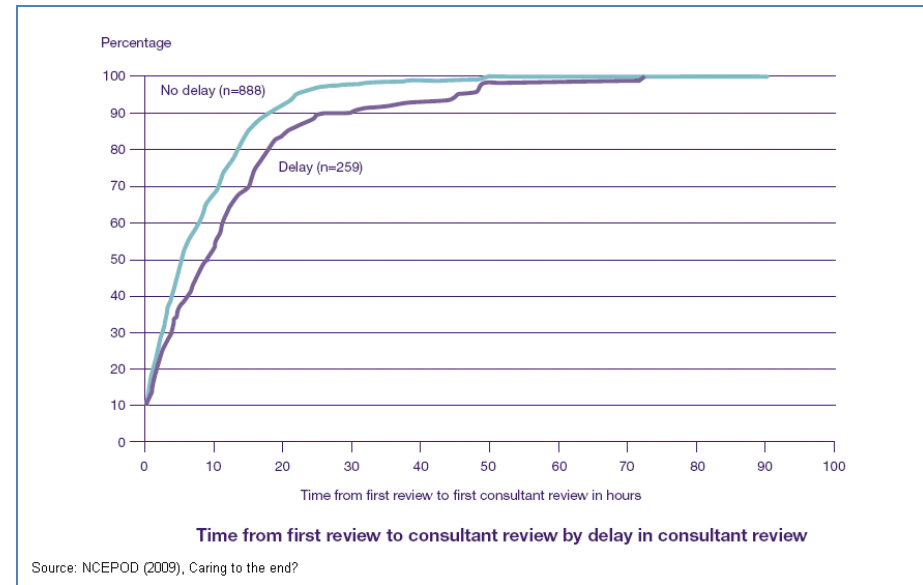
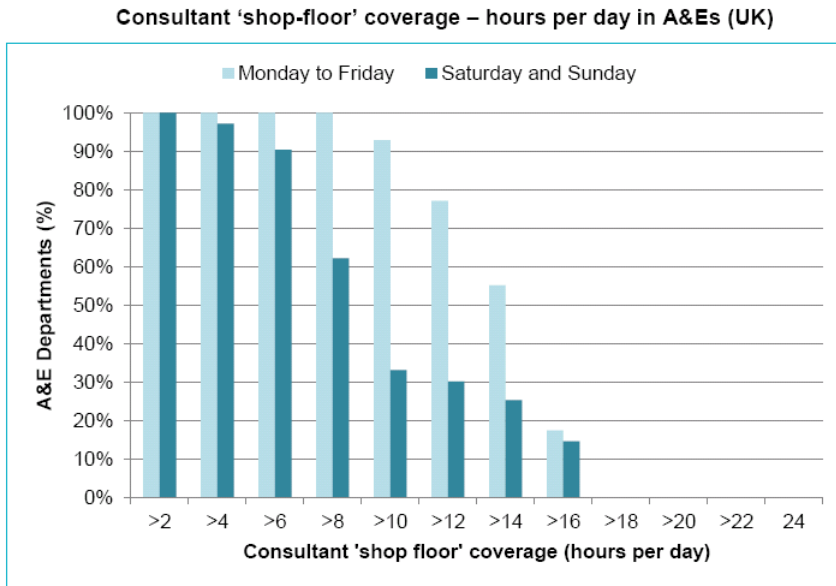


# Early review by a senior clinician in accident and emergency

## Background

There is a general consensus that early review by a senior clinician in accident and emergency departments is both recommended and desirable but the practice is not as widespread as might be expected.



Source: College of Emergency Medicine

A 2011 survey of London acute trusts found that, at the weekend, only about half of emergency medical admissions were seen by a consultant within 12 hours.

**Are London's emergency admissions always reviewed by a consultant within 12 hours?**

<b>Always within 12 hours</b>	<b>Monday – Friday</b>	<b>Overnight</b>	<b>Saturday – Sunday</b>
Medical admissions	77%	65%	52%
Surgical admissions	28%	21%	10%

Source: Survey of London acute trusts 2011

While there is some evidence of the organisational benefits of early review by a senior clinician in A&E, in terms of patient flows and reduced admissions, there is less good evidence of the beneficial effects in terms of clinical outcomes.

In parallel to the question of the beneficial effect of early referral to a senior clinician in accident and emergency is the similar question of early referral to a senior clinician on admission to intensive care units (ICU) and acute medical/medicine units (AMU).

While not the whole story, the reduced access to consultants and other senior clinicians may be a major factor in the higher mortality rates experienced by patients admitted to A&E and other hospital departments at weekends.

## Summary and key findings

- there was a clinically important delay in first review by a consultant for 25% of all patients in England, Wales and Northern Ireland, aged over 28 days, who died in hospital within 4 days of admission, between October 2006 and March 2007 inclusive<sup>1</sup>
- in 16% of A&E cases time to first consultant review is ‘unacceptable’<sup>2</sup>
- the presence of senior clinicians in A&E seems to reduce length of stay in A&E and the rate of hospital admission<sup>3,4,5,6</sup>
- a dynamic assessment zone around triage to facilitate early senior physician review achieves improvements in emergency department performance despite ‘access block’ and hospital overcrowding<sup>7,8</sup>
- a greater consultant presence in acute medical/medicine units (AMU) is associated with lower adjusted case fatality rates, lower length of stay, higher same day discharge and lower 28 day re-admission rates<sup>9,10</sup>
- early review by a consultant intensivist may be associated with shorter ICU stay<sup>11</sup> but, despite this, 25% of ICU patients are not reviewed by a consultant intensivist within 12 hours.<sup>12</sup>

