

MAJOR INCIDENT APP



Abstract 134 Figure 2

Abstract 134 Table 2 Incident using MIA

| Incident Type | Date | Time | Day of the week | Ave Response time mins | Median response times mins | Seen within 15 mins (%) | Seen within 1hr (%) |
|-------------------|------|-------|-----------------|------------------------|----------------------------|-------------------------|---------------------|
| City Centre fight | 31/5 | 20:54 | Sunday | 1.3 | 1 | 22/22 (100%) | 22/22 (100%) |

A Wilcoxon rank sum test was used to compare the two methods.

Results/Conclusions Response times were significantly better with MIA compared to DMP p -value <0.001 (see Tables 1 and 2) and all messages were seen within 4 minutes. Although the numbers of incidents are small, this study shows that incident response times can be significantly improved with the MIA that alerts phones in silent mode.

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A CLOSED LOOP AUDIT ON OXYGEN PRESCRIPTION IN THE EMERGENCY DEPARTMENT IN IPSWICH HOSPITAL

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Aims/Objectives/Background The British Thoracic Society (BTS) produced the world's first guidelines on oxygen therapy in the emergency setting in 2008, with subsequent updates in 2017. The key recommendation was that oxygen should be prescribed with target saturations tailored to individual patients.

Whilst most clinicians appreciate the dangers of under-oxygenation, there is a lesser regard for the dangers of over-oxygenation. This is particularly important in certain conditions which may predispose to hypercapnic respiratory failure and acidosis.

We therefore set out to assess compliance to the BTS guidelines, and to educate clinicians on the importance of good oxygen prescribing practice.

Methods/Design The first cycle was conducted in August 2019. The results were presented in a series of departmental teaching sessions, along with the BTS recommendations and the importance of good oxygen prescribing practice. The second cycle was later conducted in April 2020.

For each cycle, we randomly selected records of 50 adult patients who either: (1) arrived with oxygen saturations less than 93%; or (2) were already on oxygen on arrival to the emergency department. For each record, we assessed whether the target oxygen saturations were prescribed.

Results/Conclusions A total of 100 patients were included in this study. Prior to the departmental teaching sessions, only 14% of patients had target oxygen saturations prescribed. The teaching sessions on oxygen prescription resulted in a small but statistically non-significant improvement in oxygen prescription to 20% ($p=0.595$).

This study shows that departmental teaching sessions alone are not sufficient to improve compliance with oxygen prescribing practice. Further efforts are required to change ingrained behaviours and culture, particularly in settings such as the emergency department with high rates of clinician turnover and ad-hoc locum cover. Further recommendations to facilitate these changes will require engagement from the multidisciplinary team, such as prompting from the nursing team, and spot checks by senior clinicians.

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CURRENT PROVISION OF GENERAL PRACTITIONER SERVICES IN OR ALONGSIDE EMERGENCY DEPARTMENTS IN ENGLAND

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Aims/Objectives/Background One approach to addressing increasing demand in emergency departments (EDs) has been the co-location of general practitioners (GPs) in or alongside the emergency department (ED), known as GPED. This approach was both advocated by the National Health Service (NHS) and supported by capital funding in 2017. However, little is known about the models of GPED that have been implemented as a result.

Methods/Design We collected data on the model of GPED in use (if any) at 163/177 (92%) of type one EDs in England at two time points: September 2017 and December 2019. Multiple data sources were used including: on-line surveys; interviews; case study data; publicly available information. Models were classified according to an iteratively developed taxonomy as Inside/integrated, Inside/parallel, Outside/onsite, Outside/offsite.

Results/Conclusions The proportion of EDs using GPED increased from 81% to 95% over the study period. The most common model was 'Inside/parallel' to the ED: 30% (44/149) in 2017, rising to 49% (78/159) in 2019. The number of Inside/integrated models dropped from 26% (38/149) to 9% (15/159). 23 sites commenced and four sites ceased GPED provision. 87% (142/163) of the EDs sampled were awarded capital funding. We identified no association between the type of GPED model adopted and the observable characteristics of EDs such as annual attendance, rurality of location and deprivation within the population served.

The majority of EDs in England have now adopted GPED. The increase in Inside/parallel models and the reduction in Inside/integrated models is likely to be related to the availability of capital funding to finance structural changes to EDs so that separate GP services could be provided. Further research is required to understand the relative effectiveness of the various models of GPED identified.

