PRESTO: Survey of Spine Surgeons regularly treating thorocolumbar fractures

There is currently no consensus in the literature as to whether patients with a relatively stable thoracolumbar fracture without spinal cord injury should be treated operatively or non-operatively*. The HTA have commissioned us to undertake a study to explore whether it is feasible to deliver a trial comparing surgical fixation to initial non-operative management in order to establish whether either method provides any advantage over the other. As part of finding out whether such a trial is viable, we are undertaking a national survey of spine surgeons who regularly treat thoracolumbar fractures. The electronic survey takes a maximum of fifteen minutes to complete and your responses will be anonymous. At the end of the survey, you will have an opportunity to opt in to be acknowledged by name for your contribution.

**Abudou M, Chen X, Kong X, Wu T. (2013) Surgical versus non-surgical treatment for thoracolumbar burst fractures without neurological deficit. The Cochrane Database of Systematic Reviews, 6(6): CD005079.*

- o I agree to complete the survey
- o I do not agree to complete the survey

SECTION 1: CURRENT PRACTICE

1. How frequently do you use the following to confirm a thoracolumbar fracture between T10 and L2 <u>in the presence of neurological injury</u>?

	Never	Occasionally	Frequently	Always
Plain radiographs	O	O	O	O
CT	O	O	O	O
MRI	O	O	O	O
Other	O	O	O	O

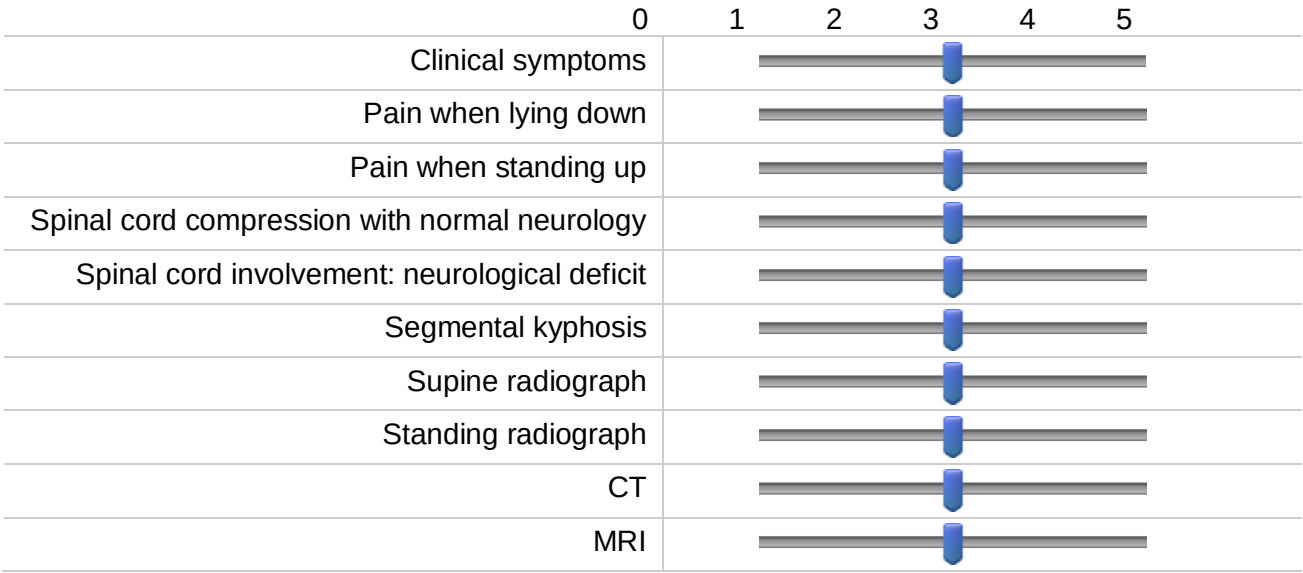
If other, please provide details: _____

2. How frequently do you use the following to confirm a thoracolumbar fracture between T10 and L2 <u>in the absence of neurological injury</u>?

	Never	Occasionally	Frequently	Always
Plain radiographs	O	O	O	O
CT	O	O	O	O
MRI	O	O	O	O
Other	O	O	O	O

