

# PARAMEDIC TRIALS

## A REVIEW OF 2014-2018

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TITLE	Journal	PMID	Author	ABSTRACT	
Adherence to a multifactorial fall prevention program following paramedic care: Predictors and impact on falls and health service use. Results from an RCT a priori subgroup analysis.	Australas J Ageing	29139599	Mikolajak AS	2018 Mar	RESULTS: Attitudes to Falls-Related Interventions Scale scores (n = 85) were independent of baseline characteristics. At six months, 39 (46%) participants reported full adherence. Independent predictors of adherence were positive AFRIS (OR 4.10, 95% CI 1.48-11.39) and receiving 3+ recommendations (OR 3.36, 95% CI 1.26-9.00). Adherers experienced fewer falls (IRR 0.53, 95% CI 0.45-0.80) and fall-related health service use (emergency department presentations IRR 0.37, 95% CI 0.17-0.82) compared to non-adherers. CONCLUSION: Older adults who adhere to recommendations benefit, regardless of fall-risk profile.
A Comparison of Paramedic First Pass Endotracheal Intubation Success Rate of the VividTrac VT-A 100, GlideScope Ranger, and Direct Laryngoscopy Under Simulated Prehospital Cervical Spinal Immobilization Conditions in a Cadaveric Model.	Prehosp Disaster Med	28807073	Hodnick R	2017 Dec	RESULTS: Successful ETI within three attempts across all devices occurred 99.5% of the time overall and individually 98.5% of the time for VT, 100.0% of the time for GL, and 100.0% of the time for DL. First pass success overall was 64.4%. Individually, first pass success was 60.0% for VT, 68.8% for GL, and 64.5% for DL. A chi-square test revealed no statistically significant difference amongst the three devices for first pass success rates (P=583). Average time to successful intubation was 42.2 seconds for VT, 38.0 seconds for GL, and 33.7 for seconds for DL. The average number of intubation attempts for each device were as follows: 1.48 for VT, 1.40 for GL, and 1.42 for DL. CONCLUSION: The was no statistically significant difference in first pass or overall successful ETI rates between DL and video laryngoscopy (VL) with either the GL or VT (adult).
Paramedic Assessment of Older Adults After Falls, Including Community Care Referral Pathway: Cluster Randomized Trial.	Ann Emerg Med	28302422	Snooks HA	2017 Oct	RESULTS: One hundred five paramedics based at 14 intervention stations attended 3,073 eligible patients; 110 paramedics based at 11 control stations attended 2,841 eligible patients. We analyzed primary outcomes for 2,391 intervention and 2,264 control patients. One third of patients made further emergency contacts or died within 1 month, and two thirds within 6 months, with no difference between groups. Subsequent 999 call rates were lower in the intervention arm (0.0125 versus 0.0172, adjusted difference -0.0045; 95% confidence interval -0.0073 to -0.0017). Intervention paramedics referred 8% of patients (204/2,420) to falls services and left fewer patients at the scene without any ongoing care. Intervention patients reported higher satisfaction with interpersonal aspects of care. There were no other differences between groups. Mean intervention cost was \$23 per patient, with no difference in overall resource use between groups at 1 or 6 months. CONCLUSION: A clinical protocol for paramedics reduced emergency ambulance calls for patients attended for a fall safely and at modest cost.
Safety and efficacy of paramedic treatment of regular supraventricular tachycardia: a randomised controlled trial.	Heart	27613170	Honarbaksh S	2017 Sep	RESULTS: Eighty-six patients were enrolled: 44 were randomised to paramedic-delivered adenosine (PARA) and 42 to conventional care (ED). Of the 37 patients in the PARA group given adenosine, the tachycardia was successfully terminated in 81%. There was a 98% correlation between the paramedics' ECG diagnosis and that of two electrophysiologists. No patients had any documented adverse events in either group. The discharge time was lower in the PARA group than in the ED group (125 min (range 55-9513) vs 222 min (range 72-26 153); p=0.01), and this treatment strategy was more cost-effective (pound282 vs pound423; p=0.01). The majority of patients preferred this management approach. Being treated and discharged by paramedics did not result in the patients being less likely to receive ongoing management of their arrhythmia and cardiology follow-up. CONCLUSIONS: Patients with SVT can effectively and safely be treated with adenosine delivered by trained paramedics. Implementation of paramedic-delivered acute SVT care has the potential to reduce healthcare costs without compromising patient care.
