



**HORIZON SCANNING**

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# BRIEF

## Models of care for the management of persistent musculoskeletal pain and/or depression

### Background

Musculoskeletal pain can occur following damage to the muscles, ligaments, tendons, and bones. The three main causes of musculoskeletal pain are unusual or repetitive strain on the system, trauma to a specific area from a fall, sprain or blow, and certain musculoskeletal diseases.<sup>1</sup> Many Australians experience musculoskeletal pain, however for a few, this becomes chronic or persistent.<sup>2</sup> Persistent musculoskeletal pain is often associated with depression and anxiety.<sup>3</sup> Persistent musculoskeletal pain is a major cause of disability in older age and a major cause of work absence in the working age population. Low back pain is the most common type of persistent musculoskeletal pain.<sup>4</sup>

A biopsychosocial approach that addresses the physical, psychological and social factors contributing to the development and maintenance of persistent pain with disability is currently accepted as the most effective approach to the management of persistent, disabling pain.<sup>3,5</sup> The best outcomes for people with persistent and disabling musculoskeletal pain are achieved when a multidisciplinary team employs a multimodal management approach that includes physical activity, patient education, behavioural interventions and self-management support. These may be combined with pharmacological and interventional procedural treatments when appropriate.<sup>6</sup>



A joint initiative of

The management of persistent musculoskeletal pain poses a continuing challenge for the health care system. There is evidence for effective interventions but there remains a lack of evidence and guidance on how to best implement this evidence into practice.<sup>6</sup>

## Technology overview

A 'Model of Care' broadly defines the way health services are organised and delivered.<sup>7</sup> Models of care aim to ensure people get the right care, at the right time, by the right team and in the right place.<sup>8</sup> The health care system is often challenged to consider new methods of health care delivery to address limitations of current practice including evidence-practice gaps and sub-optimal access to services. These limitations may reduce the potential for improved outcomes.

This brief describes four interventions that address health care delivery for people with persistent musculoskeletal pain and/or depression. The interventions were identified through the Horizon Scanning project during the period of September 2016–February 2017. The interventions are in different stages of development and implementation, and research regarding their effectiveness is ongoing. The interventions are:

### Musculoskeletal pain

- GLITtER: A psychoeducational intervention for low back pain
- Online exercise and pain-coping skills training for chronic knee pain

### Depression

- Collaborative care in older adults with subthreshold depression

### Coexisting musculoskeletal pain and depression

- Integrated management of musculoskeletal pain and depression in general practice

#### **GLITtER: A psychoeducational intervention for low back pain<sup>9</sup>**

Negative or badly-worded communication regarding the abnormalities detailed in spinal imaging reports such as following

X-ray, CT (computerised tomography) or MRI (magnetic resonance imaging) scans has been shown to worsen a patient's sense of well-being, and may increase fear of re-injury and reduce the likelihood of a good outcome. It is common to find abnormalities following spinal imaging and it is now clear that many of these changes are not abnormal and are also seen in pain-free individuals. It is also understood that spinal imaging findings are not well associated with pain or prognosis.

The Green Light Imaging Interpretation to Enhance Recovery (GLITtER) intervention was developed by the Body in Mind research group at the University of South Australia. The intervention involves a new and standardised method of communicating spinal imaging findings in a manner designed to reassure patients and promote patients' physical activity. The intervention is designed to be integrated into current practice and to be conducted face-to-face by clinicians. The model of care provides a framework for interpreting imaging findings and key messages to be communicated whilst reviewing the patient's imaging results. The key messages to be communicated are that scans do not necessarily indicate: the patient's current pain, the activity the patient is capable of, or how likely the patient is to recover. The clinician will explain to the patient that after reviewing their imaging and assessing them, surgery and further scans are not required and they consider movement and activity to be safe. The patient is provided with a metaphorical 'green light' to increase their activity level and the message that this activity is important for their recovery. The green light message is re-iterated in take-home information which includes a 4-week series of key messages displayed in poster style. The main themes of this information are:

- Scan findings should not cause worry; it is safe to be active.
- Pain is complex and many things contribute to the experience of pain.
- Activity and exercise are important for recovery and have many benefits.

Patients receive weekly SMS follow-ups with links to online education resources, a prompt to display and read the information sheet they were provided at their consultation, and a reminder to plan some activity/exercise for the coming week.

#### **Online exercise and pain-coping skills training for chronic knee pain<sup>10</sup>**

Effective treatments for chronic knee pain include home-based exercises and learning how to cope with symptoms. However, many people have problems accessing specialists who can prescribe and supervise these treatments due to cost, transport issues or geographical location.

