International Fragility Fracture Network Delphi consensus statement on the principles of anaesthesia for patients with hip fracture.


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Running title: Consensus guidelines in hip fracture anaesthesia.
Consensus principles of anaesthesia for hip fracture surgery

1. Anaesthesia is integral to the multidisciplinary care of hip fracture patients.
2. Anaesthesia (and surgery) for hip fracture should be undertaken by an appropriately experienced anaesthetist (and surgeon).
3. Anaesthetists should participate in developing formal institutional hip fracture care pathways, particularly the preparation of patients for theatre and their pain management.
4. Anaesthetists should facilitate surgery within 48 hours of hip fracture.
5. Anaesthesia should be administered according to agreed standards at each hospital, using age-appropriate doses, with the aims of facilitating early patient remobilisation, re-enablement and rehabilitation.
6. Anaesthetists should routinely participate in standardised peri-operative data collection about hip fracture patients, focussing on agreed outcomes common in the first five postoperative days.
7. All junior anaesthetists should receive specific training on how to administer anaesthesia to hip fracture patients.

Why was this consensus statement developed?

The global number of hip fractures is expected to double from ~2.2 million in 2017 to ~4.5 million in 2050 [1]. Most hip fractures (~ 99%) should be fixed surgically to reduce pain and to enable remobilisation. Surgery for hip fracture has increasingly become standardised, but peri-operative medical and anaesthetic care varies considerably. Peri-operative morbidity and mortality remain high. Guidelines for the anaesthetic management of patients with hip fracture exist [2-7], but are specific to the healthcare systems of western nations. This consensus statement advises basic standards of anaesthetic care that hip fracture patients should expect to receive in any country, regardless of resources.

How was this consensus statement developed?

The Fragility Fracture Network (FFN) was established in 2011. It is an international organisation of practitioners from many disciplines, all of whom are interested in improving and disseminating standards of care for fragility fractures, that is fractures of osteoporotic bone resulting from minimal force, predominantly in older people. ‘Anaesthesia’ is a Working Group within this organisation. On behalf of the FFN, the current convenor of the Anaesthesia Working Group (SW) invited internationally-recognised experts in hip fracture anaesthesia and national professional leaders to contribute to a Consensus Committee. Participants were
invited because they had authored an important publication, or they were participants in current trials or they had been identified as experts by national anaesthesia organisations. Opinion was sought from all five continents; all countries were represented except Japan, Russia, Pakistan and Turkey. Invitations were sent in November 2016, and acceptances completed by March 2017.

A three-stage Delphi process was used to reach consensus. During February and March 2017 (stage 1), the 28 Committee members were asked to suggest by e-mail around 10-15 “broad principles that every hospital anaesthetic service worldwide should aim to provide for patients undergoing surgery for hip fracture”. Four hundred and fifty-seven principles were received. Principles were categorised by SW into one or more of seven phases: pre-operative; intra-operative; postoperative; peri-operative; organisational; research; and training. Principles were also categorised into one or more of 33 ‘themes’, for instance anaesthesia type, patient communication etc. Principles that did not relate to any aspect of anaesthesia care specific to hip fracture were omitted.

In April 2017 (stage 2), 47 statements were formulated from the 33 themes: more than one statement was formulated for three contentious areas: how soon should surgery take place after hip fracture; what mode of anaesthetic (spinal/general) should be preferred; and should pre-operative laboratory tests be ordered by protocol or not. A similar rationale was used to formulate a multichoice statement, determining expert consensus about acceptable intra-operative blood pressure thresholds [8]. A small subcommittee of the Consensus Committee (SW, MMcB, MC, RG, NF, IM) agreed the exact wording of each statement and six further statements were added to clarify consensus. A survey of 53 statements, each with a ‘yes’ or ‘no’ response, was loaded to an electronic platform (SurveyHero, enuvo GmbH, Zurich, Switzerland) and sent to the whole Committee in June 2017. We asked members to explicitly state whether they agreed to statements that contained more than one variable. We provided members access to the source principles and the process by which they were formulated into statements. We reminded members that their opinion ‘should be based in part on what (they thought were) desirable and achievable principles of hip fracture anaesthesia in (their) country or geographical region’.