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<sup>1</sup> Cooper et al (2009) *Caring to the end? A review of the care of patients who died in hospital within 4 days of admission*, NCEPOD

<sup>2</sup> Martin et al (2007) *Emergency Admissions: A journey in the right direction?*, NCEPOD

<sup>3</sup> Christmas et al (2013) *The impact of 24 h consultant shop floor presence on emergency department performance: a natural experiment*

<sup>4</sup> Geelhoed et al (2008) *Positive impact of increased number of emergency consultants.*

<sup>5</sup> Sen et al (2012) *The impact of consultant delivered service in emergency medicine: the Wrexham Model*

<sup>6</sup> White et al (2010) *Impact of senior clinical review on patient disposition from the emergency department*

<sup>7</sup> Shetty et al (2012) *Senior Streaming Assessment Further Evaluation after Triage zone*

<sup>8</sup> Terris et al (2004) *Making an IMPACT on emergency department flow: improving patient processing assisted by consultant at triage*

<sup>9</sup> McNeill et al (2009) *What is the effect of a consultant presence in an acute medical unit?*

<sup>10</sup> Bell et al (2013) *Consultant Input in Acute Medical Admissions and Patient Outcomes in Hospitals in England: A Multivariate Analysis*

<sup>11</sup> Mullen et al (2009) *Timing of first review of new ICU admissions by consultant intensivists in a UK district general hospital*

<sup>12</sup> Cullinane et al (2005) *An acute problem?*, NCEPOD

## Review of evidence

	<b>Page</b>
a) <b>Overviews</b>	<b>5</b>
b) <b>Accident and emergency</b>	<b>6</b>
c) <b>Intensive care</b>	<b>17</b>
d) <b>Weekend working</b>	<b>20</b>
<b>References</b>	<b>22</b>

The reviewed evidence is listed in reverse chronological order with the most recent evidence first.

a) Overviews

Study	Findings
<p>Academy of Medical Royal Colleges ( 2012) <i>The benefits of consultant—delivered care,</i></p>	<p>Small studies on single sites of Consultant Intensivists in the UK, to review the effect of the NCEPOD recommendation that all new admissions should be reviewed by an Intensivist within 12 hours, conclude that patient outcomes may be influenced by many factors but produce inconclusive results that do not add considerably to the evidence of benefits of consultant care because the patient numbers were small.</p> <p>Early consultant assessment and intervention ensures that the patient starts earlier on the right pathway of care with opportunity for improved outcomes. In emergency and acute medical care settings this has the potential for immediate dramatic differences in outcome.</p> <p>There is limited statistical data from English hospitals that suggests that the presence of emergency medicine consultants in the Emergency Department may reduce hospital admissions from between 12 and 25%.</p> <p>NCEPOD reports over two decades link the outcomes of emergency admissions to the assessment and management of acutely ill patients by seniority of clinicians</p>
<p>Purdy S (2010) <i>Avoiding hospital admissions. What does the research evidence say?</i>, Kings Fund</p>	<p>Early review by a senior clinician in the emergency department is effective. GPs working in the emergency department are probably effective in reducing admissions, but may not be cost-effective.</p> <p>Making a senior emergency medicine clinician (a consultant equivalent or middle-grade experienced specialist trainee) available to review patients in the emergency department has been shown to reduce inpatient admissions by 12 per cent, and specifically reduced admissions to the acute medical assessment unit by 21 per cent (White et al 2010). This study did not include patients sent in for emergency medical admission by a GP.</p>

**b) Accident and emergency**

Study	Methods	Findings
<p>Bell D, Lambourne A, Percival F, Lavery A A and Ward D K (2013) Consultant Input in Acute Medical Admissions and Patient Outcomes in Hospitals in England: A Multivariate Analysis, <i>PLoS ONE</i> 8 (4)</p>	<p>This study is the first large study to explore the potential relationships between systems of providing acute medical care and clinical outcomes.</p> <p>A contemporaneous validated survey compared with clinical outcomes derived from Hospital Episode Statistics, between April 2009 and March 2010 from 91 acute hospital sites in England to evaluate systems of consultant cover for acute medical admissions. Clinical outcomes studied included adjusted case fatality rates (aCFR), including the ratio of weekend to weekday mortality, length of stay and readmission rates.</p>	<p>Hospitals that had an admitting Consultant presence within the Acute Medicine Unit (AMU, or equivalent) for a minimum of 4 hours per day (65% of study group) had a lower aCFR compared with hospitals that had Consultant presence for less than 4 hours per day (<math>p &lt; 0.01</math>) and also had a lower 28 day re-admission rate (<math>p &lt; 0.01</math>). An 'all inclusive' pattern of Consultant working, incorporating all the guideline recommendations and which included the minimum Consultant presence of 4 hours per day (29%) was associated with reduced excess weekend mortality (<math>p &lt; 0.05</math>). Hospitals with &gt;40 acute medical admissions per day had a lower aCFR compared to hospitals with fewer than 40 admissions per day (<math>p &lt; 0.03</math>) and had a lower 7 day re-admission rate (<math>p &lt; 0.02</math>).</p> <p>The results show an association between well-designed systems of Consultant working practices, which promote increased patient contact, and improved patient outcomes in the acute hospital setting.</p>