If other, please provide details: _____

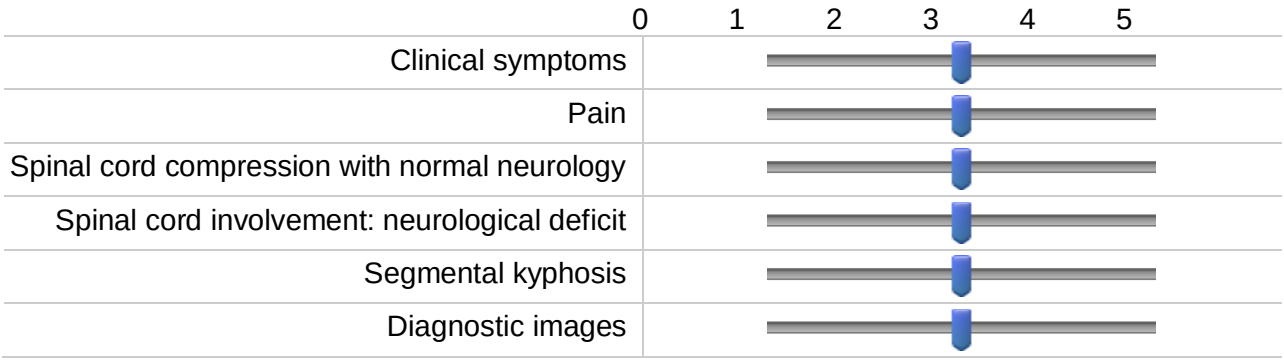
3. How important are the following factors when you are establishing spinal stability?
Please drag the slider to your answer. 1 = least important, 5 = most important



Please list any other factors you take into account when establishing spinal stability:

_____

4. How influential are the following factors in establishing suitability for surgical or non-operative management?
Please drag the slider to your answer. 1= least influential, 5 = most influential



Please list any other factors you take into account when establishing suitability for surgical or non-operative management: _____

5. What methods of surgical fixation do you currently use?

	No	Yes
Open spinal surgery	O	O
Minimally invasive surgery	O	O
Other (please specify in 'Comments' box)	O	O

Please provide details if you use another method: _____

The following question is only displayed if in Q5: What methods of surgical fixation do you currently use? "Yes" is selected for the option "Open spinal surgery".

Using open spinal surgery

a) When placing pedicle screws in un-fractured vertebrae either side of the fractured one(s) and rods locked into the screw heads, which of the following do you use?

	No	Yes
Posterior, lateral or anterior approach	O	O
Midline approach	O	O

b) How often do you use x-ray guidance?

- Always
- Frequently
- Occasionally
- Never

c) How often is fusion (decortication and graft placement) included in the procedure?

- Always
- Never
- Sometimes - please specify when this is used: _____

d) Additional comments relating to open spinal surgery: _____

This question only displayed if in Q5: What methods of surgical fixation do you currently use? "Yes" is selected for the option "Minimally invasive surgery".

Using minimally invasive surgery

a) When placing pedicle screws in un-fractured vertebrae either side of the fractured one(s) and rods locked into the screw heads, which of the following do you use?

	No	Yes
Using x-ray guidance	O	O
Navigation	O	O
O Arm	O	O
Robot assisted	O	O

b) How often do you use short screws at the fracture site?

- Always
- Frequently
- Occasionally
- Never

c) Additional comments relating to minimally invasive surgery: _____

6. How frequently do you currently use the following methods for non-operative management of potentially stable fractures?

	Never	Occasionally	Frequently	Always
Bed rest	O	O	O	O
Bracing with off-the-shelf adjustable thoracolumbar sacral orthosis (TLSO)	O	O	O	O
Bracing with customised orthosis	O	O	O	O
No bracing	O	O	O	O
Other (please specify in 'Other methods/comments' box)	O	O	O	O

Please provide details if you use another method: _____

This question only displayed if in Q6 respondent said YES to the use of a brace Always, Frequently or Occasionally for either (TLSO) or customised orthosis.

a) What is the purpose of using a brace?

Rank in order of priority by dragging and dropping. 1 = highest priority, 4 = lowest priority.

- Prevent further kyphosis
- Pain relief
- Restrict patient movement at fracture site
- Enable mobilisation of patient

Other methods/comments: _____

7. How often do you specify spinal precautions for patients managed <u>non-operatively</u> for potentially stable fractures?

	Never	Occasionally	Frequently	Always
Flat bed rest	O	O	O	O
Bed rest with small degree of flexion	O	O	O	O
No lifting	O	O	O	O
No hyper flexion	O	O	O	O
Log roll with nursing staff	O	O	O	O
No in bed precautions	O	O	O	O

8. How often do you specify spinal precautions for patients managed <u>surgically</u>?

	Never	Occasionally	Frequently	Always
Flat bed rest	O	O	O	O
Bed rest with small degree of flexion	O	O	O	O
No lifting	O	O	O	O
No hyper flexion	O	O	O	O
Log roll with nursing staff	O	O	O	O
No in bed precautions	O	O	O	O

SECTION 2: ATTITUDES TO POTENTIAL TRIAL AND ELIGIBILITY CRITERIA

9. The proposed eligibility criteria for use in a full-scale trial are listed below. Do you think they are appropriate?

Inclusion criteria:	No	Yes
Age 16 years or older;	O	O
Diagnosis of a high- or low-energy impact thoracolumbar vertebral fracture, between T10 and L2, and confirmed by radiograph, computed tomography (CT) scan or magnetic resonance imaging (MRI) **with any ONE of the following criteria:**	O	O
A kyphotic angle greater than 20 degrees on standing radiographs, or if lying CT or radiograph then 15 degrees of kyphosis; **or**	O	O
Reduction of vertebral body height by 25 percent; **or**	O	O
Fracture line propagating through the posterior wall of vertebra; **or**	O	O
Two contiguous vertebrae involved; **or**	O	O
Injury to the posterior longitudinal ligament (PLL) or annulus in addition to the body fracture.	O	O

