

## Additional file 1

Table A provides a list of all relevant questions or symptoms extracted from the five papers.

| <b>QUESTIONS OR SYMPTOMS IDENTIFIED IN RELEVANT LITERATURE (41 ITEMS)</b> |  |
|---|--|
| <b>Konno et al.<sup>1</sup></b>   | Q1 Numbness and/or pain in the thighs down to the calves and shins.  |
|   | Q2 Numbness and/or pain increase in intensity after walking for a while but are relieved by taking a rest.   |
|   | Q3 Standing for a while brings on numbness and/or pain in the thighs down to the calves and shins.           |
|   | Q4 Numbness and/or pain are reduced by bending forwards.   |
|   | Q5 Numbness is present in both legs.   |
|   | Q6 Numbness is present in the soles of both feet.  |
|   | Q7 Numbness arises around the buttocks.  |
|   | Q8 Numbness is present but pain is absent.   |
|   | Q9 A burning sensation arises around the buttocks.   |
|   | Q10 Walking nearly causes urination.   |
| <b>Aizawa et al.<sup>2</sup><br/>(only questions related to LSS)</b>      | Q11 Difficulty bending forward because of numbness and/or pain.  |
|   | Q12 Difficulty putting on socks because of numbness and/or pain.   |
|   | Q13 Numbness and/or pain increase in intensity after walking for a while but are relieved by taking a rest.  |
|   | Q14 Standing for a while brings numbness and/or pain in the thigh(s) down to the calf or calves and shin(s). |
|   | Q15 Numbness and/or pain are reduced by bending forward.   |
|   | Q16 Numbness is present, but pain is absent.   |
|   | Q17 Numbness and/or pain is present in both legs.  |
|   | Q18 Numbness is present in the soles of both feet.   |
|   | Q19 Numbness arises around the buttocks.   |
|   | Q20 I am ≥ 60 years old.   |
| <b>Tomkins-Lane et al.<sup>3</sup></b>                                    | Q21 Does the patient have leg or buttock pain while walking?   |
|   | Q22 Does the patient flex forward to relieve symptoms?   |
|   | Q23 Does the patient feel relief when using a shopping cart or bicycle?                                      |
|   | Q24 Does the patient have motor or sensory disturbance while walking?  |
|   | Q25 Are the pulses in the foot present and symmetric?  |
|   | Q26 Does the patient have lower extremity weakness?  |
|   | Q27 Does the patient have low back pain?   |
| <b>Sandella et al.<sup>4</sup></b>  | Q28 Leg pain while walking   |
|   | Q29 Must sit down or bend forward to relieve pain  |
|   | Q30 Flex forward while walking   |
|   | Q31 Normal pulses in foot  |
|   | Q32 Low back pain  |
|   | Q33 Lower extremity weakness   |
|   | Q34 Relief with rest   |
|   | Q35 Sensory deficits   |

**Genevay et al.<sup>5</sup>**

- Q36 Age >60 years
- Q37 Positive 30-s extension test
- Q38 Patient reports pain in both legs
- Q39 Patient reports leg pain relieved by sitting
- Q40 Patient reports leg pain decreased by leaning forward or flexing the spine
- Q41 Negative SLR-60 test

Table B shows how the 41 questions and symptoms were merged into 13 questions.