<p>Christmas E, Johnson I and Locker T (2013) The impact of 24 h consultant shop floor presence on emergency department performance: a natural experiment, <i>Emergency Medicine Journal</i> 30 (5) : 360-362</p>	<p>As a result of gaps in middle-grade cover in the emergency department it became necessary for consultants to work some night shifts. This study aimed to examine the effect of this change in practice on performance.</p> <p>A prospective observational study was conducted. Staffing and workload variables were collected over a period of 6 months in a single district general emergency department. The outcomes assessed were process times, the proportion of patients admitted and the proportion of patients returning within 7 days.</p> <p>Consultants worked 26 of 182 night shifts during the period studied. There were no differences in the number of patients present in the department at the start of the middle-grade or consultant night shifts. Fewer patients presented per hour during middle-grade night shifts: 3.8 patients per hour versus 4.4 patients per hour during consultant nights.</p>	<p>Compared with middle-grade night shifts, the median waiting time was on average 19.6 min less and the median emergency department length of stay was 20.5 min less during consultant night shifts. The proportion of patients admitted from the emergency department was on average 3.9% less than during middle-grade night shifts but there was no difference in the proportion returning within 7 days.</p> <p>Conclusion: In this small single-site study, a consultant working nights has been shown to reduce process times and the rate of admission. It remains unclear whether such improvements would be sustained in the longer term.</p>
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<p>Fielding R, Krause J, Arnell-Cullen V and Sandeman D (2013) The impact of consultant-delivered multidisciplinary inpatient medical care on patient outcomes, <i>Clinical Medicine</i> 13 (4) : 344-348</p>	<p>Background: Consultant-delivered care has been shown to improve outcomes for acute medical patients. However, the ideal composition of a medical team to support consultant-delivered care is not clear and little is known about the effect of continuing consultant-delivered care until the patient is discharged.</p> <p>Between December 2011 and April 2012, 260 general medical patients requiring inpatient care were managed by a consultant-delivered multidisciplinary team (CD-MDT) and 150 patients by a standard consultant-led team of trainee doctors.</p>	<p>The length of hospital stay was significantly lower for patients managed by a CD-MDT than for those managed by a standard team (4-5 days vs 7 days, <math>p &lt; 0.001</math>). No difference between the groups was seen for readmission rates, patient safety or mortality.</p> <p>Conclusion: a CD-MDT is a safe and effective model of inpatient medical care and is associated with a shorter length of hospital stay.</p>
<p>Shetty A, Gunja N, Byth K and Vukasovic M (2012) Senior Streaming Assessment Further Evaluation after Triage zone: A novel model of care encompassing various emergency department throughput measures, <i>Emergency Medicine Australasia</i> 24 (4) : 374-382</p>	<p>To assess the impact of a new model of care, the Senior Streaming Assessment Further Evaluation after Triage (SAFE-T) zone concept on emergency department (ED) performance indicators and statistical outcomes.</p> <p>The principal intervention was the SAFE-T zone. End-point data were compared for similar periods (77 days) of 2010 and 2011 with and without the new model of care.</p> <p>The principle objective of the SAFE-T zone model of care is to maintain patient flow through ED despite hospital access block (AB) and ED overcrowding. This involved developing a dynamic assessment zone around triage to facilitate early senior ED physician review, disposition decision-making, streaming to bypass the ED acute care zone and value-added interventions.</p>	<p>In total, 11,408 and 11,845 patients were included in the study periods pre- and post-intervention, respectively.</p> <p>Time to physician key performance indicators improved from 72.5% to 84.1%. Did-not-wait rates dropped from 10.7% to 9.6% (<math>P = 0.02</math>) and off-stretcher times for ambulances KPI improved from 74.5% to 79.5% (<math>P &lt; 0.001</math>). ED length of stay dropped most significantly for Australasian Triage Scale categories 3 and 4 (14.3% and 11.8%, <math>P</math>-values <math>&lt; 0.001</math>). These results were achieved despite worsened AB and hospital bed-occupancy rates during the intervention period (+3.9% and +6.7%).</p> <p>Conclusions: The SAFE-T zone model of care involving multiple ED throughput measures achieved improvements in ED performance despite AB and hospital overcrowding.</p>



<p>Sen A, Hill D, Menon D, Rae F, Hughes H and Roop R (2012) The impact of consultant delivered service in emergency medicine: the Wrexham Model, <i>Emergency Medicine Journal</i> 29 (5) : 366-371</p>	<p>To demonstrate the impact of a service model based on consultant working in a UK emergency department. A retrospective study based on the emergency department of a district general hospital. Activity data was analysed for 2009. Workload and admission rates were compared between consultants, middle grade doctors and senior house officers (SHOs). Admission rates were compared against two similar departments. Data from night shifts allowed consultant activity to be contrasted with middle grades and SHOs. Time spent in the department, admission rates, patients who left without treatment, discharged outright and clinic returns were used for comparison.</p>	<p>Consultants often saw more patients than SHOs or middle grade doctors. This was on top of their traditional duties of senior opinion. On comparison of activity at night shifts, they admitted fewer (25.2% vs 30.3%, p=0.026), had fewer leaving without treatment (1.6% vs 5.1%, p&lt;0.001), discharged more outright (59.8% vs 47.5%, p&lt;0.001), referred fewer to clinic (5.7% vs 6.6%, p=0.49) and had a faster turnaround time (p&lt;0.001: Priority 2, 3 and 4) for every triage category. Some of the comparisons were clinically but not statistically significant.  Conclusion A consultant based service delivery offers many advantages. These cannot be matched by either junior or middle grades. This would be in addition to the consultants' supervisory role. Consultant expansion is urgently required to achieve this sustainably.</p>
<p>White A, Armstrong P and Thakore S (2010) Impact of senior clinical review on patient disposition from the emergency department, <i>Emergency Medicine Journal</i> 27 (4) : 262-265</p>	<p>This study aims to assess the influence of 'real-time' senior clinician supervision on patient disposition from a UK emergency department. The study was set in a UK teaching hospital with 24 h senior cover. Patients were initially seen by a junior doctor who completed a plan for the patient before seeking senior advice. Primary outcome measures were a change in patient outcome of discharge, admit, telephone speciality for opinion or outpatient follow-up. 556 patients underwent senior review during the study period</p>	<p>Review reduced inpatient admissions by 11.9% (95% CI 7.2% to 18.2%) and specifically reduced admissions to the acute medical assessment unit by 21.2% (95% CI 13.5% to 30.8%). Inappropriate discharge was prevented in 9.4% (95% CI 6.2% to 13.7%) and appropriate use of outpatient facilities resulted in a rise of 34.6% in appointments.  Conclusions: Senior doctor input in patient care in the ED adds accuracy to disposition decisions, impacting on patient safety and improving departmental flow.</p>

