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# Documentation of spinal red flags during physiotherapy assessment

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## ABSTRACT

The project was designed as a retrospective service evaluation using audit to assess the identification and documentation of red flags in initial assessment of patients with low back pain. Firstly, the documentation of 11 predetermined red flags was assessed. Secondly, the documentation of relevant additional information was assessed and finally, compliance with local policy to highlight positive red flag findings in the designated area on the paperwork was examined. The documentation for the majority of red flags was high, however, clear gaps were identified. Additionally, there was no evidence of further clinical consideration of positive red flags during the diagnostic process. Possible factors influencing red flag documentation are discussed and suggestions are provided to improve recording and response to clinical indicators of malignancy.

**Key Words** Red flags ■ documentation ■ low back pain ■ malignancy ■ serious pathology ■ Physiotherapy assessment

## Introduction

Low back pain (LBP) is a prevalent condition treated in physiotherapy departments in the UK. A key element of the physiotherapy assessment is to screen for serious spinal pathologies (SSPs) such as spinal malignancy (Ferguson et al, 2010). Malignancies of the spine are, after vertebral fracture, the most common form of SSP (Greenhalgh & Selfe, 2010). Early identification of this condition is vital to prevent spread of the disease and the potential development of complications such as malignant spinal cord compression and cauda equina syndrome (NICE, 2008). Both UK and international clinical guidelines advocate the use and documentation of red flags as the first line in the identification process (Negrini et al, 2006; Van Tulder et al, 2006; NICE, 2009a) These are clinical features from the history and physical examination of a patient that are associated with an increased risk of a serious underlying condition.

The Chartered Society of Physiotherapy (CSP) Code of Professional Conduct clearly states that physiotherapists should follow evidence-based practice in the form of guidelines and that record keeping should be 'full and clear' (CSP, 2002a). This has medico-legal implications for therapists as cases of medical negligence have been brought against physiotherapists for under-reporting and failing to act upon red flags (CSP, 2014). Therefore transparent screening processes are imperative.

## Aims

To audit the documentation of red flag indicators of spinal malignancy identified in the subjective examination of patients with LBP during the initial physiotherapy assessment.

## Audit Standards

Following a review of current literature and evidence-based guidelines, a list of 11 clinical

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<b>Table 1. Table of red flags included in the audit with the clinical guidelines that recommend their use</b>	
<b>Red flag</b>	<b>Guidelines</b>
Past Medical History (PMH) Cancer	National Institute for Health and Care Excellence (NICE) Guidelines for LBP UK (2009a; b) European Guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) Australian Acute Musculoskeletal Pain Guidelines Group (AAMPGG) (2003) Royal College of Radiologists UK (2012) American College of Physicians Guidelines (Chou et al, 2011)
Age <50	NICE Guidelines UK (2009a; b) European Guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) AAMPGG (2003) Royal college of Radiologists UK (2012) American College of Physicians Guidelines (Chou et al, 2011)
Age >20	NICE ( 2009a, 2000b) European Guidelines (Airaksinen et al, 2006) Royal College of Radiologists (2012)
Saddle anaesthesia	NICE Guidelines UK (2009a; b) European Guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) AAMPGG (2003) Royal College of Radiologists UK (2012) American College of Physicians Guidelines (Chou et al, 2011)
Bowel or bladder dysfunction	NICE Guidelines UK (2009a; b) European Guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) AAMPGG (2003) Royal College of Radiologists UK (2012) American College of Physicians Guidelines (Chou et al, 2011)
Systemically unwell/malaise	NICE Guidelines UK (2009a; b) European Guidelines (Airaksinen et al, 2006) Royal College of Radiologists (2012)
Unexplained weight loss	NICE Guidelines UK (2009a; b) European guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) AAMPGG (2003) Royal College of Radiologists UK (2012) American College of Physicians Guidelines (Chou et al, 2011)
Severe night pain	NICE Guidelines UK (2009a; b) European Guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) Spinal Cord Compression Guidelines (Christie Hospital NHS Trust, 2009)

Constant progressive pain	European Guidelines (Airaksinen et al, 2006) Italian Clinical Guidelines (Negrini et al, 2006) AAMPGG (2003) Royal College of Radiologists UK (2012) American College of Physicians Guidelines (Chou et al, 2011)
Band like trunk pain	Spinal Cord Compression Guidelines (Christie Hospital NHS Trust, 2009)
Decreased mobility/ gait disturbance	Spinal Cord Compression Guidelines (Christie Hospital NHS Trust, 2009)

indicators of malignancy was produced. This can be viewed in *Table 1*.

Simply documenting the presence or absence of these red flags does not equate to adequate screening. In addition to this, a robust clinical reasoning process is imperative in order that the threshold for suspicion of serious pathology is at an appropriate level (Greenhalgh & Selfe, 2009). Consequently, the two additional aspects assessed in this study were obtaining relevant information and the completion of the precaution section.

