, Los Angeles (UCLA)

The UCLA Centre for Pre-hospital Care established the Pre-hospital Care Research Forum (PCRF) at UCLA in 1992. Its mission is to promote, educate and disseminate pre-hospital research conducted at all provider levels to advance and challenge the future of emergency medical services.



‘The PCRF has produced a range of **podcasts** which discuss current research affecting emergency medical services. The podcasts aim to review methodology and applicability to pre-hospital care, promote healthy and respectful discussions, and inspire new research.’

<https://content.fisdap.net/podcasts/pcrf>

The podcasts published since summer 2013 are listed below– follow the links to listen and explore.

Paediatric Anaphylaxis Management in the Pre-hospital Setting

Discussing a retrospective study analysing the management of paediatric anaphylaxis was performed by comparing discharge diagnoses with pre-hospital patient care reports.

www.fisdap.net/podcasts/pcrf/pediatric_anaphylaxis_management_pre-hospital_setting?t=pcrf

Pre-hospital Point-of-Care Testing for Troponin: Are the Results Reliable?

Discussing a study which demonstrated the viability of using pre-hospital troponin levels as a diagnostic tool for patient care and transport destination.

www.fisdap.net/podcasts/pcrf/pre-hospital_point_of_care_testing_troponin_are_results_reliable?t=pcrf

Psychometric Testing of the Jefferson Scale of Empathy with Paramedic Students

Discussing an Australian study which tested the empathy levels of paramedic students using the Jefferson Scale of Empathy Health Profession.

www.fisdap.net/podcasts/pcrf/psychometric_testing_jefferson_scale_empathy_paramedic_students?t=pcrf

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Neurologically Favourable Survival After In-Hospital Cardiac Arrest

Discussing a double blind, randomized study performed in Greece regarding cardiac arrest survival to hospital discharge.

 www.fisdap.net/podcasts/pcrf/neurologically_favorable_survival_after_in_hospital_cardiac_arrest?t=pcrf

Differences in Long Term Mortality after Acute Poisoning

Discussing a study conducted in Oslo, Norway illustrating the differences in long term mortality of acute poisoning patients based on the care they were given in a pre-hospital, clinical or hospital setting.

 www.fisdap.net/podcasts/pcrf/differences_long_term_mortality_after_acute_poisoning?t=pcrf

Resuscitation Fluid

 Discussing a review article which analysed the use of fluid resuscitation in both the pre-hospital and hospital settings, examining both the physiological principles and clinical practices involved in selecting from the many types of fluid resuscitation available.

www.fisdap.net/podcasts/pcrf/resuscitation_fluids?t=pcrf

The Effect of an Ambulance Diversion Ban

Discussing a study illustrating the positive effects of a 2009 ban on diversions in Massachusetts hospitals.

 www.fisdap.net/podcasts/pcrf/effect_ambulance_diversion_ban?t=pcrf

Muscles used for chest compression under static and transportation conditions

Discussing a Japanese study which detailed the muscle groups used in performing stationary CPR and while in a moving ambulance.

 www.fisdap.net/podcasts/pcrf/muscles_used_chest_compression_under_static_and_transportation_conditions?t=pcrf

Does your ambulance service piggyback glucose with thiamine?

Discussing a study which compared pre-hospital glucose with or without IV Thiamine.

 www.fisdap.net/podcasts/pcrf/does_your_ambulance_service_still_use_thiamine_administration_glucose

Backbreaking new research: A discussion on when to use long spine boards

Discussing a statement by the US National Association of EMS Physicians citing the disuse of backboards when providing spine immobilization for unintoxicated patients without distracting injuries.

 www.fisdap.net/podcasts/pcrf/backbreaking_new_research_discussion_when_use_long_spine_boards

How well can a computer identify an ST - elevation myocardial infarction in the pre-hospital setting?

Discussing a retrospective cross sectional study which showed the cardiac monitor might not always correctly interpret a 12 lead ECG as an ST - elevation myocardial infarction (STEMI).

 www.fisdap.net/podcasts/pcrf/how_well_can_computer_identify_st_elevation_myocardial_infarction_pre-hospital_setting

The following research papers have been published, or made available online, in the last couple of months. This is not a comprehensive overview, but represents papers which are freely available in full text, with current internet links provided.