All 28 committee members responded to all statements. ‘Consensus’ was defined as the same answer from at least 21/28 respondents (75%) to binary questions (n = 41/44 (93%), table 1), and by the most popular response to the questions about the three contentious areas [9]. The third Delphi stage was to use the responses to draft a narrative, structured by the seven phases of anaesthetists’ involvement with hip fracture patients (see above). We added
contemporary references to the paper to guide readers towards further reading, rather than to provide exhaustive documentation of the available evidence. This draft was sent to Committee members in early August, inviting comments about the structure of the statements, their wording and further important references that should be included. One Committee member withdrew at this stage, to retain their equipoise for a clinical trial they were leading, but assented to continued use of their responses in the second Delphi stage.

(Insert table 1 near here)

Edited consensus statements were presented (by SW) at the “Optimising peri-operative outcome” session of the 6th Fragility Fractures Network conference in Malmo, Sweden on the 24th August 2017. Committee members were invited to attend this session and make further comments, along with other delegates. The consensus statements were then edited further, before being redistributed to Committee members for final comments or approval. The draft was tabled in a Board meeting of the Fragility Fractures Network in October 2017, approved and then submitted to *Anaesthesia*.

The Consensus principles

1. **Anaesthesia is integral to the multidisciplinary care of hip fracture patients.**
Committee members unanimously agreed that anaesthesia is integral to the multidisciplinary care of hip fracture patients, and overwhelmingly agreed (93%) that multidisciplinary care should be provided for all hip fracture patients, statements that are in line with professional guidance produced by the Association of Anaesthetists of Great Britain and Ireland (AAGBI) [2]. Research should be undertaken to quantify the specific contribution of anaesthesia and anaesthetists to hip fracture patient outcome, in a similar way to that recently undertaken in cardiac surgery in the UK [10]. The contribution of anaesthesia variation *per se* to patient outcome might possibly be small compared with variations in surgery and rehabilitation [11-13]. However, the contribution of the anaesthetist as peri-operative physician, responsible for the continuing physiological and analgesic support of older, frail, cognitively-impaired hip fracture patients is likely to be significant.

2. **Anaesthesia (and surgery) for hip fracture should be undertaken by an appropriately experienced anaesthetist (and surgeon).**
The Committee recognised that clinicians with appropriate experience – rather than senior clinicians, necessarily – should determine hip fracture patient management, in line with other guidance [2, 3]. The Committee made no attempt to define ‘experience’, as this is inevitably dependent on the local context and available resources. The Committee believed that appropriately-experienced anaesthetists are more likely to: expedite surgery; recognise and manage the increased risk of surgery and anaesthesia for hip fracture patients; and tailor intra-operative and postoperative care towards patient recovery and rehabilitation. Experienced anaesthetists, as patient representatives in the peri-operative period, can help ensure that surgical expertise is appropriate for the surgery undertaken, and that anaesthesia and surgery training occur during suitable cases only. Confirmatory research is (again) needed to confirm or refute this belief.

3. Anaesthetists should participate in developing formal institutional hip fracture care pathways, particularly the preparation of patients for theatre and their pain management.

The Committee recognised that much of the medical and surgical care necessary for recovery after hip fracture can be administered in a relatively standardised manner, designed at an institutional level according to the personnel and facilities available, whilst maintaining the respect and care of patients as individuals. As members of the multidisciplinary care team, experienced anaesthetists should participate in developing specific hospital protocols within a formal, documented integrated care pathway. The standardisation of care reduces the avoidable, unwarranted variations in care that hip fracture patients receive, improving safety and outcome [14].

