3 Get with the Guidelines: Comparing Management of COPD Treated in EDs in Europe and Australasia

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Objective: Exacerbations of chronic obstructive pulmonary disease (COPD) are common in emergency departments (ED). Recent Australian and European guidelines provide recommendations for management in the acute phase of care with the aim of optimizing outcomes. These include the administration of inhaled bronchodilators, corticosteroids and antibiotics and non-invasive ventilation (NIV) in patients with significant respiratory acidosis. The aim of this study was to compare management and outcomes between cohorts of patients treated for COPD in Europe (EUR) and South East Asia/ Australasia (SEA).

Methods: In each region, we performed an observational prospective cohort study including consecutive patients presenting to EDs with dyspnoea as the main complaint during three 72-hour study periods. This study included the subset diagnosed with COPD. Data was collected on demographics, co-morbidities, chronic treatment, clinical features, treatment in the ED, ED diagnosis, disposition from ED and in-hospital outcome. The outcomes of interest for this study were comparison of treatments administered and outcome between EUR and SEA cohorts.

Results: A total of 112 EDs participated – 66 EUR and 46 SEA; 882 patients with COPD were studied (16% of total cohort). The cohorts were well matched for demographics and co-morbidities with the exception that significantly more in the EUR cohort were smokers (EUR vs. SEA for all comparisons; 43% vs 24%). While there was not a statistically significant difference in administration of bronchodilators (76% vs 80%), the proportion of administered corticosteroids was higher in the SEA cohort (52% vs 66%) as was administration of antibiotics (38% vs 49%). Rates of NIV and mechanical ventilation were similar. SEA had a higher hospital admission rate (70% vs 81%). In- hospital mortality was not significantly different (6% vs 4%).

Conclusion: Compliance with guideline-recommended treatments was higher in the SEA cohort. That said, compliance with administration of corticosteroids and antibiotics was sub-optimal in both cohorts and represents an opportunity to improve care for this high-risk cohort of patients.

4 Investigating the Effects of Under-triage by Existing Major Incident Triage Tools

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Objective: Triage, the process of prioritising patients on the basis of clinical acuity, is a key principle in the effective management of a major incident. The overall effectiveness of the triage process is not only a balance between identifying those who need or don't need a life-saving intervention, but also those who are under or over-triaged as either incorrectly needing/not needing intervention. This study aims to describe the implications of under-triage by existing methods of primary major incident triage, and to report triage tool identification of serious injury (Abbreviated Injury Score > 3).

Design and Method: We undertook a retrospective observational cohort study of the UK Trauma Audit Research Network for all adult patients (≥ 18 years) between 2006-2014. Patients were defined as Priority One using a previously published list. Using first recorded hospital physiological data, we then categorised patients by the Modified Physiological Triage Tool (MPTT), the Triage Sieve and the National Ambulance Resilience Unit Sieve. Data was described as number (%) and median (IQR) as appropriate. We analysed categorical data using a chi-square test and continuous data with a Mann-Whitney U test.

Results: During the study period, 218,985 adult patients were included with 24,791 (19.5%) identified as Priority One. Of these patients, 70% were male, aged 51 years [33-71], Injury Severity Score 16 [9-25], with road traffic collision the most common mechanism (34%). The MPTT demonstrated the lowest rate of under-triage (42.4%, $p<0.001$). Overall 30-day mortality for the Priority One cohort was 12.4%. Compared to existing methods, the MPTT under-triage population had significantly lower mortality (5.7%, $p<0.001$), identical to the overall study population. Serious injuries to the thorax (47.0%) and head (27.4%) predominated with the MPTT again significantly under-triaging fewer of these patients ($p<0.001$).

Conclusion: Existing triage tools under-triage patients with serious head and chest injuries, with alarmingly high numbers requiring life-saving interventions. The Modified Physiological Triage Tool demonstrates an improved safety profile supporting previous work demonstrating its improved performance over existing primary triage methods.