An online treatment program combining education, physiotherapist-prescribed home exercise and interactive pain-coping skills training was developed by the Department of Physiology at the University of Melbourne. The program aims to improve pain and function in patients with chronic knee pain and improve access to effective treatments. The model of care includes three components delivered over a 13-week period:

1. Online educational material about exercise and physical activity, pain management, emotions, healthy eating, complementary therapies and medications.
2. An eight-module, online, interactive pain-coping skills training (PainCOACH) program.<sup>11</sup>
3. A seven-session physiotherapist guided exercise program delivered online using Skype.

#### **Collaborative care in older adults with subthreshold depression<sup>12,13</sup>**

Sub-threshold depression is the presence of some depressive symptoms but insufficient to meet the formal diagnostic criteria for major depression. Identifying effective treatments for subthreshold depression is important because many of these patients suffer persistent symptoms, experience significant impairments in their quality of life and level of functioning and many progress to major depression. There is currently no clear evidence-based guidance

regarding treatment for those with mild or subthreshold depression.

The CASPER (Collaborative care and active surveillance for Screen-Positive EldeRs) trial aimed to determine whether collaborative care, a form of care involving a case manager coordinating different aspects of an individual's care, could improve the wellbeing of older people with low level or subthreshold depression. Collaborative care was delivered by a case manager with a background in mental health nursing or a graduate psychologist for an average of six sessions over 7-8 weeks. Collaborative care included telephone support, symptom monitoring and active surveillance, facilitated by computerised case management. The first session was delivered face-to-face and subsequent sessions by telephone. This took place alongside a participant's usual GP care. The case manager shared relevant information with the GP and a mental health specialist and provided a cohesive link between the participant and other people involved in their care. Subjects also participated in a structured behavioural activation program, a low-level psychological intervention designed to address the behavioural deficits of depression such as avoiding social

interaction and the absence of rewarding activities.

**Integrated management of musculoskeletal pain and depression in general practice<sup>14,15</sup>**

Persistent pain and depression are common in primary care patients and frequently coexist in the same patient. When depression and pain coexist, the conditions can have a cumulative adverse effect on outcomes, including more severe symptoms, poorer functioning and reduced response to treatment. It has been hypothesised that an integrated management approach targeting both pain and depression in the primary care setting is an opportunity to achieve better outcomes.

The model of care is based on a chronic care model and includes a structured program with integrated management of depression and pain. The model has three main components:

1. **Optimised management of depression:** Depression is managed using an electronic clinical support tool that incorporates algorithms and recommendations based on recent clinical practice guidelines.
2. **Care management:** A psychologist care manager supports and

collaborates with the treating physician in managing the patient. The care manager ensures compliance with the care plan and participates in monitoring the patient through periodic telephone follow-up. The structured telephone contact occurs monthly during the first two months of the study and then every two months after that.

3. **Patient education:** A group-based psychoeducational program that promotes understanding and self-management of depression and pain. The program is designed to help patients take an active role in managing their conditions. The program is delivered face-to-face by the care manager in nine weekly, interactive group sessions. A teaching manual and other support materials have been developed to facilitate these sessions.

**Clinical indication**

The interventions described in this brief are designed to improve outcomes in patients with persistent musculoskeletal pain and/or depression. The interventions are directed at low back pain, chronic knee pain, subthreshold depression, or co-occurring persistent musculoskeletal pain and depression. Table 1 describes

Table 1: Summary: Clinical application

Intervention	Objective	Indication	Setting for use
Green Light Imaging Interpretation to Enhance Recovery (GLITtER) <sup>9</sup>	To inform the feasibility of conducting a trial to assess whether the GLITtER intervention integrated into routine practice is a cost-effective strategy for reducing chronic low back pain and disability.	Low back pain	Secondary care – spinal outpatient clinic
Internet-delivered education, exercise and pain-coping skills training <sup>10</sup>	To evaluate the effectiveness of internet-delivered, education, physiotherapist-prescribed home exercise and interactive pain-coping skills training.	Chronic knee pain	Community
Collaborative care in older adults with subthreshold depression <sup>12,13</sup>	To evaluate whether a collaborative care intervention can reduce depressive symptoms and prevent more severe depression in older people.	Subthreshold depression	Primary care
Integrated approach to chronic musculoskeletal pain and depression <sup>14</sup>	To determine whether a new program for an integrated approach to chronic musculoskeletal pain and depression leads to better outcomes than usual care.	Musculoskeletal pain and depression	Primary care

key elements of the interventions including the indication or intended patient group.

## Setting for technology use

The interventions described in this brief are intended to be implemented in different settings throughout the care continuum including community, primary and secondary care settings. Table 1 describes key elements of the interventions including setting for use.

## Clinical effectiveness

### *GLITtER: A psychoeducational intervention for low back pain<sup>9</sup>*

A feasibility study comparing the GLITtER intervention with standard care for patients with low back pain attending the Spinal Assessment Clinic at the Royal Adelaide Hospital is currently underway. The study will inform the feasibility of definitive testing of GLITtER to determine if this intervention integrated into routine practice in a spinal outpatient clinic setting is a cost-effective strategy to reduce lower back pain and disability.