Specific, anaesthesia-related protocols can be developed for all peri-operative phases of care. Pre-operatively, patients should be evaluated for other injuries (particularly head and chest injuries, and other fractures that may limit surgical positioning), and have their frailty and cognitive status assessed. These are associated with early postoperative complications, such as delirium and poor remobilisation, leading to poorer outcome. The Committee favoured ordering further pre-operative tests based on clinical examination (70%) rather than according to protocol (57%), although further research needs to be done to determine the clinical and financial impact of each approach. There was greater consensus about the need for access to echocardiography within 24 hours of admission, although this test may not be available worldwide and it remains unclear as to its clinical benefit in hip fracture patients [15, 16].
Intra-operatively, a written protocol for the prevention, recognition and management of Bone Cement Implantation Syndrome should be used at every hospital that uses cemented hip prostheses [17, 18].

Postoperatively, nutritional supplementation should be encouraged as necessary after surgery, in response to the catabolic stress of hip trauma, surgery and recovery, in patients who are chronically malnourished and frail. Anaesthetists can facilitate this process by using drug therapy protocols and interventions to minimise postoperative nausea, vomiting, constipation and delirium [19, 20]. Nutritional supplementation should occur in addition to a patient’s normal food and fluid intake.

Peri-operatively, anaesthetists should be involved in designing and implementing written hospital protocols for blood replacement. Hip fracture patients may be chronically anaemic. Patients will become more anaemic from haemorrhage associated with injury and surgery, particularly if anticoagulated and if they become haemodiluted from an excess of infused intravenous fluids. The haemoglobin concentration falls by an average of 25 g.l⁻¹ between sustaining the fracture and the first postoperative measurement, with greater reductions in haemoglobin after total hip replacement compared with other surgical repairs. Specific protocols should use current guidelines to manage anticoagulation, including dabigatran, rivaroxaban and apixaban, and blood products and intravenous fluids [21]. Anaesthetists should ensure that haemoglobin concentration is routinely measured in the first 24 hours after surgery, although there was no consensus (50%) for its measurement in the recovery room after anaesthesia.

Perhaps of greatest importance to patients, the Committee recommended that anaesthetists develop and implement a comprehensive analgesia protocol from admission to hospital discharge, incorporating regular paracetamol (acetaminophen) administration [22] and nerve blockade [23] to minimise the dose of intravenous opioids. Although pain itself promotes delirium, doses of intravenous opioid analgesics appropriate to the patient's age, renal function and comorbidities should be titrated to effect. Non-steroidal anti-inflammatory drugs (NSAIDs), tramadol, codeine, (and cyclizine and sedative premedication) should be used with caution in hip fracture patients.

The Committee fully endorsed the involvement of patients, families and carers in treatment decisions, including the explicit documentation of the patient's resuscitation status. Such decisions should be informed by using a validated, hip fracture-specific risk stratification tool, such as the Nottingham Hip Fracture Score (NHFS), although this score has only been validated for the UK population [24-26]. Routine risk stratification should also be
used pre-operatively to identify high-risk patients who may require critical care facilities, which should always be available at hospitals undertaking hip fracture surgery.

4. **Anaesthetists should facilitate surgery within 48 hours of hip fracture.**
Committee members agreed unanimously that hip fracture surgery should be delayed only if the benefits of additional medical treatment outweigh the risks of delaying surgery, with two-thirds agreeing that surgery should take place within 48 hours of admission after fracture. This is broadly in agreement with UK [2, 3, 7, 27], US [4] and Australian [5] recommendations, and supported by evidence from two large meta-analyses [28, 29]. The Committee members who disagreed with this criterion noted that surgery within 48 hours of injury might not be achievable in countries with fewer resources. This principle might be modified by the results of the ongoing multicentre, multinational HIP ATTACK trial [30], which is randomly allocating hip fracture patients to surgery within six hours of injury vs. routine care.

The Committee agreed that surgery should be available seven days a week, ideally within core working hours, although some members noted again that this might be precluded by insufficient resources. There was strong consensus that surgical list order should prioritise older, frailer and sicker patients.