Post-admission outcomes of participants in the PARAMEDIC trial: A cluster randomised trial of mechanical or manual chest compressions.	Resuscitation	28689046	Ji C	2017 Sep	RESULTS: 377 patients in the LUCAS arm and 658 patients in the manual chest compression were admitted to hospital. Hospital and intensive care length of stay were similar. Long term follow-up assessments were limited by poor response rates (53.7% at 3 months and 55.6% at 12 months). Follow-up rates were lower in those with worse neurological function. Among respondents, long term health related quality of life outcomes and emotional well-being was similar between groups. Cognitive function, measured by MMSE, was marginally lower in the LUCAS arm mean 28.9 (SD 3.7) compared to control mean 28.0 (SD 2.3), adjusted mean difference -1.5 (95% CI -2.6 to -0.4). CONCLUSION: There were no clinically important differences identified in outcomes at long term follow-up between those allocated to the mechanical chest compression compared to those receiving manual chest compression.
Paramedic Initiation of Neuroprotective Agent Infusions: Successful Achievement of Target Blood Levels and Attained Level Effect on Clinical Outcomes in the FAST-MAG Pivotal Trial (Field Administration of Stroke Therapy - Magnesium).	Stroke	28583999	Shirkov K	2017 Jul	RESULTS: Among patient randomized to active treatment, magnesium levels in the first 72 hours were assessed 987 times in 572 patients. Mean patient age was 70 years (SD +/-14 years), and 45% were women. During the 24-hour period of active infusion, mean achieved serum level was 3.91 (+/-0.8), consistent with trial target. Mg levels were increased by older age, female sex, lower weight, height, body mass index, and estimated glomerular filtration rate, and higher blood urea nitrogen, hemoglobin, and higher hematocrit. Adjusted odds for clinical outcomes did not differ by achieved Mg level, including disability at 90 days, symptomatic hemorrhage, or death. CONCLUSIONS: Paramedic infusion initiation using gravity-controlled tubing permits rapid achievement of target serum levels of potential neuroprotective agents. The absence of association of clinical outcomes with achieved magnesium levels provides further evidence that magnesium is not biologically neuroprotective in acute stroke.
A pilot, prospective, randomized trial of video versus direct laryngoscopy for paramedic endotracheal intubation.	Resuscitation	28336412	Ducharme S	2017 May	RESULTS: Over 34 months, a total of 82 intubations were performed with 42 DL and 40 KVL based on the intention-to-treat analysis. First attempt success (28/42, 66.7% vs 25/40, 62.5%, p=0.69) and overall success (34/42, 81% vs 29/40, 72.5%, p=0.37) were similar between DL and KVL. Cormack-Lehane view and percentage of glottic opening were similar between devices. These results were consistent in the per-protocol analysis. CONCLUSIONS: In our study utilizing two ground EMS agencies, video assisted laryngoscopy with the KVL had similar first attempt success rates to direct laryngoscopy.