The feasibility study is due for completion in September 2017.

### *Online exercise and pain-coping skills training for chronic knee pain<sup>10</sup>*

A randomised controlled trial to evaluate the effectiveness of the online model of care was conducted between 2014 and 2016. The study involved 148 community dwelling participants aged 50 years or older with chronic knee pain of more than three months duration. The study compared outcomes of the online intervention combining physiotherapist-prescribed home exercise, the interactive pain-coping skills training program and provision of online educational materials with a control group that only received the educational materials. The study demonstrated that, compared to the control group, patients who had access to the online model of care reported significantly greater improvement in pain during walking and physical functioning at three months and improvements were sustained at nine months. The benefits are likely due to the combination of exercise and pain-coping skills training.

It was concluded that the online intervention offers an effective, safe,

acceptable and viable alternative to traditional treatment delivery. This type of model may improve access to these effective treatments.

In December 2016, the online model of care won the Research into Action category in the VicHealth annual health promotion awards.<sup>16</sup>

### *Collaborative care in older adults with subthreshold depression<sup>12,13</sup>*

The CASPER (Collaborative Care in Screen-Positive Elders) trial was a randomised controlled trial of usual GP care compared with usual GP care with the addition of collaborative care for the treatment of mild depression in people aged 65 years or older. The trial was conducted in the United Kingdom between 2011 and 2014 and was published in 2017. Results of the trial demonstrated that collaborative care was effective and cost-effective for older adults with mild depression and reduced the proportion of people who went on to develop case-level depression at 12 months. Collaborative care prevented the onset of depression diagnosis by 12.1% at 12 months. Symptoms of anxiety and health-related quality of life were also better in the collaborative care group at four and 12 months.

Table 2: Summary: Ongoing and completed clinical trials

Intervention	Location	Participants	Trial ID	Stage of development
Green Light Imaging Interpretation to Enhance Recovery <sup>9</sup>	Australia	40 participants aged 18–75 years*	ACTRN12617000317392	Feasibility trial ongoing  Anticipated completion Sep 2017  Definitive cost effectiveness trial planned
Internet-delivered education, exercise and pain-coping skills training <sup>10</sup>	Australia	148 participants aged 50 years or older	ACTRN12614000243617	Evaluation complete
Collaborative care in older adults with subthreshold depression <sup>12,13</sup>	United Kingdom	705 participants aged 65 years or older	ISRCTN02202951	Evaluation complete
Integrated approach to chronic musculoskeletal pain and depression <sup>14</sup>	Spain	330 participants aged 18–80 years*	NCT02605278	Trial ongoing  Anticipated publication of results Jan–Jun 2018

\* Number of participants anticipated to be enrolled in the trial

It was concluded that collaborative care improves outcomes for at least some patients with subthreshold depression. Patients with persistent symptoms, functional impairment and a desire for treatment may particularly benefit.<sup>17</sup> The authors of the study suggest it would be useful to determine whether the results can be replicated in a working age population with subthreshold depression.

### **Integrated management of musculoskeletal pain and depression in general practice<sup>14,15</sup>**

The Multicomponent Program for the Integrated Management of Chronic Pain and Depression in Primary Care (DROP) trial is currently underway in Spain. The first aim of the trial is to evaluate whether implementing an integrated model of care for persistent musculoskeletal pain and depression in a primary care setting improves clinical outcomes compared to usual care. The trial will also attempt to confirm whether improvements in depression symptoms, pain and functioning reported following integrated management of pain

and depression in the United States health setting can be replicated in other locations.<sup>18</sup> The trial is due for completion in December 2017, with publication of results anticipated by June 2018.

The status of the clinical trials investigating the effectiveness of the four interventions described in this brief are summarised in Table 2.

## **Cost**

### **GLITTER: A psychoeducational intervention for low back pain<sup>9</sup>**

Planned future studies of the GLITTER intervention aim to determine whether it is a cost-effective strategy for reducing chronic low back pain and disability.

### **Online exercise and pain-coping skills training for chronic knee pain<sup>10,11</sup>**

No information was available regarding the internet model of service delivery combining education,

physiotherapist-prescribed home exercise and interactive pain-coping skills training. However, one component of the online model of care for chronic knee pain is the PainCOACH pain-coping skills training program. This program does not require clinician input so is an economical approach to self-management. Developers are in the process of making this program freely available on the internet.

### **Collaborative care in older adults with subthreshold depression<sup>13</sup>**

The CASPER trial demonstrated that collaborative care was clinically effective and cost-effective for older adults with subthreshold depression. It was estimated that the cost of providing collaborative care was £494.73 per participant.

### **Integrated management of musculoskeletal pain and depression in general practice<sup>14,18</sup>**

No information regarding the cost of implementing this intervention was available.

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