Exclusion criteria:	No	Yes
Unstable fractures which obviously need surgical stabilisation – decision made by the treating surgeon;	O	O
Spinal cord injury;	O	O
Pathological (other than osteoporotic) fracture e.g. tumour / infection;	O	O
Patient not considered suitable for surgery.	O	O

Please explain your responses, particularly where you have said 'No', and add any other criteria you think should be considered: _____

10. Approximately how many patients meeting the eligibility criteria listed above have you personally treated in the last 12 months?
Please provide a single figure estimate rather than a range.

Surgically Number of patients _____
Non-operatively Number of patients _____

11. Which of the following classification systems for thoracolumbar fractures do you routinely use, and which would you be willing to use in a future trial?

	Use routinely	Use in trial

	No	Yes	No	Yes
Magerl AO system	O	O	O	O
Thoracolumbar Injury Classification System (TLICS)	O	O	O	O
New AO Spine Thoracolumbar Classification System	O	O	O	O
Other (please provide details in the box below)	O	O	O	O

Comments on classification systems, and their use in a future trial: _____

12. Would you be willing to randomise patients with a stable <u>high-energy</u> fracture to either surgical or non-operative management?

- Yes
- No

If no, please say why and what might make you change your mind: _____

13. Would you be willing to randomise patients with a stable <u>low-energy fracture</u> (e.g. fall from standing height in osteoporotic/osteopenic patients) to either surgical or non-operative management?

- Yes
- No

If no, please say why and what might make you change your mind: _____

14. What do you think the most important outcome domains should be for a future trial of patients with a relatively stable thoracolumbar fracture? *Please rank in order of importance by dragging and dropping. 1 = most important, 5 = least important*

- Mobility
- Pain
- Return to pre-injury activity levels
- Speed of return to pre-injury activity levels
- Anxiety/depression

Please add any other outcomes or comments: _____

15. What factors, if any, would need to be overcome to make recruitment to the proposed trial at your centre possible?

Please list and comment e.g. staffing, equipoise, lack of research infrastructure etc.:
_____

16. Would you be willing to participate in a future trial?

- Yes
- No – Please outline the reasons why and what would need to occur to change that: _____
- Unsure - Please outline the reasons why and what would need to occur to change that: _____

SECTION 3: ABOUT PARTICIPANTS

17. What is your current role?

- Consultant spine surgeon regularly treating thoracolumbar fractures
- Specialist Registrar / Fellow in spinal surgery
- Other

If other, please provide details about your role and relevant experience: _____

This question only displayed if response to Q17 is Consultant spine surgeon regularly treating thoracolumbar fractures

a) Years' experience as a consultant spine surgeon: _____
b) Years' experience at current Trust: _____

This question only displayed if response to Q17 is Specialist Registrar / Fellow in spinal surgery

a) Months experience in spinal surgery: _____
b) Months completed as post CCT spinal fellow or equivalent: _____
c) Did you treat thoracolumbar fractures as a spinal fellow?

- Yes
- No

18. What is the size of population served by your Trust?

- 60,000 – 200,000
- 200,000 – 300,000
- 300,000 – 600,000
- 600,000 – 900,000

a) How many spinal consultants are responsible for ongoing management of thoracolumbar fractures in your Trust? _____

19. How did you access the link to this survey?

- BritSpine (conference app or PRESTO stand/flyer)
- BASS discussion forum
- Other (please give details): _____

Thank you for completing the survey.

If you would like to be acknowledged for your contribution by name and/or you would be willing to take part in a 30-minute face-to-face or telephone interview to explore in more detail issues around the feasibility of a future trial, please go to the following link https://york.qualtrics.com/jfe/form/SV_4TasNLGzJ3Frq4J and provide your details.

Acknowledgement and in-depth interview participation

PRESTO is a HTA commissioned study to explore whether it is feasible to deliver a trial comparing surgical fixation to initial non-operative management in order to establish whether either method provides any advantage over the other.

As you have completed our survey, you now have the option of being acknowledged by name as a survey participant in publications which relate to the survey and/or volunteering to take part in a 30 minute in-depth interview to explore in more detail issues around the feasibility of a future trial.

- I am willing to be contacted for an interview AND I would like to be acknowledged by name for my participation in the survey
- I am willing to be contacted for an interview BUT I do not wish to be acknowledged by name for my participation in the survey
- I am not willing to be contacted for an interview BUT I would like to be acknowledged by name for my participation in the survey

Name: _____

This question only displayed if willing to be contacted for an interview

Email address: _____

Thank you for your time and contribution.
If you have chosen to be contacted about an interview, a researcher will be in touch with you shortly.