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THE END-TIDAL AND ARTERIAL CARBON DIOXIDE GRADIENT IN SERIOUS TRAUMATIC BRAIN INJURY AFTER PRE-HOSPITAL EMERGENCY ANAESTHESIA: A RETROSPECTIVE OBSERVATIONAL STUDY

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Aims/Objectives/Background In the United Kingdom (UK), 20% of patients with severe traumatic brain injury (TBI) receive pre-hospital emergency anaesthesia (PHEA). Current guidance recommends an end-tidal carbon dioxide (ETCO₂) of 4.0–4.5kPa to achieve a low-normal arterial partial pressure of CO₂ (PaCO₂), and reduce secondary brain injury. This recommendation assumes a 0.5kPa ETCO₂-PaCO₂ gradient. However, the gradient in the acute phase of TBI is unknown. Our primary aim was to report the ETCO₂-PaCO₂ gradient of TBI patients at hospital arrival.

Methods/Design A retrospective cohort study of adult patients with serious TBI, who received a PHEA by a pre-hospital critical care team in the East of England between 1st April 2015 to 31st December 2017. Linear regression was performed to test for correlation and reported as R-squared (R²). A Bland-Altman plot was used to test for paired ETCO₂ and PaCO₂ agreement and reported with 95% confidence intervals (95% CI). ETCO₂-PaCO₂ gradient data were compared with a two-tailed, unpaired, t-test.

Results/Conclusions 107 patients were eligible for inclusion. Sixty-seven patients did not receive a PaCO₂ sample within 30 minutes of hospital arrival and were therefore excluded. Forty patients had complete data and were included in the final analysis; per protocol.

The mean ETCO₂-PaCO₂ gradient was 1.7 (±1.0) kPa, with only moderate correlation of ETCO₂ and PaCO₂ at hospital arrival (R²=0.23, *p*=0.002). The Bland-Altman bias was 1.7 (95%CI 1.4–2.0) kPa with upper and lower limits of agreement of 3.6 (95%CI 3.0–4.1) kPa and -0.2 (95%CI -0.8–0.3) kPa respectively. There was no significant gradient correlation in patients with a co-existing serious thoracic injury (R²=0.13, *p*=0.10), and this cohort had a larger ETCO₂-PaCO₂ gradient, 2.0 (±1.1) kPa, *p*=0.01. Patients who underwent pre-hospital arterial blood sampling had an arrival PaCO₂ of 4.7 (±0.2) kPa.

Lower ETCO₂ targets than previously recommended may be safe and appropriate. The use of pre-hospital PaCO₂ measurement is advocated.

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CURRENT MANAGEMENT OF MODERATE/SEVERE TRAUMATIC PNEUMOTHORACES: A SURVEY OF EMERGENCY CLINICIANS

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Aims/Objectives/Background Traumatic pneumothoraces are present in one-fifth of multiple trauma victims. Traditional teaching mandates the insertion of a chest drain in the majority of cases. However, recent retrospective observational evidence suggests a trend towards conservative management. The aim of this survey was to understand the current emergency medicine (EM) practice in placing chest drains for the management of moderate/severe traumatic pneumothoraces.

Methods/Design This scoping survey was developed through expert consensus. To achieve face validity, clinical sensibility testing was performed using a pilot survey (with user feedback). There were 14 pilot-phase respondents. The survey was then modified to achieve content validity. The survey was sent electronically to senior EM doctors in 15 sites internationally, and involved six clinical/imaging vignettes asking 'how likely are you to insert an intercostal chest drain to manage the pneumothorax in ED?'. A five-point response was available from *very unlikely* to *very likely*. All pneumothoraces were >1 cm on imaging, but mechanism, physiology and need for ventilation varied.

Results/Conclusions Of a potential 409 respondents, 141 responses were received (34% response rate). Respondents had a range of clinical experience, with the majority qualified more than 10 years (median; 19 years).

For 5/6 cases chest drain insertion was *likely* or *very likely* in >50% of responses, ranging from 52% for a non-compromised 1 cm pneumothorax in a ventilated patient to 98% for a tension pneumothorax on chest x-ray. Chest drain insertion was *unlikely* or *very unlikely* (62% of responses) in one case; an 86-year-old female on rivaroxaban with moderate respiratory compromise (respiratory rate 30 min⁻¹) and a 2 cm pneumothorax.

There is a broad range of clinical practice involving both conservative and invasive strategies in the treatment of moderate/severe traumatic pneumothoraces. There is clinical equipoise for interventional trials to determine the optimal management strategy for this patient group.

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FINDING VOICES: YOUNG PEOPLE'S EXPERIENCES OF THE EMERGENCY DEPARTMENT

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Aims/Objectives/Background Self-harm among adolescents is a major concern both because it gives rise to considerable distress and disruption in young people's lives and it commonly recurs. There are currently wide variations in the care of this group of patients and it is widely reported that their experience in the emergency department is poor. Young people who have self-harmed may differ from others attending the ED and we need to know more about these differences to inform ED care and potential improvements. The aim of this study was to establish the needs and expectations among children and young people in the ED and to increase the understanding of the specific needs of adolescents who self-harm through comparison with another patient group in the ED.