



## Top 30 Emergency Medicine Research Priorities

23 January 2017

The rankings were established by consensus at the final prioritisation workshop run by the James Lind Alliance Emergency Medicine Priority Setting Partnership on 19 January 2017.

The research questions are presented in priority order, and are further elaborated with lay summaries and three-part questions where applicable.

Rank	Research question
1	<p>What is the best way to reduce the harms of emergency department crowding and exit block? We need a better measure of crowding that drives sensible improvements for the seriously ill and injured, adolescents and the frail elderly.</p> <p>LAY SUMMARY: What is the best way to reduce the harms of overcrowding (more patients than there are spaces to see them) in emergency departments?</p>
2	<p>Is a traditional ED the best place to care for frail elderly patients? Would a dedicated service for these patients be better (involving either a geriatric ED, or geriatric liaison services within the ED), or given that this population is expanding should our current services be tailored towards this group?</p>
3	<p>How do we optimise care for mental health patients; including appropriate space to see patients, staff training, early recognition of symptoms, prioritisation compared to physical illness, and patient experience?</p>
4	<p>With regards to how ED staff development is managed, what initiatives can improve staff engagement, resilience, retention, satisfaction, individuality and responsibility.</p>
5	<p>How can we achieve excellence in delivering end of life care in the ED; from the recognition that a patient is dying, through symptomatic palliative treatment, potentially using a dedicated member of staff to work with palliative patients and their relatives, and handling associated bereavement issues?</p> <p>LAY SUMMARY: How should we best manage patients who are dying and who present as emergency patients?</p>
6	<p>The effects of implementing new techniques in assessing patients with chest pain (which include new ways of using high sensitivity troponin tests, and decision rules such as the MACS rule and the HEART score) in practice. Would patients like a say in what is an acceptable risk, and should these tools be used alongside shared decision making to provide safe and appropriate care, minimise unnecessary risk and inconvenience for patients?</p>

	<p><b>LAY SUMMARY:</b> Patients who present to EDs with chest pain are often admitted for investigation, but many are not having a heart attack. This research proposes a way of trying to find out which patients should be admitted, and which could be safely discharged.</p> <p><b>THREE PART QUESTION:</b> In [adults with chest pain presenting to an ED] do [1. The Manchester Acute Coronary Syndromes (MACS) decision rule 2. The HEART score 3. High sensitivity troponin tests using a 'limit of detection' and '1-hour' rule out strategy] reduce [MACE]?</p>
<b>7</b>	What is the ideal staffing for current UK EM practice, including doctors, nurses, health care assistants, porters, radiographers, clerical and reception staff.
<b>8</b>	<p><b>QUESTION:</b> Do early undifferentiated (broad spectrum) antibiotics in suspected severe sepsis have a greater benefit and cause less harm to patients than delayed focussed antibiotics in the ED?</p> <p><b>LAY SUMMARY:</b> Does giving antibiotic treatment earlier in a patient's treatment pathway improve outcome following infection?</p> <p><b>THREE PART QUESTION:</b> In [patients with severe sepsis] does [administration of early antibiotic treatment compared to delayed treatment] improve [survival]?</p>
<b>9</b>	<p>In adults who are fully alert (GCS 15) following trauma does cervical spine immobilisation (when compared to no cervical spine immobilisation) reduce the incidence of neurological deficit, and what is incidence of complications?</p> <p><b>LAY SUMMARY:</b> Should we put injured patients who are fully alert in a neck collar (which may cause complications themselves) in case they have a spinal injury or should we leave them without a collar?</p> <p><b>THREE PART QUESTION:</b> In [adults who are fully alert (GCS 15) following trauma] does [cervical spine immobilisation versus no cervical spine immobilisation] reduce the incidence of [neurological deficit]?</p>
<b>10</b>	<p>Which trauma patients should be transferred to a Major Trauma Centre rather than going to another hospital first?</p> <p><b>THREE PART QUESTION:</b> In [adults sustaining traumatic injury] [which triage tool] correctly identifies the need for [treatment at a major trauma centre]?</p>
<b>11</b>	<p>A prospective evaluation of a CT head scan rule out pathway (within 6hrs of headache onset) without recourse to lumbar puncture in ED patients with acute severe headache.</p> <p><b>LAY SUMMARY:</b> In patients with acute severe headache, can an early CT scan accurately identify those patients who might have suffered a bleed into the brain without needing to take a sample of spinal fluid through a needle at the base of the back?</p>