### Obtaining relevant information

In the presence of a red flag further information may be required in order to assess its significance and to inform the diagnostic reasoning process. Past medical history of cancer is one example, as studies of this have demonstrated that the most common cancers to metastasise to the spine are breast, lung and prostate (Greenhalgh & Selfe, 2006, McLinton & Hutchison, 2006). The type of cancer and length of time since diagnosis are also important to note, as the risk of spinal metastases has been shown to be proportionally related to the duration of the disease (Christie Hospital NHS Trust, 2014). This information is necessary to appropriately guide the clinician's index of suspicion with regards to the possibility of spinal cancer.

### Completion of the precaution section

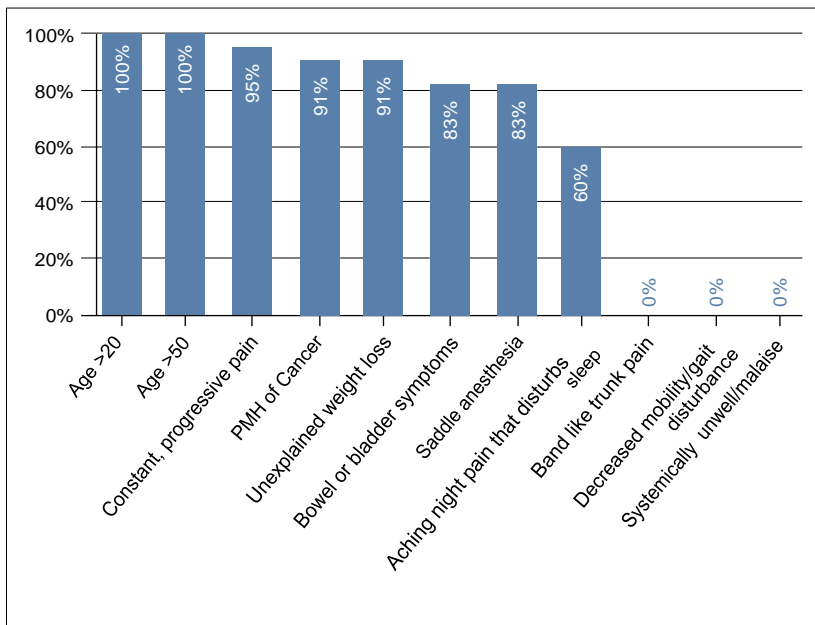
According to guidelines from the Health and Work Development Unit, demonstration of further consideration regarding red flags should

be an audit standard when managing back pain (Royal College of Physicians, 2012). Local NHS Trust protocol dictates that positive red flag findings are documented in the 'Precaution Section' of the assessment form in order to collate and highlight significant information. Completion of this section of the paperwork is considered to demonstrate that the clinician is alert to the presence of these features and has recognised them as possible indicators of SSP.

### Methods

A sample of patient notes was obtained by identifying discharged patients with LBP from a patient database. Records of 48 patients were sampled consecutively and the following information was captured from the initial assessment:

- The documentation of each red flag on the assessment form and self-administered medical history questionnaire – positive or negative finding
- The documentation of further relevant information where necessary



**Figure 1. Graph displaying the percentage of patient records in which each red flag was recorded**

- The completion of the Precaution Section in the presence of a red flag.

## Results

### Documentation of each red flag

For the majority of red flags in this evaluation the compliance for recording a negative or positive finding was high, ranging from 60-100% (see figure 1). These red flags appear on current paper work in various forms, including prompts to ask the patient and the self-completed medical history questionnaire. Omissions in red flag documentation identified in the study were 'band like trunk pain', 'gait disturbance' and 'systemically unwell/malaise'. These particular

characteristics of malignancy do not appear as questions or prompts on current paperwork.

'Saddle anaesthesia' and 'bowel or bladder symptoms' were not documented on eight records. In all of the eight cases (16%) the clinicians had used assessment paperwork not specific to the spine, which did not include prompts to question the patient regarding these particular symptoms.

'Past medical history of cancer' and 'unexplained weight loss' were not recorded in four cases. In all of these four cases (8%) the PMH questionnaire had not been completed.

### Obtaining relevant information

On 16 occasions clinicians indicated the presence of night pain, but there was insufficient detail regarding the nature of this pain to establish whether this should raise suspicion of malignancy or whether symptoms were consistent with simple mechanical back pain.

Three patients indicated unstable weight on their medical history questionnaire. However, no further detail regarding this was documented in any of the cases.

Three patients had identified a history of cancer on the medical history questionnaire. In one case the patient had recorded the type of cancer but the date of diagnosis was not documented. In the other two cases no further information had been recorded.

### Completion of the Precaution Section

A total of 47 positive red flags were identified and 15 patients had combined red flags. These findings were not highlighted in the precaution section on any of the records.