Anaesthetists have a crucial role to play in resolving the organisational and medical obstacles to timely hip fracture surgery, by allocating experienced personnel appropriately, communicating within the multidisciplinary team, developing peri-operative protocols and pre-operative information that facilitate early surgery, monitoring reasons for delay or cancellation, and training junior personnel.

5. **Anaesthesia should be administered according to agreed standards at each hospital, using age-appropriate doses, with the aims of facilitating early patient remobilisation, re-enablement and rehabilitation.**
Anaesthesia is only one component of anaesthetists’ involvement in the care of patients with hip fracture and is often the most controversial. Much of the limited prospective research into anaesthesia for hip fracture surgery has compared spinal anaesthesia with general anaesthesia and has not found differences in patient outcomes [31, 32]. Similarly, retrospective observational research has been unable to find any consistent, significant differences in patient outcome associated with either spinal or regional anaesthesia [33-41]. Patient outcomes may be unaffected by the mode of anaesthetic, or prospective research may have
recruited participants who were unrepresentative of the hip fracture population [14, 42], or the types of anaesthetic characterised as ‘spinal’ and ‘general’ are each too heterogeneous in technique, preventing studies from determining ‘the best’ method [43]. An ongoing pragmatic multicentre randomised controlled trial of 1600 hip fracture patients overcomes many of the methodological problems of previous research, and should provide strong evidence of ‘real world’ differences in patient outcomes between regional vs. general anaesthesia [44].

The Committee’s preferred recommendation, that either regional or general anaesthesia should be offered to patients, reflects current evidence, although it is worth noting that no Committee member agreed that general anaesthesia was usually preferable to regional anaesthesia. The Committee’s recommendation reflects UK and US guidelines [2-4]; regional anaesthesia is recommended for most patients in Australian guidelines [5].

Committee consensus is consistent with UK, US and Australian guidelines in recommending that nerve blocks (femoral, fascia iliaca, epidural, lumbar plexus, quadratus lumborum) should be routinely administered to supplement either spinal or general anaesthesia [2-7].

There was consensus among Committee members that standards of anaesthesia should be agreed by senior anaesthetists at every hospital treating hip fracture patients [14], particularly how drugs should be administered to the older, frail, hip fracture patients with co-morbidities and polypharmacy. Committee members agreed that the depth of general anaesthesia should be adjusted according to the patient's age or monitored brain activity [45, 46], whilst verbal contact was recommended to adjust sedation co-administered with spinal anaesthesia, despite some evidence to the contrary [47, 48]. Committee members agreed that supplemental oxygen should be considered for all patients undergoing regional anaesthesia with sedation.

Other standard operating procedures recommended by the Committee include the routine consideration of invasive blood pressure monitoring during anaesthesia for higher risk hip fracture patients [2], and the maintenance of monitored patient core temperature in the peri-operative period [3].

There was overwhelming consensus that blood pressure should be carefully monitored and maintained in hip fracture patients during the peri-operative period. The Committee preferred relative rather than absolute thresholds above which blood pressure should be maintained intra-operatively, with ~ 50% preferring a systolic or mean arterial pressure within 20% of the measurement before anaesthesia. Recent evidence suggests that lower intra-
operative blood pressures are associated with higher postoperative mortality in elderly patients [49] and hip fracture patients [39], possibly related to ischaemic organ dysfunction, most notably of the brain [45, 50, 51], myocardium [52] and kidneys [53-55].

Implementing these recommendations is consistent with achieving the two fundamental aims of conducting anaesthesia for hip fracture patients agreed as principles by the Committee: the limitation of postoperative delirium and continuing the pre-operative cognitive trajectory [56, 57]; and the facilitation of remobilisation and re-enablement on the first postoperative day, both of which are associated with reduced mortality and increased rates of rehabilitation to the normal place of residence [57, 58].