	<p>THREE PART QUESTION: In [adults presenting to ED with thunderclap headache], is [the absence of blood on CT head performed within 6 hours of onset of symptoms] enough to reliably [exclude SAH without needing LP]?</p>
<b>12</b>	<p>What is the optimal management strategy for patients taking anticoagulants who sustain head injuries?</p> <p>LAY SUMMARY: What is the best way to treat patients taking blood thinning medicines who sustain a head injury.</p> <p>THREE PART QUESTION: In [adult patients attending the ED with head injury] does [taking existing anticoagulants] affect [the optimal management strategy]</p>
<b>13</b>	<p>The use of prophylactic anticoagulation for patients with lower limb injury and temporary immobilisation is a key issue for which international equipoise continues. These patients are a common presentation to emergency departments worldwide and a lack of definitive evidence has led to a state of variable practice with little understanding of the clinical or cost effectiveness of local regimens. Should we give VTE prophylaxis in these patients?</p> <p>LAY SUMMARY: In patients who injure their leg requiring them to go into plaster, should we give treatment to thin the blood in case they develop a blood clot in their leg (or lungs) as a result of being immobile in plaster?</p> <p>THREE PART QUESTION: In [a patient with lower limb injury who needs immobilisation] does [VTE prophylaxis] reduce [clinically relevant VTE]?</p>
<b>14</b>	<p>What information can be used to accurately predict which older, frail patients attended by an ambulance crew can be safely and effectively managed at home, without the need to take them to hospital?</p> <p>THREE PART QUESTION: Which screening tools for frailty best predict older, frail patients attended by an ambulance crew who can be safely and effectively managed at home, without the need to take them to hospital?</p>
<b>15</b>	<p>Does a departmental simulation and team training program reduce medical error and improve quality of patient care?</p> <p>LAY SUMMARY: Does a departmental simulation training program (where mannequins are used to simulate patients) reduce medical error and improve quality of patient care?</p>
<b>16</b>	<p>In patients with sepsis does a liberal fluid resuscitation strategy versus early vasopressor use result in increased morbidity and mortality?</p> <p>LAY SUMMARY: In patients with severe infection does the use of medication to raise the blood pressure, or just giving fluids intravenously, have a better outcome?</p>

	THREE PART QUESTION: In [adults with sepsis or severe infection] does [early vasopressor use compared to liberal fluids alone] improve [survival]?
<b>17</b>	<p>There have been many proposed interventions within the last decade designed to streamline diagnosis of suspected pulmonary embolism and avoid costly hospital admissions or problems related from overtesting. These interventions have not been assessed as a composite and the risk benefit profile of their introduction when compared to standard care is unclear.</p> <p>LAY SUMMARY: How should we best investigate people who may have a blood clot in their lungs?</p> <p>THREE PART QUESTION: In [adult patients with suspected PE] does [a diagnostic strategy incorporating the PERC rule, use of age adjusted d-dimer thresholds and ambulatory management based on the SPESI criteria] reduce [adverse outcomes e.g. missed diagnosis, cost, mortality]?</p>
<b>18</b>	Could more be done in the initial few hours in the ED to prevent secondary damage in patients with head injury (e.g. reducing intracranial pressure).
<b>19</b>	<p>What is the impact of emergency medicine Consultant presence in the clinical area on patients, staff and performance of the ED (including quality and safety) - including an assessment of the benefit of 24 hour cover?</p> <p>LAY SUMMARY: What is the impact of having a consultant (the most senior grade of doctor) present in the emergency department 24/7?</p>
<b>20</b>	How can we improve work/life balance amongst ED staff to better retain our staff, including rota design and other working conditions.
<b>21</b>	Does rapid assessment and triage by a senior doctor improve time to admit or discharge? Is there an optimum time to do it? Is it appropriate for both minors and majors patients?
<b>22</b>	<p>Use of biomarkers in adult patients with minor traumatic brain injury (mTBI) in particular protein S-100B, incorporation into NICE adult head injury guidance; There is evidence to suggest that the use of this biomarker may decrease rate of neuroimaging by up to 30% It has a very high sensitivity (reported &gt;97%) and therefore is a good 'rule out' option. Of particular benefit to patients with a minor head injury who are: anticoagulated (warfarin); intoxicated; or the elderly patient (with background dementia or cognitive decline).</p> <p>LAY SUMMARY: For patients with minor head injuries, can a blood test detect significant bleeding in the brain?</p> <p>THREE PART QUESTION: In [adult patients with minor traumatic brain injury] is [protein S-100B] an effective way to [rule out significant intracranial injury]?</p>
<b>23</b>	In adults diagnosed with isolated sub-segmental pulmonary embolism is treatment with anti-coagulation required?