<p>Cooper H, Findlay G, Goodwin A P L, Gough M J, Lucas S J, Mason D G, Mason M, Martin I C, Stewart J A D and Wilkinson K (2009) <i>Caring to the end? A review of the care of patients who died in hospital within 4 days of admission</i>, NCEPOD</p>	<p>National Health Service hospitals in England, Wales and Northern Ireland were expected to participate, as well as hospitals in the independent sector and public hospitals in the Isle of Man, Guernsey and Jersey.</p> <p>All patients older than 28 days who died in hospital between 1st October 2006 and 31st March 2007 within 96 hours of admission were included.</p>	<p>In 25% (407/1635) of cases there was, in the view of the advisors, a clinically important delay in the first review by a consultant.</p> <p>In this study approximately 70% (1502/2123; not answered in 936 cases) of patients were assessed by a consultant within 12 hours of admission and approximately 95% of patients were assessed within 24 hours (2023/2123). There was no discernible difference between the time taken for consultant review by surgeons or physicians.</p> <p>In the view of the advisors, there was a clinically important delay in consultant review in 24.9% (407/1635) of cases, (there was insufficient data to assess in 590 cases).</p>
<p>McNeill G B S, Brahmbhatt D H, Prevost A T and Trepte N J B (2009) What is the effect of a consultant presence in an acute medical unit?, <i>Clinical Medicine</i> 9 (3) : 214-218</p>	<p>A cornerstone of the development of acute medicine has been the principle of consultant presence within the acute medical unit (AMU). There is the hypothesis that consultant supervision improves patient care. This view is not currently supported by firm scientific evidence. When Ipswich AMU opened in 2004, there was a consultant presence on some weekdays only. Admission data were collected and assessed with respect to the presence or absence of the consultant.</p>	<p>Overall length of stay was significantly lower, by a mean of 1.3 days, when there was a consultant present, and 9% more patients were discharged on the same day of their assessment (95% confidence interval 5.7% to 12.6%, <math>p &lt; 0.001</math>) without affecting readmission or mortality. These results suggest the absence of a consultant leads to fewer same-day discharges and causes the inappropriate admission of patients not needing inpatient management. Further study is required to determine whether these findings are shared by other AMUs.</p>