- Ⓢ Papers listed as **Open Access** Ⓢ are freely available in full text from the link provided.
- Ⓢ Papers with links listed as **Athens Access** Ⓢ require you to log in with a free **NHS Athens username** and password to obtain the full text. These links take you to the abstract initially. To read the whole paper, choose either 'full text' or 'pdf' from the options on the abstract page. The full text option will present the article as a single web page, the pdf option will open as a digital copy of the original paper. Selecting either will open a page with the following link for you to enter your Athens username and password;

To view this item, select one of the options below:

Login via Athens or your home organisation 

To create your own Athens username and password, simply visit:

<https://register.athensams.net/nhs/>

The research papers have been arranged by the topic headings below:

Pre-hospital Services - Development and Quality

Pre-hospital Practitioners – Professional Development

Dispatch Services, Response Times and Hospital Admissions

Helicopter Emergency Medical Services

Treatment and Intervention

Airway Management, Resuscitation & CPR

Layperson CPR

Research and Development

Patient Outcomes

You can find the complete **archive** of the Pre-Hospital Emergency Services Current Awareness Update at the link below, with thanks to Matt Holland of the North West Ambulance Library and Information Service:

www.networks.nhs.uk/nhs-networks/nwas-library-and-information-service/esca

Impact of the Weather on Ambulance Call Out

Both heat waves and very cold weather have been shown to impact negatively on ambulance response times due either to increased call-out (up to a third during a heat wave in August 2003) or reduced response rate (falling below 50% on three consecutive days in December 2010, the coldest for 100 years). This paper analysed the relationship between ambulance call out and daily air temperature in Birmingham from 2007-2011. The results showed a 1.3% reduction in performance for every 1 degree C reduction in temperature. The authors discuss the implications of these results.

Thornes JE, Fisher PA, Rayment-Bishop T et al. **Ambulance call-outs and response times in Birmingham and the impact of extreme weather and climate change.** *Emergency Medicine Journal* 2014; 31:220-228

Athens Access @ <http://emj.bmj.com/content/31/3/220.abstract.html?etoc>

Incidence of Pre-hospital Trauma Interventions - Physicians and Non-Physicians

In 2005, the pre-hospital Advanced Life Support teams delivering in an area of southern Sweden were provided with additional support from physicians who were part of “Pre-hospital acute teams” (PHAT). This retrospective study used records for 202 patients with an injury severity score of >9 to compare the incidence of pre-hospital medical interventions for patients cared for by conventional ALS teams and by PHAT. Interventions included tracheal intubation, intravenous fluid administration, neck immobilization and spine board usage. The incidence of endotracheal intubation and immobilization of extremities was found to be greater among patients supported by PHAT but the authors note that this finding should be interpreted in the context of PHAT support being directed to more severely injured patients.

Blom M, Aspelin L, Ivarsson K. **Propensity for performing interventions in pre-hospital trauma management - a comparison between physicians and non-physicians.** *Journal of Trauma Management & Outcomes* 2014, 8:3

Open Access @ www.traumamanagement.org/content/pdf/1752-2897-8-3.pdf

Pre-hospital Administration of Packed Red Blood Cells

This retrospective study evaluated 18 months of data from the Queensland Ambulance Service Trauma Response Team and the Pathology Queensland Central Transfusion Laboratory to evaluate the feasibility, limitations and costs involved in providing pre-hospital trauma teams with packed red blood cells (pRBCs) for use in the pre-hospital setting. The records showed that 97.8% of non-transfused units were returned to a blood bank for re-issue, there were no instances of equipment failure leading to pRBC wastage and the cost for each unit transferred was \$A551 (£361).

Bodnar D, Rashford S, Williams S. et al. **The feasibility of civilian pre-hospital trauma teams carrying and administering packed red blood cells.** *Emergency Medicine Journal* 2014; 31:93-95

Athens Access @ <http://emj.bmj.com/content/31/2/93.abstract.html?etoc>

Template for Reporting Pre-Hospital Major Incident Medical Management

A systematic review to identify templates for reporting major incident medical management in the pre-hospital setting located ten examples but noted they were not widely used. The authors aimed to address this by designing an open access template for the uniform reporting of data from pre-hospital major incident medical management. An expert group used a consensus process to develop a template with 48 variables divided into six categories which is also the first global open access database for pre-hospital major incident reporting.

The template is freely available for downloading and reporting at www.majorincidentreporting.org Everyone using the template is encouraged to submit their reports on the site, contributing to the creation of the international open access database.