Effectiveness of a community paramedic-led health assessment and education initiative in a seniors' residence building: the Community Health Assessment Program through Emergency Medical Services (CHAP-EMS).	BMC Emerg Med	28274221	Agarwal G	2017 Mar 9	RESULTS: There were 79 participants (mean age = 72.2 years) and 1,365 participant visits to CHAP-EMS. The majority were female (69%), high school educated or less (53%), had a family doctor (90%), history of hypertension (58%), high waist circumference (64%), high body mass index (61%), and high stress (53%). Many had low physical activity (42%), high fat intake (33%), low fruit/vegetable intake (30%), and were current smokers (29%). At baseline, 42% of participants had elevated blood pressure. Systolic blood pressure decreased significantly by the participant's 3(rd) visit to CHAP-EMS and diastolic by the 5(th) visit (p < .05). At baseline, 19% of participants had diabetes; 67% of those undiagnosed had a moderate or high risk based on the Canadian Diabetes Risk (CANRISK) assessment. 15% of participants dropped one CANRISK category (e.g. high to moderate) during the intervention. EMS call volume decreased 25% during the intervention compared to the previous two years. CONCLUSIONS: CHAP-EMS was associated with a reduction in emergency calls and participant blood pressure and a tendency towards lowered diabetes risk after one year of implementation within a low income subsidized housing building with a history of high EMS calls. TRIAL REGISTRATION: Retrospectively registered on May 12(th) 2016 with clinicaltrials.gov: NCT02772263.
A multidisciplinary intervention to prevent subsequent falls and health service use following fall-related paramedic care: a randomised controlled trial.	Age Ageing	28399219	Mikolajak AS	2017 Mar 1	Results: ITT analysis showed no significant difference between groups in subsequent falls, injurious falls and health service use. The per-protocol analyses revealed that the intervention participants who adhered to the recommended interventions had significantly lower rates of falls compared to non-adherers (IRR: 0.53 (95% CI: 0.32-0.87)). Conclusion: a multidisciplinary intervention did not prevent falls in older people who received paramedic care but were not transported to ED. However the intervention was effective in those who adhered to the recommendations.
Prehospital randomised assessment of a mechanical chest compression device in out-of-hospital cardiac arrest (PARAMEDIC): a pragmatic, cluster randomised trial and economic evaluation.	Health Technol Assess	28393757	Gates S	2017 Mar	MAIN OUTCOME MEASURES: Survival at 30 days following cardiac arrest, survival without significant neurological impairment [Cerebral Performance Category (CPC) score of 1 or 2]. RESULTS: We enrolled 4471 eligible patients (1652 assigned to the LUCAS-2 device and 2819 assigned to control) between 15 April 2010 and 10 June 2013. A total of 985 (60%) patients in the LUCAS-2 group received mechanical chest compression and 11 (<1%) patients in the control group received LUCAS-2. In the intention-to-treat analysis, 30-day survival was similar in the LUCAS-2 (104/1652, 6.3%) and manual CPR groups (193/2819, 6.8%; adjusted odds ratio (OR) 0.86, 95% confidence interval (CI) 0.64 to 1.15). Survival with a CPC score of 1 or 2 may have been worse in the LUCAS-2 group (adjusted OR 0.72, 95% CI 0.52 to 0.99). No serious adverse events were noted. The systematic review found no evidence of a survival advantage if mechanical chest compression was used. The health economic analysis showed that LUCAS-2 was dominated by manual chest compression. LIMITATIONS: There was substantial non-compliance in the LUCAS-2 arm. For 272 out of 1652 patients (16.5%), mechanical chest compression was not used for reasons that would not occur in clinical practice. We addressed this issue by using complier average causal effect analyses. We attempted to measure CPR quality during the resuscitation attempts of trial participants, but were unable to do so. CONCLUSIONS: There was no evidence of improvement in 30-day survival with LUCAS-2 compared with manual compressions. Our systematic review of recent randomised trials did not suggest that survival or survival without significant disability may be improved by the use of mechanical chest compression. FUTURE WORK: The use of mechanical chest compression for in-hospital cardiac arrest, and in specific circumstances (e.g. transport), has not yet been evaluated.