6. Anaesthetists should routinely participate in standardised peri-operative data collection about hip fracture patients, focussing on agreed outcomes common in the first five postoperative days.
Quantifying improvements in hip fracture outcome brought about by standardising care in various healthcare systems has only been possible by collecting accurate, routine process and outcome data [59].

The Committee recommended that hospitals should routinely monitor outcome data for hip fracture patients and compare their data with other hospitals in their country, and internationally. Anaesthetists who routinely manage hip fracture patients should participate in data collection, as well as audit, research and quality improvement of their own and their institutional practice [60, 61].

As alluded to above, anaesthesia may exert its greatest effect on patient outcome in the first five postoperative days, therefore the Committee agreed that research into anaesthesia for hip fracture surgery should focus on outcomes that occur in this period, including mortality, analgesia, delirium and remobilisation. A core outcome set for peri-operative studies on hip fracture patients is currently being developed in Northern Ireland using a Delphi process among international collaborators, which should facilitate future research meta-analysis between institutions and internationally [62].

7. All junior anaesthetists should receive specific training on how to administer anaesthesia to hip fracture patients.
Given the increased longevity of patients globally, training in geriatric anaesthesia - specifically orthogeriatric anaesthesia – will require more frequent and comprehensive training than is offered by current curricula [63, 64]. Anaesthetists with a specialist interest
should arrange specific training programmes in orthogeriatric anaesthesia, and professional bodies and institutions should arrange for trainee anaesthetists to undertake further specialist training or higher degrees in geriatric anaesthesia, focussing on the peri-operative care of the high risk older patient undergoing emergent surgery, particularly anaesthetic strategies aimed at re-enabling the patient in the early postoperative period by avoiding complications such as postoperative hypotension, pain and confusion [65, 66].

The Committee accept that the recommendations above may require additional resources. The Committee was careful to propose changes that are mainly attitudinal or organisational, but that have the most cost-efficient impact on patients’ care by streamlining recovery from fall to rehabilitation. We accept that consensus opinion forms as much a part of the recommendations as does published evidence. Without doubt, there are many avenues for important research still to explore. The recommendations should be read as a baseline level of service provision worldwide, but one that challenges anaesthetists caring for this older, frail and vulnerable patient population to collect and publish evidence that improves future iterations of this statement.

**Funding and conflicts of interest**

SW is Convenor of the Anaesthesia Working Group of the Fragility Fractures Network, a member of the Association of Anaesthetists of Great Britain and Ireland (AAGBI) Hip Fracture Guidelines Working Party, sits on the Scientific and Publications Committee of the National Hip Fracture Database and the National Institute of Academic Anaesthesia (NIAA) Grants Committee, and is an Editor of *Anaesthesia*. This manuscript has therefore undergone additional external review. DD is a member of the REGAIN trial group, and receives funding on a recruited patient basis. NF is a member of the International Advisory Panel of *Anaesthesia*. RG chaired the AAGBI Hip Fracture Guidelines Working Party and founded the Hip Fracture Peri-operative Network. He is also Honorary Secretary of the AAGBI. IMo is a member of the NICE topic expert group for Quality Standards for hip fracture, a member of the NIAA Research Council and holds grants from the National Institute for Health Research (NIHR) and the AAGBI and Royal College of Anaesthetists through the NIAA for trials in hip fracture. CS’s Doctoral research fellowship is funded by the NIHR. FS is a leader of the clinical operations subcommittee for the REGAIN trial group, and receives funding on a recruited patient basis. FA, JB, BB-B, FC, MC, MD, AG, GK, J-HK, MK, P-WL, IMa, MMcB, SMeM, LMP, MP, OP, RS, AT and XX have no conflicts of interest.
References


42. White SM. Including the very elderly in clinical trials. *Anaesthesia* 2010; **65**: 778-80.


49. Sessler DI, Sigl JC, Kelley SD, et al. Hospital stay and mortality are increased in patients having a "triple low" of low blood pressure, low bispectral index, and low minimum alveolar concentration of volatile anesthesia. *Anaesthesiology* 2012; **116**: 1195-203.


