Background
Hip fracture is an extremely painful injury for which patients are usually given opiates for pain relief in prehospital care, if anything; the literature suggests that the pain relief is unsatisfactory. Opiates have several side effects which the elderly cohort at particular risk of hip fracture are susceptible to. These side effects affect patients’ general health and recovery. Fascia iliaca compartment block (FICB) is a procedure which provides local anaesthetic to the hip area, and is routinely undertaken by clinicians in the emergency department for patients with hip fracture, but it has not been fully evaluated using by paramedics at the scene of 999 calls.

Aim
Our aim was to assess the feasibility of undertaking a fully powered, multi-centre randomised trial to test the clinical and cost-effectiveness of paramedics providing FICB for patients who have fractured a hip at the scene of their injury.

Methods
Paramedic training
Considering available resources and methods used in previous trials in this field (Dochez et al 2014, McRae et al 2015), our training package incorporated: E-learning; group face-to-face sessions led by a consultant anaesthetist; and attending the local hospital in pairs, where they are observed administering FICB by an anaesthetist, with the observing paramedic providing critique to the performing paramedic

Randomisation
Paramedics randomly allocated to trial arms using custom made scratchcards

Consent
A paramedic research support officer approached patients within ten days of their injury to discuss consent to follow up in the trial

Data collection and follow up
We collected the following routinely available outcomes from ambulance and hospital records: mortality; pain scores; medications administered by paramedics, on-scene time, to surgery, and length of hospital stay. We sent patients who had provided consent to take part in the trial follow up questionnaires which included a quality of care monitor; SF-12; and the Rivermead Mobility Index at one and six months. We tested mortality and health related quality of life (using SF-12) as primary outcomes.

Results
Nineteen paramedics completed their training and randomly allocated 71 patients to the trial (35 intervention vs 36 control). Fifty-seven (80%) patients consented to follow up (31 intervention vs 26 control), with 17 patients in the intervention group receiving FICB (55%) – there were 14 patients with contraindications (the use of antibiotics being the most common, n=9). The participants’ baseline characteristics were similar between trial arms. Paramedics were able to recognise hip fractures with acceptable accuracy – a sensitivity over 75% and a positive predictive value over 85%. We recorded a routinely collected mortality status for all patients, but capturing our patient reported primary outcome (health related quality of life using SF-12) was less successful – approximately 60% of one month questionnaires and 70% of six month questionnaires were returned.

Patient satisfaction with care, n

Satisfaction with care, n

Mean (SD)

Intervention

N: 31

Usual Care

31

Mean age in years, range

Breathlessness

61.5, 63.6–101.4

42.6, 68.3–91.8

Time of paramedic attendance

06:00–17:59 n (%)

18 (58.1)

15 (57.7)

18.00–23:59 n (%)

13 (41.9)

11 (42.3)

Hip or femoral fracture on X-Ray

Recruited

40

57

Not recruited

15

64

Sensitivity (49/64): 76.6%; PPV (49/57): 86%

Analysis
We assessed our results against the following progression criteria:
1. Ability to recruit ten paramedics to the trial
2. Paramedic recognition of hip fractures has a sensitivity of 75% or more and a positive predictive value of 85%
3. At least 50% of intervention participants receive the intervention
4. At least 60% of recruited participants consent to follow up
5. Follow up data for primary outcomes can be collected for 70% or more of patients
6. Mean patient satisfaction in intervention group is at least 80% of patient satisfaction in the control group
7. Clinicians are in equipoise about safety and effectiveness of paramedic-administered FICB
8. Balance of Serious Adverse Events between groups

Conclusion
RAPID met all of its pre-specified progression criteria. An application for funding for a multi-centre, fully-powered trial will therefore be submitted to the National Institute of Health Research Health Technology Assessment Programme. This will test the safety, clinical and cost-effectiveness of paramedic FICB in prehospital care.

This project was funded by Health and Care Research Wales, through their Research for Patient and Public Benefit funding call (2009). The views and opinions expressed are those of the authors and do not necessarily reflect those of Health and Care Research Wales or the National Health Service.