A review of enhanced paramedic roles during and after hospital handover of stroke, myocardial infarction and trauma patients.	BMC Emerg Med	28228127	Flynn D	2017 Feb 23	RESULTS: We did not identify any studies that evaluated the health impact of an emergency ambulance paramedic intervention following arrival at hospital. A narrative review was undertaken of 36 studies shortlisted at the full text stage which reported data relevant to time-critical clinical scenarios on structured handover tools/protocols, protocols/enhanced paramedic skills to improve handover, or protocols/enhanced paramedic skills leading to a change in in-hospital transfer location. These studies reported that (i) enhanced paramedic skills (diagnosis, clinical decision making and administration of treatment) might supplement handover information, (ii) structured handover tools and feedback on handover performance can impact positively on paramedic behaviour during clinical communication, and (iii) additional roles of paramedics after arrival at hospital was limited to 'direct transportation' of patients to imaging/specialist care facilities. CONCLUSIONS: There is insufficient published evidence to make a recommendation regarding condition-specific handovers or extending the ambulance paramedic role across the secondary/tertiary care threshold to improve health outcomes. However, previous studies have reported non-clinical outcomes which suggest that structured handovers and enhanced paramedic actions after hospital arrival might be beneficial for time-critical conditions and further investigation is required.
Paramedic Application of a Triage Sieve: A Paper-Based Exercise.	Prehosp Disaster Med	27964769	Cuttance G	2017 Feb	RESULTS: The study showed the non-intervention control group had a correct accuracy rate of 47%, a similar proportion of casualties found to be under-triaged (37%), but a significantly lower number of casualties were over-triaged (16%). The provision of either an educational review or aide-memoir significantly increased the correct triage sieve accuracy rate to 77% and 90%, respectively. Participants who received both the educational review and aide-memoir had an overall accuracy rate of 89%. Over-triaged rates were found not to differ significantly across any of the study groups. CONCLUSION: This study supports the use of an aide-memoir for maximizing MCI triage accuracy rates. A 'just-in-time' educational refresher provided comparable benefits, however its practical application to the MCI setting has significant operational limitations. In addition, this study provides some guidance on triage sieve accuracy rate measures that can be applied to define acceptable performance of a triage sieve during a MCI.
Field Validation of the Los Angeles Motor Scale as a Tool for Paramedic Assessment of Stroke Severity.	Stroke	28087807	Kim JT	2017 Feb	RESULTS: Among 1632 acute cerebrovascular disease patients (age 70 +/- 13 years, male 57.5%), time from onset to prehospital LAMS was median 30 minutes (interquartile range 20-50), onset to early postarrival (EPA) LAMS was 145 minutes (interquartile range 119-180), and onset to EPA National Institutes of Health Stroke Scale was 150 minutes (interquartile range 120-180). Between the prehospital and EPA assessments, LAMS scores were stable in 40.5%, improved in 37.6%, and worsened in 21.9%. In tests of convergent validity, against the EPA National Institutes of Health Stroke Scale, correlations were r=0.49 for the prehospital LAMS and r=0.89 for the EPA LAMS. Prehospital LAMS scores did diverge from the prehospital Glasgow Coma Scale, r=-0.22. Predictive accuracy (adjusted C statistics) for nondisabled 3-month outcome was as follows: prehospital LAMS, 0.76 (95% confidence interval 0.74-0.78); EPA LAMS, 0.85 (95% confidence interval 0.83-0.87), and EPA National Institutes of Health Stroke Scale, 0.87 (95% confidence interval 0.85-0.88). CONCLUSIONS: In this multicenter, prospective, prehospital study, the LAMS showed good to excellent convergent, divergent, and predictive validity, further establishing it as a validated instrument to characterize stroke severity in the field.