|           | <b>CRUDE TRANSLATION</b>  | <b>QUESTION IN DANISH</b>  | <b>ORIGINAL 41 QUESTIONS</b>                                    | <b>QUESTION NUMBER</b> | <b>REFERENCE</b>                 |
|-----------|---|--|---|------------------------|----------------------------------|
| <b>Q1</b> | How old are you? ____years  | Hvor gammel er du? _____ år  | I am ≥ 60 years old   | Q20                    | Aizawa et al. <sup>2</sup>       |
|           |   |  | Age >60 years   | Q36                    | Genevay et al. <sup>5</sup>      |
| <b>Q2</b> | Do you have low back pain?  | Har du smerter i lænden?   | Does the patient have low back pain?                            | Q27                    | Tomkins-Lane et al. <sup>3</sup> |
|           |   |  | Low back pain   | Q32                    | Sandella et al. <sup>4</sup>     |
| <b>Q3</b> | Do you sometimes feel pain or numbness in one or both legs or buttocks? | Har du sommetider smerter eller føleforstyrrelser i ét eller begge ben eller balder? |   |                        |                                  |
| <b>Q4</b> | Do you feel pain or numbness in both legs or buttocks?                  | Har du smerter eller føleforstyrrelser i begge ben eller balder?                     | Numbness and/or pain in the thighs down to the calves and shins | Q1                     | Konno et al. <sup>1</sup>        |
|           |   |  | Numbness is present in both legs                                | Q5                     | Konno et al. <sup>1</sup>        |
|           |   |  | Numbness arises around the buttocks                             | Q7                     | Konno et al. <sup>1</sup>        |
|           |   |  | Numbness and/or pain is present in both legs                    | Q17                    | Aizawa et al. <sup>2</sup>       |
|           |   |  | Numbness arises around the buttocks                             | Q19                    | Aizawa et al. <sup>2</sup>       |
|           |   |  | Patient reports pain in both legs                               | Q38                    | Genevay et al. <sup>5</sup>      |
|           |   |  |   |                        |                                  |
| <b>Q5</b> | Do you feel numbness in the soles of both feet?                         | Har du føleforstyrrelser under begge fødder?   | Numbness is present in the soles of both feet                   | Q6                     | Konno et al. <sup>1</sup>        |
|           |   |  | Numbness is present in the soles of both feet                   | Q18                    | Aizawa et al. <sup>2</sup>       |
| <b>Q6</b> | Does your pain or numbness in   | Forværres dine smerter eller   |   |                        |                                  |

|           |  |  |  |     |                                  |
|-----------|--|--|--|-----|----------------------------------|
|           | one or both legs increase while walking?   | føleforstyrrelser i ét eller begge ben eller balder når du går?  | Does the patient have leg or buttock pain while walking?   | Q21 | Tomkins-Lane et al. <sup>3</sup> |
|           |  |  | Leg pain while walking   | Q28 | Sandella et al. <sup>4</sup>     |
| <b>Q7</b> | Does your pain or numbness in one or both legs increase when standing for a while?         | Forværres dine smerter eller føleforstyrrelser i ét eller begge ben eller balder når du har stået i noget tid? | Standing for a while brings on numbness and/or pain in the thighs down to the calves and shins           | Q3  | Konno et al. <sup>1</sup>        |
|           |  |  | Standing for a while brings numbness and/or pain in the thigh(s) down to the calf or calves and shin(s). | Q14 | Aizawa et al. <sup>2</sup>       |
| <b>Q8</b> | Does your pain or numbness in one or both legs or buttocks decrease when bending forwards? | Lindres dine smerter eller føleforstyrrelser i ét eller begge ben eller balder når du bøjer dig fremover?      | Numbness and/or pain are reduced by bending forwards.  | Q4  | Konno et al. <sup>1</sup>        |
|           |  |  | Numbness and/or pain are reduced by bending forward.   | Q15 | Aizawa et al. <sup>2</sup>       |
|           |  |  | Does the patient flex forward to relieve symptoms?   | Q22 | Tomkins-Lane et al. <sup>3</sup> |
|           |  |  | Must sit down or <b>bend forward</b> to relieve pain   | Q29 | Sandella et al. <sup>4</sup>     |
|           |  |  | Patient reports leg pain decreased by leaning forward or flexing the spine                               | Q40 | Genevay et al. <sup>5</sup>      |