<p>Geelhoed G C and Geelhoed E A (2008) Positive impact of increased number of emergency consultants., <i>Archives of Disease in Childhood</i> 93 (1) : 62-64</p>	<p>The increased presence of consultant staff should theoretically lead to better outcomes in emergency departments (EDs). A retrospective observational study was conducted in a tertiary paediatric emergency department (PED) over a 10-year period documenting trends in percentage of children admitted, complaints to the department and average waiting times. Consultant numbers increased from 2.6 to 6.2 full time equivalent staff between 2000 and 2004. Other staffing numbers were essentially unchanged.</p>	<p>All parameters examined improved coincident with increasing consultant numbers. The percentage of children admitted decreased by 27%, complaints fell by 41% and the average waiting time by 15%. The yearly cost of an additional 3.6 consultants (2005) was \$A1,003,490 with net saving to the hospital of over \$A9.48million. The provision of additional consultant medical staff in a PED coincided with a decrease in the percentage of children admitted, complaints to the department and average waiting times, and was cost effective.</p>
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<p>Nafsi T, Russell R, Reid C M and Rizvi S M M (2007) Audit of deaths less than a week after admission through an emergency department: how accurate was the ED diagnosis and were any deaths preventable?, <i>Emergency Medicine Journal</i> 24 (10) : 691-695</p>	<p>To review the causes of death in patients admitted via the emergency department (ED) who died within 7 days of admission and to identify any ways in which ED care could have been better. The study also aims to compare the diagnosis made in the ED and the mortality diagnosis.</p> <p>Methods: A retrospective study; subjects were all patients who attended the ED over 4 months and died within 7 days of admission. The paramedics' notes, ED case cards, inpatient medical notes and details of post-mortem findings were examined to identify the time and date of arrival in the ED, presenting complaint, provisional diagnosis made by the ED, treatment plan devised by the ED, diagnosis made in wards, and the cause of death as issued on death certificates or from post-mortem findings. Summary sheets of cases where the care provided by the emergency department could have been improved were reviewed, errors were identified and deaths were classified as preventable or unpreventable.</p> <p>The database revealed 3521 admissions via the ED over 4 months, of which 95 cases (2.69%) died within 7 days of admission.</p>	<p>78 patients (82.1% of cases) were appropriately diagnosed and managed whereas 17 (17.87% of cases) were identified with deficiencies in either the diagnosis or the management provided in the ED. We reviewed the quality of care provided in the ED for these cases and rated deaths according to our preventability criteria: 5 (5.26%) deaths were unpreventable despite the deficiency in care provided in the ED; 3 (3.15%) deaths were definitely preventable; 3 (3.15%) were probably preventable; and 6 (6.31%) were possibly preventable deaths.</p> <p>Conclusion: The ED is playing a good role in the management of critically ill patients, with appropriate diagnosis and management in 82% of cases. Training of junior doctors is required to prevent occurrence of errors and thus preventable deaths, but all deaths are not preventable.</p> <p>[It is not clear that all of the 17% of cases that were identified with deficiencies in either the diagnosis or the management provided would have been rectified by early referral to a senior clinician]</p>
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<p>Martin I C, Mason D G, Stewart J, Mason M, Smith N C E and Gill K (2007) <i>Emergency Admissions: A journey in the right direction?</i>, National Confidential Enquiry into Patient Outcomes and Death (NCEPOD)</p>	<p>A sample of patients was selected that were thought most likely to test the processes of care during their hospital stay. All adult medical and surgical patients (GTE 16 years) who were admitted to hospital as an emergency admission on seven pre-determined days in February 2005 were considered and included if they met one of the following inclusion criteria:</p> <ul style="list-style-type: none"> <li>. Died on or before midnight on day 7 (the first day of admission being recorded as Day 1); or</li> <li>. Were transferred to adult critical care on or before midnight on day 7; or</li> <li>. Were discharged on or before midnight on day 7 and subsequently died in the community within 7 days of discharge.</li> </ul>	<ul style="list-style-type: none"> <li>• 60.1% (298/496) of patients were seen by a consultant within 12 hours of admission; 92.3% (458/496) were seen within the first 24 hours.</li> <li>• In 12.4% (158/1275) of cases there was a lack of documentary evidence of patients being reviewed by consultants following admission to hospital.</li> <li>• It was not possible to determine the time to the first consultant review in 47.8% (609/1275) of cases due to lack of documentation of time or date in the case notes.</li> <li>• Where times could be determined, the time to the first consultant review was unacceptable in 16.1% (100/621) of cases and, in the advisors' view, in many of these patients, this had a detrimental effect on diagnosis (32.6%) and outcome (49.5%).</li> <li>• Early review by a consultant following admission to hospital is more important than being reviewed by a consultant of a specific specialty.</li> </ul>
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<p>Price L C, Lowe D, Hosker H S R, Anstey K, Pearson M G and Roberts C M (2006) UK National COPD Audit 2003: impact of hospital resources and organisation of care on patient outcome following admission for acute COPD exacerbation, <i>Thorax</i> 61 (10) : 837-842</p>	<p>Acute chronic obstructive pulmonary disease (COPD) exacerbations use many hospital bed days and have a high rate of mortality. Previous audits have shown wide variability in the length of stay and mortality between units not explained by patient factors. This study aimed to explore associations between resources and organisation of care and patient outcomes.</p> <p>Methods: 234 UK acute hospitals each prospectively identified 40 consecutive acute COPD admissions, documenting process of care and outcomes from a retrospective case note audit. Units also completed a resources and organisation of care proforma.</p> <p>Data for 7529 patients were received. Inpatient mortality was 7.4% and mortality at 90 days was 15.3%; the readmission rate was 31.4%. Mean length of stay for discharged patients was 8.7 days (median 6 days).</p>	<p>Wide variation was observed in all outcomes between hospitals.</p> <p>Both inpatient mortality (odds ratio (OR) 0.67, CI 0.50 to 0.90) and 90 day mortality (OR 0.75, CI 0.60 to 0.94) were associated with a staff ratio of four or more respiratory consultants per 1000 hospital beds.</p> <p>The length of stay was reduced in units with more respiratory consultants, better organisation of care scores, an early discharge scheme, and local COPD management guidelines.</p> <p>Conclusions: Units with more respiratory consultants and better quality organised care have lower mortality and reduced length of hospital stay.</p> <p>[Although not A&amp;E based, this study demonstrates the relationship between consultant availability and clinical outcomes]</p>
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<p>Terris J, Leman P, O'Connor N and Wood R (2004) Making an IMPACT on emergency department flow: improving patient processing assisted by consultant at triage, <i>Emergency Medicine Journal</i> 21 : 537-541</p>	<p>To assess whether initial patient consult by senior clinicians reduces numbers of patients waiting to be seen as an indirect measure of waiting time throughout the emergency department (ED). An emergency medicine consultant and a senior ED nurse (G or F grade), known as the IMPACT team, staffed the triage area for four periods of four hours per week, Monday to Friday between 9 am to 5 pm for three months between December 2001 and February 2002 when staffing levels permitted. Patients normally triaged by a nurse in this area instead had an early consultation with the IMPACT team. Data were collected prospectively on all patients seen by the IMPACT team. The number of patients waiting to be seen (for triage, in majors and in minors) was assessed every two hours during the IMPACT sessions and at corresponding times when no IMPACT team was operational.</p>	<p>There was an overall reduction in the number of patients waiting to be seen in the department from 18.3 to 5.5 (<math>p &lt; 0.0001</math>) at formal two hourly assessments. The largest difference was seen in minors. Of the patients seen at triage by the IMPACT team, 48.9% were discharged home immediately after assessment and treatment. With the IMPACT team present, no patient waited more than four hours for initial clinical consult.</p> <p>Conclusions: By using a senior clinical team for initial patient consultation, the numbers of patients waiting fell dramatically throughout the ED. Many patients can be effectively treated and discharged after initial consult by the IMPACT team.</p>
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<p>Seward E, Greig E, Preston S, Harris R A, Borrill Z, Wardle T D, Burnham R, Driscoll P, Harrison B D W, Lowe D C and Pearson M G (2003) A confidential study of deaths after emergency medical admission: issues relating to quality of care, <i>Clinical Medicine</i> 3 (5) : 425-434</p>	<p>In this retrospective pilot study we examine the feasibility of establishing a confidential enquiry into why some patients die after emergency admission to hospital. After excluding those who died in the first hour or who were admitted for palliative care, pairs of physicians were able to collect quantitative and qualitative data on 200 consecutive deaths.</p>	<p>Both physicians reported shortfalls of care in 14 patients and one of the pair in 25 patients whose deaths would not have been the expected outcome. In 25, the shortfalls of care may have contributed to their deaths. Major problems were delays in seeing doctors, inaccurate diagnoses, delays in investigations and initiation of treatment. They occurred mostly in those admitted at night. It is possible that establishing the correct diagnosis and starting appropriate treatment may have been delayed in 64% of the 200 patients. The headline figures appear worse than some previous external assessment studies but this study did concentrate on those in whom problems were more likely.</p>
<p>George S, Read S, Westlake L, Fraser-Moodie A, Pritty P and Williams B (1993) Differences in priorities assigned to patients by triage nurses and by consultant physicians in accident and emergency departments, <i>Journal of Epidemiology and Community Health</i> 47 (4) : 312-315</p>	<p>To investigate whether the greater urgency assigned to accident and emergency patients by triage nurses than by accident and emergency doctors was uniform across all patient groups. Patients (1213) attending an accident and emergency department of a district general hospital between 8.00 am and 9.00 pm over a six week period were assessed prospectively for degree of urgency by triage nurses, and retrospectively for urgency by one of two consultant accident and emergency doctors. Patients were grouped according to their clinical mode of presentation.</p>	<p>As might be expected, patients' conditions were assessed as being more urgent prospectively than retrospectively. This finding, however, was not uniform across all patient groups. Nurses' assessments of urgency tended to favour children and patients who presented with eye complaints and gave less priority to medical cases, particularly those with cardiorespiratory symptoms.</p>