Fattah S, Rehn M, Lockey D et al. **A consensus based template for reporting of pre-hospital major incident medical management.** Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2014 , 22 : 5 (11 February 2014)

Open Access @ www.sjtrem.com/content/pdf/1757-7241-22-5.pdf

Pre-hospital Practitioners – Professional Practice and Development

Free Open Access Medication (FOAM)

This short paper investigates the growth of “disruptive technologies” within of emergency and critical care continuing professional development. are revolutionising continuing professional development in emergency medicine and critical care. Data on blogs and podcasts within this field gathered from 2002 through November 2013 are used to illustrate the rapid expansion of websites and to provide a foundation on which to base future research.

“Disruptive technology is a term coined by Harvard Business School professor Clayton M. Christensen to describe a new technology that unexpectedly displaces an established technology.”

<http://whatis.techtarget.com/definition/disruptive-technology>

Cadogan M, Thoma B, Chan TM et al. **Free Open Access Medication (FOAM): the rise of emergency medicine and critical care blogs and podcasts (2002–2013).** Emergency Medicine Journal 19 February 2014, doi:10.1136/emered-2013-203502

Athens Access @ <http://emj.bmj.com/content/early/2014/02/19/emered-2013-203502.abstract.html?papetoc>

Health Status of Paramedics

This literature review exploring research relating to the impact of work stress on paramedics identified 25 relevant articles from a database search. The studies reveal an accumulation of risk factors for paramedics including stress (with the possible consequence of cardiovascular disease), post-trauma, sleeping disorders and obesity. The review also found that employers do not routinely monitor these health issues.

Hegg-Deloye S, Brassard P, Jauvin N et al. **Current state of knowledge of post-traumatic stress, sleeping problems, obesity and cardiovascular disease in paramedics.** Emergency Medicine Journal online first January 2013, 10.1136/emered-2012-201672

Athens Access @ <http://emj.bmj.com/content/31/3/242.abstract.html?etoc>

Pre-hospital Emergency Medicine Curriculum – Attachment with an Air Ambulance Service

This study reflects upon the experiences of an Emergency Medicine trainee during a year-long attachment with a regional UK Air Ambulance service. Levels of clinical experience (workload and type of procedure) and clinical supervision demonstrated by a logbook completed by the trainee were compared with the standards of the Inter-collegiate Board for Training in Pre-hospital Emergency Medicine (IBTPHEM www.ibtpphem.org.uk/). The supervision and workload rates were comparable to other organisations with more advanced procedures completed than in IBTPHEM pilot programmes, such as conscious sedation. The authors suggest areas for future training developments such as managing pre-hospital obstetric emergencies.

McQueen C, Wyse M. **The delivery of the new pre-hospital emergency medicine curriculum: reflections on a pilot programme in the UK.** *Emergency Medicine Journal* 2014; 31:233-237

Athens Access @ <http://emj.bmj.com/content/31/3/233.abstract.html?etoc>

Dispatch Services, Response Times and Hospital Admissions

Adherence to Dispatch Guidance

This study aimed to evaluate the use and validity of the Norwegian Index for Medical Emergency Assistance – dispatch guidelines for 19 Norwegian Emergency medical communication centres. Just under 3,000 calls to the centres were registered over a 72 hour period. Factors influencing the use of the index were identified through a questionnaire sent to call operators. The survey results showed that the index was used for over 75% of calls but that large variations in use existed both on individual and centre level. The authors discuss the factors relating to this variation.

Ellensen EN, Hunskaar S, Wisborg T et al. **Variations in contact patterns and dispatch guideline adherence between Norwegian emergency medical communication centres - a cross-sectional study** *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2014, 22:2

Open Access @ www.sjtem.com/content/pdf/1757-7241-22-2.pdf

Variation in Potentially Avoidable Emergency Admissions

The authors of this aimed to identify system-wide factors which might explain variations in age and sex adjusted admission rates for conditions 'rich in avoidable admissions' by analysing Hospital Episode Statistics data on emergency admissions for 2008–2011 for each of the 152 emergency and urgent care systems in England. Factors beyond the control of health services were found to explain the majority of these admissions (unemployment, rurality) whilst factors found to affect variation which related to health service operation included the percentage of emergency ambulance calls not transported to hospital. The authors discuss where interventions to reduce avoidable admissions should be targeted.

O'Cathain A, Knowles E, Maheswaran R et al. **A system-wide approach to explaining variation in potentially avoidable emergency admissions: national ecological study.** *BMJ Quality and Safety*, 2014 January; 23(1): 47–55.