Table 1 Committee member decisions (‘yes’ or ‘no’) about which of 53 statements should be included in the final consensus. We defined consensus as the same response from 21/28 (75%) members to most questions and by the most popular response to questions about: the mode of anaesthesia; the delay before surgery; blood pressure thresholds; and laboratory tests. Values are number (proportion).

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Replied ‘yes’</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Single option statements</strong></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Surgery should be delayed only if the benefits of additional medical treatment outweigh the risks of delaying surgery</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>15</td>
<td>Each hospital should have a written protocol for managing hip fracture patients' care</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>21</td>
<td>Preoperative evaluation should include associated injury, frailty and cognitive status assessment</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>22</td>
<td>If used at all, opioid doses should be adjusted according to the patient's age, renal function and comorbidities</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>31</td>
<td>If used at all, intraoperative sedation should be adjusted according to the patient's age, frailty and comorbidities</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>38</td>
<td>Drug doses should be adjusted according to the patient's age, frailty and comorbidities</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>47</td>
<td>Anaesthesia is integral to the multidisciplinary care of hip fracture patients</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>49</td>
<td>Anaesthetists should help develop formal hospital hip fracture care protocols, particularly relating to preparation for theatre and pain management</td>
<td>28 (100%)</td>
</tr>
<tr>
<td>1</td>
<td>Surgery should be available seven days a week</td>
<td>27 (96%)</td>
</tr>
<tr>
<td>10</td>
<td>Hospitals should routinely monitor outcome data for hip fracture patients</td>
<td>27 (96%)</td>
</tr>
<tr>
<td>35</td>
<td>Core temperature should be monitored and maintained in hip fracture patients in the perioperative period</td>
<td>27 (96%)</td>
</tr>
<tr>
<td>40</td>
<td>The conduct of anaesthesia should aim to facilitate early (day 1) postoperative remobilisation and re-enablement</td>
<td>27 (96%)</td>
</tr>
<tr>
<td>48</td>
<td>Anaesthesia (and surgery) for hip fracture surgery should be delivered by an appropriately experienced anaesthetist (and surgeon)</td>
<td>27 (96%)</td>
</tr>
<tr>
<td>36</td>
<td>Blood pressure should be carefully monitored and maintained in hip fracture patients in the perioperative period</td>
<td>27 (96%)</td>
</tr>
<tr>
<td>7</td>
<td>Surgical list order should prioritise older, frailer and sicker patients</td>
<td>26 (93%)</td>
</tr>
<tr>
<td>9</td>
<td>Multidisciplinary care should be provided for all hip fracture patients</td>
<td>26 (93%)</td>
</tr>
<tr>
<td>12</td>
<td>Hospitals should compare hip fracture outcome data with other hospitals in their country</td>
<td>26 (93%)</td>
</tr>
<tr>
<td>13</td>
<td>Patients, family and carers should be involved in treatment decisions</td>
<td>26 (93%)</td>
</tr>
<tr>
<td>24</td>
<td>A written protocol for the management of (anti)coagulation should be used at every hospital treating hip fracture patients</td>
<td>26 (93%)</td>
</tr>
<tr>
<td>25</td>
<td>Perioperative food and fluid intake should be normalised</td>
<td>26 (93%)</td>
</tr>
</tbody>
</table>
The conduct of anaesthesia should aim to limit postoperative delirium.

Anaesthetists routinely managing hip fracture patients should participate in audit, research and quality improvement of their practice.

All junior anaesthetists should receive specific training on how to administer anaesthesia to hip fracture patients.

An analgesia protocol, incorporating regular iv paracetamol administration, nerve blockade and the minimisation of intravenous opioids, should be followed from the time of injury to the time of discharge.

Nutritional supplementation should be encouraged as necessary after surgery.