c) Intensive care

Study	Methods	Findings
<p>Dhrampal A (2010) Time to first review of new admissions to critical care by the consultant intensivist, <i>Critical Care</i> 14 (Suppl 1)</p>	<p>The database of the clinical information system (MetaVision, iMDsoft) was interrogated and 116 new consecutive critical care admissions were retrospectively reviewed. The time to first review (in hours) by a consultant intensivist was ascertained from MetaVision entry logs. Patient outcomes including mortality and LOS were also captured for patients reviewed early (&lt;12 hours) and late (&gt;12 hours). The admission APACHE II score was also calculated. Continuous and ordered categorical variables are expressed as the median and analysed by the Mann-Whitney U test. Outcome binary variables were analysed by the chi-squared test. P &lt; 0.05 was considered statistically significant.</p>	<p>The early reviewed group (n = 53) had a median first review time of 4.35 hours (IQR 1.70 to 6.90), median LOS of 46 hours (IQR 22 to 86) and mortality of 17% (n = 9). The late review group (n = 63) had a median first review time of 16.55 hours (IQR 14.35 to 18.88), median LOS of 25 hours (IQR 20 to 46) and mortality of 1.6% (n = 1). The median admission APACHE II score for the early group and late group was 14 (IQR 10 to 24) and 10 (IQR 8 to 16), respectively. There was no significant difference in LOS between the two groups (P = 0.137, two-sample Mann-Whitney U test). The early group had a significantly higher mortality (P = 0.03, chi-squared test) and admission APACHE II score (P = 0.04, two-sample Mann-Whitney U test).</p> <p>Conclusions: The study was unable to demonstrate that early consultant intensivist review of new critical care admissions reduces the LOS or mortality. Despite early consultant intensivist review, this group had a significantly higher mortality. A significantly higher severity of illness in the early group may account for this higher mortality.</p>