A review of key national reports to describe the development of paramedic education in England (1966-2014).	Emerg Med J	26643926	Brooks IA	2016 Dec	RESULTS: Of the 83 reports and 431 articles screened, 33 documents met our inclusion criteria. We identified four historical periods in English paramedic education: development of paramedic education (1966-1996), paramedic role changes influencing education (1997-2004), paramedic education level changes and the emergency care practitioner (2005-2008), and paramedic education for the future (2010-2014). Our discussion of four descriptive themes: government authority and policy, influence of health professions, quality assurance and development of the paramedic profession includes comparisons with paramedic education in the USA and Australia. CONCLUSIONS: Political reform agendas and initiatives and advances in clinical medicine largely shaped paramedic roles and education in England. The degree to which the paramedic profession initiated education development is difficult to determine from the literature. Overall, a nationally coherent standard for paramedic education in England needed five decades to develop and mature.
Human factors in prehospital research: lessons from the PARAMEDIC trial.	Emerg Med J	26917497	Pocock H	2016 Aug	RESULTS: The challenge of training a geographically diverse EMS workforce required development of multiple educational solutions. In order to operationalise the trial protocol, internal organisational relationships were perceived as essential. Staff perceptions of the normalisation of participation and ownership of the trial influenced protocol compliance rates. Undertaking research was considered less burdensome when additional tasks were minimised and more difficult when equipment was unavailable. The prehospital environment presents practical challenges for undertaking clinical trials, but our experience suggests these are not insurmountable and should not preclude conducting high-quality research in this setting. CONCLUSIONS: Application of a human factors model to the implementation of a clinical trial protocol has improved understanding of the work system, which can inform the future conduct of clinical trials and foster a research culture within UK ambulance services.
Pre-hospital severe traumatic brain injury - comparison of outcome in paramedic versus physician staffed emergency medical services.	Scand J Trauma Resusc Emerg Med	27130216	Pakkanen T	2016 Apr 29	RESULTS: During the 6-year study period a total of 458 patients met the inclusion criteria. One-year mortality was higher in the paramedic-staffed EMS group: 57% vs. 42%. Also good neurological outcome was less common in patients treated in the paramedic-staffed EMS group. DISCUSSION: We found no significant difference between the study groups when considering the secondary brain injury associated vital signs on-scene. Also on arrival to ED, the proportion of hypotensive patients was similar in both groups. However, hypoxia was common in the patients treated by the paramedic-staffed EMS on arrival to the ED, while in the physician-staffed EMS almost none of the patients were hypoxic. Pre-hospital intubation by EMS physicians probably explains this finding. CONCLUSION: The results suggest to an outcome benefit from physician-staffed EMS treating TBI patients.
On the Assessment of Paramedic Competence: A Narrative Review with Practice Implications.	Prehosp Disaster Med	26918748	Tavares W,Boet	2016 Feb	RESULTS: Multiple conceptual frameworks, psychometric requirements, and emerging lines of research are forwarded. Seventeen practice implications are derived to promote understanding as well as best practices and evaluation criteria for educators, employers, and/or licensing/certifying bodies when considering the assessment of paramedic competence. CONCLUSIONS: The assessment of paramedic competence is a complex process requiring an understanding, appreciation for, and integration of conceptual and psychometric principles. The field of PBA is advancing rapidly with numerous opportunities for research.
Assessment of Paramedic Ultrasound Curricula: A Systematic Review.	Air Med J	26611224	McCallum J	2015 Nov-Dec	RESULTS: Twelve studies with 187 paramedics were included. Curricula duration varied, with effective curricula teaching focused assessment with sonography for trauma (FAST) in 6 to 8 hours and pleural ultrasound in 25 minutes. FAST, pleural, and fracture-detection ultrasound are being applied in the field by paramedics; however, no literature exists describing application to detect cardiac standstill. Curricula combined didactic and hands-on components including simulation and evaluated competency using sensitivity and specificity of paramedic-performed ultrasound. CONCLUSIONS: Paramedic ultrasound curricula in FAST and pleural ultrasound is feasible and time effective with successful application. Although fracture detection ultrasound is being used by the special operations forces, no comprehensive curriculum was described. Curricula designed to detect cardiac standstill have been too short, and successful application by paramedics has not been shown.