Open Access @ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3888597/>

Defibrillation and External Pacing in Flight

This paper reviewed the aeromedical transfers of undertaken by a national aeromedical critical care retrieval service over a 48-month period in order to describe the incidence of electrical interventions (defibrillation, cardioversion and external cardiac pacing) in critically ill patients and to review the associated risks. Of the 967 secondary retrievals records, electrical intervention during transfer was required in 11 cases (1.1%). The authors comment that for small but significant incidence of electrical intervention has potential safety issues and that any service involved in the transport of critically ill patients needs robust procedures to ensure safety.

Daly S, Milne HJ, Holmes DP et al. **Defibrillation and external pacing in flight: incidence and implications.** *Emergency Medicine Journal* 2014;31:1 69-71

Athens Access @ <http://emj.bmj.com/content/31/1/69.abstract>

Impact of an Onsite Helipad

An onsite helipad was opened at the University Hospital, Southampton in 2011. Previously the air ambulance service landed at a playing field with a land ambulance transferring patients to the emergency department. This paper analysed the cases of the first 100 patients brought to the helipad to investigate its impact on patient flow. The results showed that 38 of the patients would most likely have been transferred to another hospital before the helipad was developed while another 29 might have come to the hospital for speciality services, having bypassed an alternative hospital en route. The authors conclude that opening the helipad resulted in a significant number of patients who might previously have gone to another hospital being transported to Southampton.

Freshwater ES, Dickinson P, Crouch R et al. **Extending access to specialist services: the impact of an onsite helipad and analysis of the first 100 flights.** *Emergency Medicine Journal* 2014; 31:121-125

Athens Access @ <http://emj.bmj.com/content/31/2/121.abstract.html?etoc>

Pre-hospital Air Ambulance Anaesthesia in Rural and Suburban Areas

This retrospective review describes the first 16-months experience of pre-hospital rapid sequence intubation during missions of East Anglian Air Ambulance rural / suburban helicopter-based doctor-paramedic service after the introduction of a standard operating procedure which had already been proven in the urban trauma environment. For the 763 cases attended, 88 RSIs were carried out by the EAAA team. There were zero failed intubations requiring either rescue surgical airway of a supraglottic airway device and the average on-scene time for patients requiring RSI was 40 minutes for traffic accidents, 48 minutes for other trauma and 41 minutes for medical emergencies. The authors note these results demonstrate the successful introduction of the standard operation procedure for RSI into the air ambulance service.

Chesters A, Keefe N, Mauger J et al. **Pre-hospital anaesthesia performed in a rural and suburban air ambulance service staffed by a physician and paramedic: a 16-month review of practice.** *Emergency Medicine Journal* 2014;31:1 65-68

Athens Access @ <http://emj.bmj.com/content/31/1/65.abstract>

Prothrombin Use in a Helicopter Emergency Retrieval Service

Prothrombin complex concentrates are recommended as first-line treatment for acquired or congenital factor II, VII, IX and X deficiencies in major haemorrhage. This study aimed to determine the incidence of haemorrhage requiring PCC administration in patients of the Emergency Medical Retrieval Service, providing critical care and aeromedical retrieval in remote and rural Scotland over a 42 month period. Nearly 1,200 retrieval missions were completed during the study period. Seven patients met the criteria for PCC administration, three of these received it before transfer. A telephone survey of hospital services found that all available rural general hospitals stocked PCCs but only one out of 15 of the GP-led community hospitals did.

Robertson LC, McKinlay JAC, Munro PT et al. **Use of prothrombin complex concentrates: 4-year experience of a national aeromedical retrieval service servicing remote and rural areas.** *Emergency Medicine Journal* 2014; 31:109-114

Athens Access @ <http://emj.bmj.com/content/31/2/109.abstract.html?etoc>

Winch Missions – Are Physicians Required?

This analysis of 130 winch missions by the Greater Sydney Area Helicopter Emergency Medical Service which involved a physician aimed to investigate whether there are benefits to having a physician winching in addition to a highly trained paramedic. The review of cases assessed physician-only interventions from each mission, revealing these to be at a rate of 40%, the most common being advanced analgesia administration. Physician-only interventions were more likely for patients with more severe injuries and the authors suggest their results support the argument for winching physicians.

Sherren PB, Hayes-Bradley C, Reid C et al. **Are physicians required during winch rescue missions in an Australian helicopter emergency medical service?** *Emergency Medicine Journal* 2014; 31:229-232

Athens Access @ <http://emj.bmj.com/content/31/3/229.abstract.html?etoc>

Treatment and Intervention

Equipment Required for Mass Casualty Incidents

Equipment to support mass casualty incidents in the UK has traditionally been selected according to local clinical judgment, rather than requirements being based upon evidence. This had led to variations in the type and amount of equipment stored across different locations. This study aimed to address this by developing an expert consensus opinion of essential items and minimum quantities of clinical equipment required to treat 100 people on scene for a mass casualty incident.