## Discussion

High levels of compliance surrounding documentation of the majority of red flags appear to suggest good levels of screening, with the exception of three items. Appearing on the assessment paperwork, however, does not equate to adequate screening, and evidence of critical elements of the clinical reasoning process, involving gaining and processing relevant information, were found to be lacking. This is seen in the response to positive red

flag findings:

- The failure to document relevant information necessary to evaluate the influence of red flags on clinical judgement
- The failure to demonstrate the consideration of individual or combinations of red flags, indicating synthesis of this information in the clinical reasoning process.

This may purely signify poor documentation and a lack of transparency of the reasoning process. Clinicians may be simply unaware of the importance of documenting both the presence and consideration of red flags. However, physiotherapists are working in an increasingly litigious healthcare service where there is a growing demand for explicit clinical reasoning (Higgs & Ajjawi, 2014), and where full and clear documentation of the reasoning process is therefore essential. This has training implications requiring clinicians to have a sound understanding of the medico-legal aspects of professional practice, in line with CSP Curriculum framework (CSP, 2002b).

These findings could, however, represent more serious issues of an inadequate screening process and subsequent failure to deliver an appropriate standard of patient care. Of particular concern were records in which two or more significant red flags were identified, with no further information recorded. These cases raise important questions:

- Were clinicians alert to the higher risk of malignancy and were patients monitored closely for the development of other characteristics on subsequent visits?
- Would the clinicians have acted accordingly had the patient failed to respond to treatment?
- Had these been unfortunate cases of spinal malignancy, would the clinicians be open to litigation?

Poor screening may be the result of insufficient knowledge regarding the presentation of spinal malignancy and associated gait disturbance, which clinicians failed to document on all 48 records. This theory, however, does not account for the omissions of other more widely recognised red flags, including PMH of cancer and saddle

anaesthesia. One possible explanation is reduced cognitive function of clinicians (Ely et al, 2011). Strong evidence exists to suggest that cognitive function is compromised by stress and fatigue (Hales and Pronovost, 2006; Ely et al, 2011), and when working in a time pressured environment there is a clear risk of missing key information if relying on memory recall alone. It is also possible that in these instances clinicians may have been subject to cognitive bias by focusing on the salient features of mechanical back pain and failing to deliberate further in regards to diagnosis (Croskerry, 2003). As spinal malignancy can manifest as mechanical pain, clinicians still need to be open to additional possibilities for the cause of pain despite finding a seemingly plausible explanation. The current assessment form used in the local NHS Trust may also be a contributing factor, as red flag items are not grouped in one area, and therefore clusters are not easily identifiable. This arrangement, whereby characteristics of malignancy are spread out in different sections of the assessment or completed by the patient, does not encourage a systematic approach to differential diagnosis, and therefore does not force deliberate and conscious consideration of malignancy or other SSPs.

Implementation of a single red flag checklist may be an appropriate strategy to improve both documentation and screening levels. There are, however, caveats associated with the use of such lists. Some authors have criticised this practice as a box ticking exercise, replacing good clinical reasoning (Ely et al, 2011, Underwood, 2009). There are also concerns that red flag checklists may lead to aggressive diagnostic behaviour, by encouraging the use of red flags in a formulaic

manner to trigger investigations on the basis of these alone (Henschke and Maher, 2006; Klaber-Moffett et al, 2006; Underwood, 2009). Relying on a checklist in this way simplifies the clinical reasoning process and disregards the complexity of LBP and the context in which symptoms present. Sound diagnostic reasoning involves the integration of these characteristics of malignancy with other factors, such as objective findings, illness behaviour and an understanding of the person as well as the condition. Completion of the checklist should merely contribute to the clinicians evolving concept of the patient's problem as part of, and not to replace, overall clinical judgement. Training, in conjunction to implementation of a checklist is, therefore, required to ensure this list is used to guide the clinician's index of suspicion and not as a formal decision rule. This is particularly important in light of the low prevalence of spinal malignancy and the risk of over medicalising LBP with unnecessary imaging (Chou et al, 2011).

## **Conclusions**

When assessing patients with LBP there is clearly a need to strike a balance between the consideration of the potentially catastrophic consequences of missing spinal malignancy with the low probability of this pathology. It appears from this study that this balance has been tipped in favour of the latter. Although

high levels of documentation for the majority of red flags were found, there was insufficient evidence to demonstrate consideration of these clinical features when positive. It is hoped that the implementation of the recommendations following this study will produce a model of management for LBP that does not endorse indiscriminate use of red flags but facilitates considered use of these characteristics to evaluate the need for investigation.

## **Recommendations**

The implementation of a single red flag checklist is recommended to reduce the reliance on memory, to clearly highlight combinations of red flags and to encourage a methodical approach to differential diagnosis. Training regarding the clinical features of spinal malignancy with sufficient detail to enable interpretation in clinical practice is also recommended. Additionally, the provision of clear guidance on the appropriate use of this list is required. Following training and amendment of paperwork the process in this study will be repeated to complete the audit cycle and assess change.

***Conflicts of Interest:*** None

***Declaration:*** All procedures were approved by the ethics committee and performed in compliance with institutional guidelines.

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