Nerve block should be offered to patients in addition to either general or regional anaesthesia.

The depth of general anaesthesia should be adjusted according to the patient's age or monitored brain activity.

Supplemental oxygen should be considered for all patients undergoing regional anaesthesia with sedation.

A written protocol for the recognition and management of perioperative anaemia should be used at every hospital treating hip fracture patients.

A clear decision about the patient's resuscitation status should be recorded before surgery.

Blood transfusion should be administered according to an agreed hospital protocol.

Standards of anaesthesia should be agreed by senior anaesthetists at every hospital treating hip fracture patients.

Clinicians should agree hospital protocols for accessing preoperative echocardiography.

Senior clinicians should determine patient management.

Hospitals should provide rapid (<24 hour) access to echocardiography.

A written protocol for the prevention, recognition and management of Bone Cement Implantation Syndrome should be used at every hospital using cemented hip prostheses.

A validated risk stratification tool should be used to identify high risk patients before surgery.

Critical care facilities should be available at hospitals undertaking hip fracture surgery.

Research into anaesthesia for hip fracture surgery should focus on commonly agreed outcomes in the early (<5d) postoperative period, including mortality, analgesia, delirium and remobilisation.

NSAIDs, cyclizine, tramadol, codeine, sedative premedication should be avoided in hip fracture patients.

Invasive blood pressure monitoring should always be considered during anaesthesia for higher risk hip fracture patients.

The depth of sedation given with spinal anaesthesia should be adjusted according to the patient's age or monitored brain activity.

Surgery should happen within core working hours.
[Haemoglobin] should be measured in the recovery room after anaesthesia 14 (50%)

**Multiple option statements**

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Votes</th>
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<tr>
<td>5</td>
<td>Surgery should happen within 48 hours of admission</td>
<td>19 (68%)</td>
</tr>
<tr>
<td>3</td>
<td>Surgery should happen within 24 hours of admission</td>
<td>14 (52%)</td>
</tr>
<tr>
<td>4</td>
<td>Surgery should happen within 36 hours of admission</td>
<td>9 (33%)</td>
</tr>
<tr>
<td>19</td>
<td>Clinical investigations/treatment should be determined by clinical examination</td>
<td>19 (70%)</td>
</tr>
<tr>
<td>20</td>
<td>Clinical investigations/treatment should be determined by protocol</td>
<td>16 (57%)</td>
</tr>
<tr>
<td>29</td>
<td>Either regional or general anaesthesia should be offered to patients</td>
<td>22 (79%)</td>
</tr>
<tr>
<td>27</td>
<td>Regional anaesthesia is preferred to general anaesthesia</td>
<td>17 (61%)</td>
</tr>
<tr>
<td>28</td>
<td>General anaesthesia is preferred to regional anaesthesia</td>
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**Multiple choice question**

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<thead>
<tr>
<th></th>
<th>Induction measurement</th>
<th>Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td>Intraoperatively, blood pressure should be maintained (select the most appropriate)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(systolic) within of the 20% pre-induction systolic blood pressure</td>
<td>7 (25%)</td>
</tr>
<tr>
<td></td>
<td>(mean) within of the 20% pre-induction mean arterial pressure</td>
<td>6 (21%)</td>
</tr>
<tr>
<td></td>
<td>(systolic) within of the 30% pre-induction systolic blood pressure</td>
<td>4 (14%)</td>
</tr>
<tr>
<td></td>
<td>(mean) within of the 30% pre-induction mean arterial pressure</td>
<td>3 (11%)</td>
</tr>
<tr>
<td></td>
<td>(mean) above 75mmHg</td>
<td>3 (11%)</td>
</tr>
<tr>
<td></td>
<td>(systolic) above 100mmHg</td>
<td>3 (11%)</td>
</tr>
<tr>
<td></td>
<td>(mean) above 55mmHg</td>
<td>2 (7%)</td>
</tr>
</tbody>
</table>