Duncan EA, Colver K, Dougall N et al. **Consensus on items and quantities of clinical equipment required to deal with a mass casualties big bang incident: a national Delphi study.** *BMC Emergency Medicine* 2014, 14 :5 (22 February 2014)

Open Access @ www.biomedcentral.com/1471-227X/14/5/abstract

Paramedic Treatment of Supraventricular Tachycardia

This randomised controlled trial tested the hypothesis that paramedics can safely treat and discharge patients with regular supraventricular tachycardia without transfer to an accident and emergency department. Patients were randomised to paramedic treatment (Valsalva manoeuvre at the scene with administration of adenosine) or to hospital admission. Patients treated by paramedic were given an information pack and referral letter for an arrhythmia clinic. Treatment for these patients was reviewed by a panel of experts who confirmed treatment to be appropriate leading the authors to conclude that paramedic treatment and discharge of patients with regular supraventricular tachycardia is safe, efficacious and reduces admissions.

Conference Abstract: Baker A, Whitbread M, Richmond L et al. **Safety and efficacy of paramedic treatment of regular supraventricular tachycardia.** *Heart*, 2013, vol./iss. 99/(A46)

Athens Access @ http://heart.bmj.com/content/99/suppl_2/A46.1.full.pdf+html

Airway Management, Resuscitation & CPR

Airtraq® Device for Pre-hospital Airway Management

Airtraq®, a single-use indirect laryngoscope, has been evaluated in pre-hospital mannequin intubation trials. This retrospective review of medical charts for patients undergoing pre-hospital endotracheal intubation Stockholm County during a 5 year period aimed to estimate the clinical success rate of Airtraq®. Just under 2,500 intubations were performed by anaesthesiologists and nurse anaesthetists during the study period with Airtraq® used in 28 cases. Overall Airtraq(R) intubation success rate was 68%, higher than in previous prospective trials in the pre-hospital setting but a low rate compared to other pre-hospital direct and indirect intubation methods.

Gellerfors M, Larsson A, Svensén CH et al. **Use of the Airtraq® device for airway management in the pre-hospital setting - a retrospective study.** *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2014, 22:10 (3 February 2014)

Open Access @ www.sjtem.com/content/pdf/1757-7241-22-10.pdf

Association of Advanced Out-Of-Hospital Airway Management with Outcomes - ROC Hypertonic Saline Trial

This multicentre study compared data for over 2,000 major trauma patients (isolated severe traumatic brain injury or haemorrhagic shock) who received out-of-hospital or emergency department advanced airway management, to evaluate associations between out-of-hospital management and adverse patient outcomes suggested by previous studies. The results showed that out-of-hospital advanced airway management was associated with poorer 6-month neurological outcome in traumatic brain injury and with increased mortality after haemorrhagic shock.

Wang HE, Brown SP, MacDonald RD et al. **Association of out-of-hospital advanced airway management with outcomes after traumatic brain injury and haemorrhagic shock in the ROC hypertonic saline trial.** *Emergency Medicine Journal* 2014; 31:186-191

Athens Access @ <http://emj.bmj.com/content/31/3/186.abstract.html?etoc>

Paramedic Rapid Sequence Intubation in Non-Traumatic Coma

This Australian study used data from the electronic Victorian Ambulance Clinical Information System to investigate the success rate of pre-hospital rapid sequence intubation by paramedics comatose patients prior to transportation to hospital. Over 500 relevant records for patients with non-traumatic coma receiving paramedic RSI were reviewed, comparing patients under and over 60 years of age. An intubation success rate of 97.5% was shown. Younger patients showed a significant drop in blood pressure. The authors call for studies to determine whether this procedure with a high success rate improves outcomes.

Bernard SA, Smith K, Porter R et al. **Paramedic rapid sequence intubation in patients with non-traumatic coma.** Emergency Medicine Journal Published 28 January 2014, doi:10.1136/emmermed-2013-202930

Athens Access @ <http://emj.bmj.com/content/early/2014/01/28/emmermed-2013-202930.abstract.html?papetoc>

Translating Resuscitation Guidelines into Clinical Practice

Biannual refresher courses are mandatory for out-of-hospital emergency physicians (OOHEP) in Austria in order to maintain their licence to practice. This study used data from refresher course participants to compare the advanced life support skills and knowledge (as recommended in European Resuscitation Council guidelines) of OOHEP who are working regularly in an out-of-hospital emergency service, and those who are licensed by not currently working as OOHEP. Licenced and employed OOHEP were found to implement ERC guidelines better into clinical practice, but required more training on life-saving rescue techniques to improve knowledge and to raise rates of guideline application.