<p>Mullen P, Dawood A, White J and Anthony-Pillai M (2009) Timing of first review of new ICU admissions by consultant intensivists in a UK district general hospital, <i>Critical Care</i> 13 (Suppl 1) : 476</p>	<p>By retrospective review of patients' ICU medical notes, the researchers studied the length of time in hours to first consultant intensivist review before and after ICU admission in 122 consecutive patients. They also examined mortality and length of stay (LOS) outcomes in patients reviewed early (&lt;12 hours) and late (&gt;12 hours) after ICU admission. Continuous data are expressed as the median (IQR).</p> <p>Overall, data were available for 96 patients reviewed after ICU admission (median = 6.0, IQR = 1.1 to 14.7 hours), 79 (82%) of these reviews being early (median = 3, IQR = 0.5 to 7.5).</p>	<p>ICU mortality for the early group was 31.6% during a median ICU LOS of 1.8 days (IQR = 0.9 to 7.9). Median review time for the late group (n = 17) was 21 hours (IQR = 18.5 to 28.4), with an ICU mortality of 23.5%, during a median ICU LOS of 8.1 days (IQR = 2.1 to 14). The early group had a significantly shorter ICU LOS (P = 0.007, two-sided Mann–Whitney test) than the late group, and there was no significant proportional difference in ICU mortality between the two groups.</p> <p>Furthermore, before ICU admission, 56/122 patients (46%) had been reviewed by a consultant intensivist (median = 2.2, IQR = 1.2 to 4.0 hours), and in many patients this constituted the only such review prior to 12 hours into ICU admission.</p> <p>Conclusion: Review by a consultant intensivist is common before ICU admission. Early review after ICU admission may be associated with a shorter length of ICU stay.</p>
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<p>Cullinane M, Findlay G, Hargraves C and Lucas S (2005) <i>An acute problem?</i>, NCEPOD</p>	<p>The aim of this study was to review the care of medical patients referred for Level 3 care rather than the intensive care practice itself.</p> <p>Data collection</p> <ul style="list-style-type: none"> <li>• All patients over the age of 16 admitted to a general intensive care unit (ICU) during the month of June 2003.</li> <li>• Data were collected retrospectively via a questionnaire to both the referring consultant and the intensive care questionnaire.</li> <li>• The study aimed to include general ICUs in all hospitals in England, Wales, Northern Ireland, Guernsey, the Isle of Man, the Defence Secondary Care Agency and those hospitals in the independent sector that participate in the work of NCEPOD.</li> <li>• 93% of cases were emergency admissions.</li> <li>• 43% were admitted from the accident and emergency department.</li> <li>• 34% were admitted from a ward in the same hospital</li> </ul> <p>Data were available to assess the timing of the patient review by a consultant physician in just 40 of the 439 deaths for which casenotes were available.</p> <p>Evening was the busiest time for new medical admissions to ICU, followed by night and lastly day.</p>	<p>A consultant physician reviewed 23 of the 40 patients (58%) within 24 hours of admission to hospital. 28 of these 40 patients had a ward stay of greater than 24 hours prior to ICU admission (and therefore had a greater potential to be reviewed within 24 hours). A consultant physician reviewed 11 of these 28 patients (39%) within 24 hours of admission to hospital. Even when patients have been admitted, almost 25% are not seen by an intensive care consultant within the first 12 hours of admission, so that the problem of lack of consultant input occurs both in intensive care and in the ward situation.</p> <p>A high percentage of patients were referred to critical care by staff in training; 21% of referrals were made by SHOs.</p> <p>Consultant physicians had no knowledge or input into 57% of referrals to critical care.</p> <p>Delays between referral to critical care and review (5%) and between decision to admit to critical care and admission (16%) were common.</p> <p>A significant factor in delay was the lack of appropriate staff and ICU beds.</p> <p>18% of patients were admitted to ICU without prior review by the intensive care service.</p> <p>One in four patients were admitted to ICU without consultant intensivist involvement.</p> <p>Amongst the 40% of cases, where data were available, approximately one in four patients were not reviewed by a consultant intensivist within 12 hours of admission to ICU.</p>
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**d) Weekend working**

Study	Methods	Findings
<p>Freemantle N, Richardson M, Wood J, Ray D, Khosla S, Shahian D, Roche W R, Stephens I, Keogh B and Pagano D (2012) Weekend hospitalization and additional risk of death: An analysis of inpatient data, <i>Journal of the Royal Society of Medicine</i> 105 (2) : 74-84</p>	<p>To assess whether weekend admissions to hospital and/or already being an inpatient on weekend days were associated with any additional mortality risk.</p> <p>A retrospective observational survivorship study to analyse all admissions to the English National Health Service (NHS) during the financial year 2009/10, following up all patients for 30 days after admission and accounting for risk of death associated with diagnosis, co-morbidities, admission history, age, sex, ethnicity, deprivation, seasonality, day of admission and hospital trust, including day of death as a time dependent covariate. The principal analysis was based on time to in-hospital death.</p> <p>Main Outcome Measures 30 day mortality (in or out of hospital).</p> <p>There were 14,217,640 admissions included in the principal analysis, with 187,337 in-hospital deaths reported within 30 days of admission.</p>	<p>Admission on weekend days was associated with a considerable increase in risk of subsequent death compared with admission on weekdays, hazard ratio for Sunday versus Wednesday 1.16 (95% CI 1.14 to 1.18; P &lt; .0001), and for Saturday versus Wednesday 1.11 (95% CI 1.09 to 1.13; P &lt; .0001).</p> <p>Hospital stays on weekend days were associated with a lower risk of death than midweek days, hazard ratio for being in hospital on Sunday versus Wednesday 0.92 (95% CI 0.91 to 0.94; P &lt; .0001), and for Saturday versus Wednesday 0.95 (95% CI 0.93 to 0.96; P &lt; .0001).</p> <p>Similar findings were observed on a smaller US data set.</p> <p>Conclusions: Admission at the weekend is associated with increased risk of subsequent death within 30 days of admission. The likelihood of death actually occurring is less on a weekend day than on a mid-week day.</p>