Student paramedic experience of transition into the workforce: A scoping review.	Nurse Educ Today	26025582	Kennedy S	2015 Oct	RESULTS: We identified eleven articles that explored transition of newly qualified paramedics. Thematic content was identified and discussed into four separate categories. Each theme revealing the emotional, physical and social impacts new paramedics face as they strive to find acceptance in a new workplace and culture. CONCLUSION: Given the significant role that paramedics have in modern healthcare, the transition from student to practitioner is a period of significant stress to the new paramedic. Limited research in this field though inhibits a thorough understanding of these issues.
Paramedic-performed Fascia Iliaca Compartment Block for Femoral Fractures: A Controlled Trial.	J Emerg Med	25661312	McRae PJ	2015 May	RESULTS: We analyzed 11 and 13 patients in the FICB and standard care groups, respectively. Patients treated with FICB had a greater reduction in their median pain score than patients in the standard care group (50% vs. 22%, p = 0.025) after 15 min. In the FICB group, median pain scores decreased by 5 (interquartile range 4.6), compared to 2 (interquartile range 0-4) in the standard care group. The FICB procedure did not significantly impact on scene times. No immediately obvious adverse events were noted in the 11 participants who received FICB from paramedics. CONCLUSION: The study suggests that FICB can be performed by trained paramedics for patients with suspected femoral fractures.
Mechanical versus manual chest compression for out-of-hospital cardiac arrest (PARAMEDIC): a pragmatic, cluster randomised controlled trial.	Lancet	25467566	Perkins GD	2015 Mar 14	FINDINGS: We enrolled 4471 eligible patients (1652 assigned to the LUCAS-2 group, 2819 assigned to the control group) between April 15, 2010 and June 10, 2013. 985 (60%) patients in the LUCAS-2 group received mechanical chest compression, and 11 (<1%) patients in the control group received LUCAS-2. In the intention-to-treat analysis, 30 day survival was similar in the LUCAS-2 group (104 [6%] of 1652 patients) and in the manual CPR group (193 [7%] of 2819 patients; adjusted odds ratio [OR] 0.86, 95% CI 0.64-1.15). No serious adverse events were noted. Seven clinical adverse events were reported in the LUCAS-2 group (three patients with chest bruising, two with chest lacerations, and two with blood in mouth). 15 device incidents occurred during operational use. No adverse or serious adverse events were reported in the manual group. INTERPRETATION: We noted no evidence of improvement in 30 day survival with LUCAS-2 compared with manual compressions. On the basis of ours and other recent randomised trials, widespread adoption of mechanical CPR devices for routine use does not improve survival.
Prehospital anaesthesia performed by paramedics/critical care paramedics in a major trauma network in the UK: a 12 month review of practice.	Emerg Med J	24132327	McQueen C	2015 Jan	RESULTS: MERIT teams were activated 1619 times, attending scene in 1029 cases. RSI was performed 142 times (13.80% of scene attendances). There was one recorded case of failure to intubate requiring insertion of a supraglottic airway device (0.70%). In over a third of RSI cases, CCPs performed laryngoscopy and intubation (n=53, 37.32%). Proficiency of obtaining Grade I view at laryngoscopy was similar for paramedics (74.70%) and CCPs (77.36%). Intubation was successful at the first attempt in over 90% of cases. CONCLUSIONS: This study demonstrates that operation within a system that provides high levels of exposure, underpinned by comprehensive and robust training and governance frameworks, promotes levels of performance in successful prehospital RSI regardless of base speciality or profession.