Fischer H, Bachmann K, Strunk G et al. **Translation of ERC resuscitation guidelines into clinical practice by emergency physicians.** Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2014, 22:9 (30 January 2014)

Open Access @ www.sjtrem.com/content/pdf/1757-7241-22-9.pdf

Layperson CPR

Abnormal Breathing Described by Laypeople – Association with CPR Instruction

Cardiopulmonary resuscitation guidelines require emergency medical service dispatchers to identify sudden cardiac arrest with abnormal breathing and to assist lay rescuers to perform CPR. This retrospective review of witnessed cardiac arrest cases investigated the incidence of abnormal breathing, lay rescuers' descriptions of abnormal breathing and the association between the emergency medical service dispatcher-assisted CPR instruction and layperson CPR. Of the 283 cases where the breathing status of the patient was recorded, the data indicated 60% of patients showed agonal respiration. This was described in various ways during the emergency call. The results showed that dispatcher-guided CPR instruction was significantly associated with an increase in layperson CPR. Abnormal breathing was associated with a much lower rate of CPR instruction and thus was related to a much lower rate of bystander CPR.

Fukushima H, Imanishi M, Iwami T et al. **Abnormal breathing of sudden cardiac arrest victims described by laypersons and its association with emergency medical service dispatcher-assisted cardiopulmonary resuscitation instruction.** Emergency Medicine Journal Published 8 January 2014, doi:10.1136/emmermed-2013-203112

Athens Access @ <http://emj.bmj.com/content/early/2014/01/08/emmermed-2013-203112.full.pdf+html>

Patient Outcomes

Comparison of Patient Outcomes for Helicopter and Non-Helicopter Transport to a Trauma Centre

This retrospective review of nearly 14,500 patients transported to an urban level 1 trauma centre over ten years aimed to compare injuries, interventions and outcomes in patients transported either by helicopter or by other means. Patients transported by helicopter were more severely injured, were more likely to have Glasgow Coma Scale scores less than 8, require airway control, receive blood transfusions and require admission to the intensive care unit or operating room than patients who were not transported by helicopter. Helicopter transport was also associated with improved survival.

Hannay RS, Wyrzykowski AD, Ball CG et al. **Retrospective review of injury severity, interventions and outcomes among helicopter and non-helicopter transport patients at a Level 1 urban trauma centre.** *Canadian Journal of Surgery*, 2014; 57(1): 49–54.

Open Access @ www.ncbi.nlm.nih.gov/pmc/articles/PMC3908996/

Pre-hospital Risk Factors of Mortality and Impaired Consciousness after Traumatic Brain Injury

This multicentre prospective cohort study, undertaken at dedicated trauma centres in Switzerland, investigated the relationship between pre-hospital factors associated with secondary brain injury (arterial hypotension, hypoxemia, hypothermia) and the outcomes of mortality and impaired consciousness of survivors at 14 days. For the 589 patients in the study factors including the patients' age, cause of TBI and time from pre-hospital on-scene departure to emergency department arrival were looked at. The results showed that mortality and impaired consciousness at 14 days do not have the same pre-hospital risk factors, but that pre-hospital hypotension and hypothermia was found to be associated with mortality, whilst pre-hospital hypoxemia was found to be associated with impaired consciousness.

Tohme S, Delhumeau C, Zuercher M et al. **Pre-hospital risk factors of mortality and impaired consciousness after severe traumatic brain injury: an epidemiological study.** *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2014, 22:1 (7 January 2014)

Open Access @ www.sjtem.com/content/pdf/1757-7241-22-1.pdf

Research and Development

Informed Consent for Emergency Medicine Research

This editorial discusses the current practices around written informed consent for research, arguing that it does not meet the needs of emergency research and suggesting a witnessed verbal consent might be more appropriate.

William G, Harston J, Sheehan M et al. **Emergency medicine research: rites, rituals and consent.** *Emergency Medicine Journal* 2014; 31:90-91

Athens Access @ <http://emj.bmj.com/content/31/2/90.extract.html?etoc>