|     |   |   |   |     |                                  |
|-----|---|---|---|-----|----------------------------------|
| Q9  | Does your pain or numbness in one or both legs or buttocks decrease by sitting?                 | Lindres dine smerter eller føleforstyrrelser i ét eller begge ben eller balder når du sidder?               | Must <b>sit down</b> or bend forward to relieve pain                | Q29 | Sandella et al. <sup>4</sup>     |
|     |   |   | Patient reports leg pain relieved by sitting                        | Q39 | Genevay et al. <sup>5</sup>      |
| Q10 | Does your pain or numbness in one or both legs or buttocks decrease when biking?                | Lindres dine smerter eller føleforstyrrelser i ét eller begge ben eller balder når du cykler?               |   |     |                                  |
| Q11 | Does your pain or numbness in one or both legs or buttocks decrease when using a shopping cart? | Lindres dine smerter eller føleforstyrrelser i ét eller begge ben, når du læner dig ind over indkøbsvognen? | Does the patient feel relief when using a shopping cart or bicycle? | Q23 | Tomkins-Lane et al. <sup>3</sup> |
| Q12 | Do you flex forward while walking?  | Bøjer du dig forover, mens du går?  | Flex forward while walking  | Q30 | Sandella et al. <sup>4</sup>     |
| Q13 | Do you feel weakness in the legs while walking?   | Får du "tunge ben" når du går?  | Does the patient have motor or sensory disturbance while walking?   | Q24 | Tomkins-Lane et al. <sup>3</sup> |
|     |   |   | Does the patient have lower extremity weakness?                     | Q26 | Tomkins-Lane et al. <sup>3</sup> |
|     |   |   | Lower extremity weakness  | Q33 | Sandella et al. <sup>4</sup>     |
|     |   | <b>NOT INCLUDED</b><br><i>Q1+Q2 (risk of local dependence)</i>  | Numbness and/or pain increase in intensity                          | Q2  | Konno et al. <sup>1</sup>        |

|   |   |        |   |
|---|---|--------|---|
|   | after walking for a while but are relieved by taking a rest   |        |   |
| <b>Q1+Q2 (risk of local dependence)</b>         | Numbness and/or pain increase in intensity after walking for a while but are relieved by taking a rest. | Q13    | Aizawa et al. <sup>2</sup>                              |
| Question related to cauda equina symptoms       | A burning sensation arises around the buttocks.   | Q9     | Konno et al. <sup>1</sup>                               |
| Question related to cauda equina symptoms       | Walking nearly causes urination.  | Q10    | Konno et al. <sup>1</sup>                               |
| Question related to symptoms on disc herniation | Difficulty bending forward because of numbness and/or pain.   | Q11    | Aizawa et al. <sup>2</sup>                              |
| Not clear how it differentiates                 | Numbness is present, but pain is absent.  | Q8 Q16 | Konno et al. <sup>1</sup><br>Aizawa et al. <sup>2</sup> |
| Rest not clear (sit, lie, stand etc.)           | Relief with rest  | Q34    | Sandella et al. <sup>4</sup>                            |
| Question related to symptoms on disc herniation | Difficulty putting on socks because of numbness and/or pain.  | Q12    | Aizawa et al. <sup>2</sup>                              |
| Related to physical examination                 | Are the pulses in the foot present and symmetric?   | Q25    | Tomkins-Lane et al. <sup>3</sup>                        |
| Related to physical examination                 | Normal pulses in foot   | Q31    | Sandella et al. <sup>4</sup>                            |
| Related to physical examination                 | Positive 30-s extension test  | Q37    | Genevay et al. <sup>5</sup>                             |
| Related to physical examination                 | Negative SLR-60 test  | Q41    | Genevay et al. <sup>5</sup>                             |
| Related to physical examination                 | Sensory deficits  | Q35    | Sandella et al. <sup>4</sup>                            |

## Reference List

1. Konno S, Kikuchi S, Tanaka Y, et al. A diagnostic support tool for lumbar spinal stenosis: a self-administered, self-reported history questionnaire. *BMC Musculoskelet Disord.* 2007;8:102.
2. Aizawa T, Tanaka Y, Yokoyama T, et al. New diagnostic support tool for patients with leg symptoms caused by lumbar spinal stenosis and lumbar intervertebral disc herniation: A self-administered, self-reported history questionnaire. *J Orthop Sci.* 2016;21(5):579-585.
3. Tomkins-Lane C, Melloh M, Lurie J, et al. Consensus on the Clinical Diagnosis of Lumbar Spinal Stenosis: Results of an International Delphi Study. *Spine (Phila Pa 1976).* 2016.
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