	<p><b>LAY SUMMARY:</b> In patients who have small blood clots in their lungs is blood thinning treatment necessary?</p> <p><b>THREE PART QUESTION:</b> In (a patient with an isolated subsegmental pulmonary embolism) does (anticoagulation therapy or no treatment) lead to (lower rates of mortality and recurrent venous thromboembolism?)</p>
<b>24</b>	<p>How may we best tackle the challenge of people who use the emergency department very frequently in the UK?</p> <p><b>LAY SUMMARY:</b> What is the best way to care for people who attend emergency departments very frequently?</p>
<b>25</b>	<p>Which factors predict significant traumatic brain injury in head injury patients that present more than 24 hours after the injury?</p> <p><b>LAY SUMMARY:</b> Which factors predict significant head injuries for patients that present more than 24 hours after the injury?</p>
<b>26</b>	<p>In adult patients with small closed haemothorax secondary to trauma, does attempted drainage v's conservative management result in improved long term morbidity and mortality?</p> <p><b>LAY SUMMARY:</b> In patients who have suffered a chest injury, and have a small amount of blood in their chest cavity, should we place a drain into the chest to allow the blood to drain away, or is it best left alone?</p> <p><b>THREE PART QUESTION:</b> In [adults with a closed small (e.g. less than 250ml) haemothorax secondary to chest trauma] does [intercostal drainage] improve [survival; infection; lung function]?</p>
<b>27</b>	<p>Does increased use of clinical 'support' staff (physician assistants, extended role Health Care Assistants) improve efficiency of doctors and nurses, improve flow and is it financially sound?</p>
<b>28</b>	<p>Does early high-dose fibrinogen supplementation with cryoprecipitate reduce mortality in adult trauma patients who have haemorrhagic shock and active bleeding?</p> <p><b>LAY SUMMARY:</b> In patients with severe bleeding following injury, does giving them a concentrated dose of a protein involved in blood clotting (called fibrinogen) reduce death?</p> <p><b>THREE PART QUESTION:</b> In [adult patients suffering major trauma haemorrhage and requiring activation of the local major haemorrhage protocol] does [the administration of cryoprecipitate] reduce [mortality]?</p>
<b>29</b>	<p>In adult patients with presumed sepsis in the prehospital environment does the administration of prehospital antibiotics compared to no antibiotics decrease mortality?</p>

	<p>LAY SUMMARY: In adult patients with presumed severe infection does the administration of antibiotics (given by the ambulance crew rather than when the patient arrives at hospital) decrease mortality?</p> <p>THREE PART QUESTION: In [adult patients with presumed sepsis in the prehospital environment] does [administration of prehospital antibiotics] improve [survival]?</p>
<b>30</b>	<p>How can viscoelastic studies guide transfusion in trauma and other haemorrhage states? Viscoelastic studies allow us to go one step further and effectively offer a bespoke transfusion to the bleeding patient. This allows the patient to receive the products they need, but also allows greater control over limited resources in the blood bank.</p> <p>LAY SUMMARY: Does the use of a blood test to check blood clotting at the bedside improve the amount of blood needed and survival in injured patients?</p> <p>THREE PART QUESTION: In [trauma patients] does [viscoelastic near patient coagulopathy testing] reduce [blood product use, length of stay, mortality]?</p>