Lisinopril For Acute Stroke Treatment (PIL-FAST): results from the pilot randomised controlled trial.	Emerg Med J	24078198	Shaw L	2014 Dec	RESULTS: In 14 months, 14 participants (median age=73 years, median National Institute of Health Stroke Scale=4) were recruited and received the prehospital dose of medication. Median time from stroke onset (as assessed by paramedic) to treatment was 70 min. Four participants completed 7 days of study treatment. Of ambulance transported suspected stroke patients, 1% were both study eligible and attended by a PIL-FAST paramedic. CONCLUSIONS: It is possible to conduct a paramedic initiated double-blind RCT of a treatment for acute stroke. However, to perform a definitive RCT in a reasonable timescale, a large number of trained paramedics across several ambulance services would be needed to recruit the number of patients likely to be required.
Perceptions of paramedic and emergency care workers of those who self harm: a systematic review of the quantitative literature.	J Psychosom Res	25263398	Rees N	2014 Dec	OBJECTIVE: The UK has one of the highest rates of self harm in Europe at 400 per 100,000 of population. Paramedics and emergency staff may be the first professionals encountered, therefore understanding their views and approaches to care is crucial. The aim of this study was to systematically review published quantitative literature relating to paramedic and emergency workers' perceptions and experiences of caring for people who self harm. METHODS: CINAH(LR), MEDLINE(R), OVID (R) and Psych INFO(R) databases were searched, PRISMA guidelines were followed, two researchers independently screened titles, abstracts and full papers against a priori eligibility criteria. Data synthesis was achieved by extracting and descriptively analysing study characteristics and findings. RESULTS: 16 studies met inclusion criteria, one included ambulance staff, all used questionnaires. Training, policies and guidelines improved staff knowledge and confidence in caring for people who self harm. Limited access to training was reported, ranging from 75% to 90% of staff lacking any. Limited departmental guidelines were also reported. Staff in acute settings exhibited increased feelings of negativity, becoming less positive closer to front line care. Recent studies report positive attitudes amongst emergency staff. DISCUSSION: Despite guidelines indicating need for education and policies to guide staff in self harm care, there is limited evidence of this happening in practice. The lack of literature including paramedics suggests a gap in our understanding about care for self harm patients. This gap warrants greater attention in order to improve care for patients who self harm in their first point of contact.
Which extended paramedic skills are making an impact in emergency care and can be related to the UK paramedic system? A systematic review of the literature.	Emerg Med J	23570227	Evans R	2014 Jul	RESULTS: 8724 articles were identified, of which 19 met the inclusion criteria. 14 articles considered paramedic patient assessment and management skills, two articles considered paramedic safeguarding skills, two health education and learning sharing and one health information. There is valuable evidence for paramedic assessing and managing patients autonomously to reduce Emergency Department conveyance which is acceptable to patients and carers. Evidence for other paramedic skills is less robust, reflecting a difficulty with rigorous research in prehospital emergency care. CONCLUSIONS: This review identifies many viable extra skills for paramedics but the evidence is not strong enough to guide policy. The findings should be used to guide future research, particularly into paramedic care for elderly people.
Prehospital anaesthesia performed in a rural and suburban air ambulance service staffed by a physician and paramedic: a 16-month review of practice.	Emerg Med J	23345316	Chester A	2014 Jan	RESULTS: The team was activated 1156 times and attended 763 cases. A total of 88 RSIs occurring within the study period were identified as having been carried out by the EAAA team and meeting inclusion criteria for review. There were no failed intubations that required a rescue surgical airway or the placement of a supraglottic airway device. For road traffic collisions (RTCs), the overall on-scene time for patients who required an RSI was 40 min (range 15-72 min). For all other trauma, the average on-scene time was 48 min (range 25-77 min), and for medical patients, the average time spent at scene was 41 min (range 15-94 min). CONCLUSIONS: We have demonstrated the successful introduction of a prehospital care SOP, already tested in the urban trauma environment, to a rural and suburban air ambulance service operating a fulltime doctor-paramedic model. We have shown a zero failed intubation rate over 16 months of practice during which time over 750 missions were flown, with 11.5% of these resulting in an RSI.

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