<p>Aylin P, Yunus A, Bottle A, Majeed A and Bell D (2010) Weekend mortality for emergency admissions. A large multicentre study, <i>Quality and Safety in Health Care</i> 19 : 213-217</p>	<p>Using routinely collected hospital administrative data, this study examined in-hospital deaths for all emergency inpatient admissions to all public acute hospitals in England for 2005/2006. Odds of death were calculated for admissions at the weekend compared to admissions during the week, adjusted for age, sex, socioeconomic deprivation, co-morbidity and diagnosis.</p>	<p>Of a total of 4,317,866 emergency admissions, the study found 215,054 in-hospital deaths with an overall crude mortality rate of 5.0% (5.2% for all weekend admissions and 4.9% for all weekday admissions). The overall adjusted odds of death for all emergency admissions was 10% higher (OR 1.10, 95% CI 1.08 to 1.11) in those patients admitted at the weekend compared with patients admitted during a weekday (<math>p &lt; 0.001</math>). Authors conclusions: This is the largest study published on weekend mortality and highlights an area of concern in relation to the delivery of acute services.</p>
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## References

Academy of Medical Royal Colleges (2012) *The benefits of consultant—delivered care*,

Aylin P, Yunus A, Bottle A, Majeed A and Bell D (2010) Weekend mortality for emergency admissions. A large multicentre study, *Quality and Safety in Health Care* 19 : 213-217

Bell D, Lambourne A, Percival F, Lavery A A and Ward D K (2013) Consultant Input in Acute Medical Admissions and Patient Outcomes in Hospitals in England: A Multivariate Analysis, *PLoS ONE* 8 (4)

Christmas E, Johnson I and Locker T (2013) The impact of 24 h consultant shop floor presence on emergency department performance: a natural experiment, *Emergency Medicine Journal* 30 (5) : 360-362

Cooper H, Findlay G, Goodwin A P L, Gough M J, Lucas S J, Mason D G, Mason M, Martin I C, Stewart J A D and Wilkinson K (2009) *Caring to the end? A review of the care of patients who died in hospital within 4 days of admission*, NCEPOD

Cullinane M, Findlay G, Hargraves C and Lucas S (2005) *An acute problem?*, NCEPOD

Dhrampal A (2010) Time to first review of new admissions to critical care by the consultant intensivist, *Critical Care* 14 (Suppl 1)

Fielding R, Krause J, Arnell-Cullen V and Sandeman D (2013) The impact of consultant-delivered multidisciplinary inpatient medical care on patient outcomes, *Clinical Medicine* 13 (4) : 344-348

Freemantle N, Richardson M, Wood J, Ray D, Khosla S, Shahian D, Roche W R, Stephens I, Keogh B and Pagano D (2012) Weekend hospitalization and additional risk of death: An analysis of inpatient data, *Journal of the Royal Society of Medicine* 105 (2) : 74-84

Geelhoed G C and Geelhoed E A (2008) Positive impact of increased number of emergency consultants., *Archives of Disease in Childhood* 93 (1) : 62-64

George S, Read S, Westlake L, Fraser-Moodie A, Pritty P and Williams B (1993) Differences in priorities assigned to patients by triage nurses and by consultant physicians in accident and emergency departments, *Journal of Epidemiology and Community Health* 47 (4) : 312-315

Martin I C, Mason D G, Stewart J, Mason M, Smith N C E and Gill K (2007) *Emergency Admissions: A journey in the right direction?*, National Confidential Enquiry into Patient Outcomes and Death (NCEPOD)

McNeill G B S, Brahmabhatt D H, Prevost A T and Trepte N J B (2009) What is the effect of a consultant presence in an acute medical unit?, *Clinical Medicine* 9 (3) : 214-218

Mullen P, Dawood A, White J and Anthony-Pillai M (2009) Timing of first review of new ICU admissions by consultant intensivists in a UK district general hospital, *Critical Care* 13 (Suppl 1) : 476

Nafsi T, Russell R, Reid C M and Rizvi S M M (2007) Audit of deaths less than a week after admission through an emergency department: how accurate was the ED diagnosis and were any deaths preventable?, *Emergency Medicine Journal* 24 (10) : 691-695

Price L C, Lowe D, Hosker H S R, Anstey K, Pearson M G and Roberts C M (2006) UK National COPD Audit 2003: impact of hospital resources and organisation of care on patient outcome following admission for acute COPD exacerbation, *Thorax* 61 (10) : 837-842

Purdy S (2010) *Avoiding hospital admissions. What does the research evidence say?*, Kings Fund

Sen A, Hill D, Menon D, Rae F, Hughes H and Roop R (2012) The impact of consultant delivered service in emergency medicine: the Wrexham Model, *Emergency Medicine Journal* 29 (5) : 366-371

Seward E, Greig E, Preston S, Harris R A, Borrill Z, Wardle T D, Burnham R, Driscoll P, Harrison B D W, Lowe D C and Pearson M G (2003) A confidential study of deaths after emergency medical admission: issues relating to quality of care, *Clinical Medicine* 3 (5) : 425-434

Shetty A, Gunja N, Byth K and Vukasovic M (2012) Senior Streaming Assessment Further Evaluation after Triage zone: A novel model of care encompassing various emergency department throughput measures, *Emergency Medicine Australasia* 24 (4) : 374-382

Terris J, Leman P, O'Connor N and Wood R (2004) Making an IMPACT on emergency department flow: improving patient processing assisted by consultant at triage, *Emergency Medicine Journal* 21 : 537-541

White A, Armstrong P and Thakore S (2010) Impact of senior clinical review on patient disposition from the emergency department, *Emergency Medicine Journal* 27 (4) : 262-265