

Evidence Scan: Pain Management Models

Questions

(1) What are evidence-based models for primary care-based pain management?

(2) What are key elements of these models? What is the role of telehealth in these models?

Answer

Several primary care-based pain management models are backed by one or two trials showing evidence of effectiveness. While the research evidence has yet to converge around any specific models, many effective interventions share common elements. These key elements include algorithm-guided medication management with stepped care, proactive treatment monitoring, and biopsychosocial interventions such as self-management support and/or cognitive behavioral therapy.

Evidence for Primary Care-Based Pain Management

Several systematic reviews and empirical studies demonstrate the effectiveness of a variety of primary care-based pain management models. While the literature has yet to converge around any specific models, many effective interventions share common elements that may be worth exploring.

Elements of Effective Models

Based on 7 systematic reviews¹⁻⁷ and 12 empirical studies,⁸⁻¹⁹ there are a few key elements that consistently appear in effective pain management models and some additional elements that appear in a few effective models.

Key Elements

Consistent elements of effective pain management models are:

- **Algorithm-guided medication management with stepped care:** Providers follow an algorithm to guide treatment with analgesics and/or antidepressants. Treatment is “stepped up” if patients meet criteria for needing different medications or dosages.^{1,8,9,11-14,16,17}
- **Proactive treatment monitoring:** Regular followup often consists of phone calls from a nurse care manager or automated symptom monitoring with followup calls as needed.^{1,8,9,11,13,16,17}
- **Biopsychosocial interventions:** Can be delivered by a nurse care manager or mental health professional, either in person or by phone. Often consists of:
 - *Self-management support:* Involves teaching and practicing behavioral modification and problem-solving strategies, and tailored feedback to promote self-efficacy.^{2,5,11,16}
 - *Cognitive behavioral therapy:* Involves discussions of thoughts and feelings about pain, identifying barriers and maladaptive thoughts, and cognitive restructuring.^{3,4,6,11,18,19}

Additional Elements

Elements that appear in a few effective pain management models include:

- **Risk stratification:** Risk assessments are used to stratify patients into different care pathways based on comorbidities and needs for medication management and psychosocial support.^{1,12,15}
- **Group visits:** Group visits frequently include education about pain, strategies for coping, goal-setting, and physical activation or exercises.^{10,12,13}
- **Patient education:** Delivered individually or via group visits; topics often include pain pathophysiology, pain triggers, self-care strategies, and physical activation techniques.^{1,8-10,14,15}

Telehealth Components

Many components of effective primary care-based pain management models can be delivered using telehealth technologies. These include:

- **Automated symptom monitoring:** A brief survey delivered via online portal or interactive voice response calls; certain responses prompt a followup call from a care manager.^{17,20}
- **Phone-based treatment monitoring:** Care managers (frequently nurses) call patients on a regular basis to assess treatment adherence and changes in pain levels.^{1,8,9,11,13,16,17}
- **Phone-based self-management support or CBT:** Care managers (frequently nurses) follow a set protocol to deliver phone-based self-management support or CBT sessions.^{11,16,18,19}
- **Patient education:** Educational content can be delivered via online portals or mobile apps.⁶

Case Examples

Two RCTs of primary care-based pain management offer useful insight for designing future models:

ESCAPE¹¹: This intervention was implemented at 5 VA clinics and involves two phases:

- Phase 1: Nurse care managers follow an evidence-based algorithm to optimize analgesic therapy. Physicians review and approve all medication changes. The nurses call patients every two weeks to assess changes in pain and treatment adherence, provide education about chronic pain, and teach self-management strategies according to a standardized protocol.
- Phase 2: Involves the continuation of strategies from Phase 1, with the addition of a cognitive behavioral therapy program. Nurses call patients every two weeks and deliver CBT sessions involving discussions about pain-related thoughts and feelings, identification of barriers and maladaptive thoughts, and cognitive restructuring. A supervising psychologist provides consultation and case conferencing to support the CBT sessions.

Findings: The intervention group experienced statistically significant improvements in pain-related disability, pain interference, and pain severity. The findings show the effectiveness of a predominantly phone-based intervention that can be delivered by nurse care managers as a centralized service.

SCOPE^{17,22}: This intervention, which was implemented at 5 VA clinics, involves 3 key elements:

- Algorithm-guided medication management: Providers follow a stepped care analgesic optimization algorithm. A physician pain specialist writes nonopioid analgesic prescriptions; primary care providers have the option of prescribing and/or authorizing opioid treatment.
- Automated symptom monitoring: Every 1-2 weeks, patients answer a 15-question survey via online portal or interactive voice response phone calls. Specific responses (such as a desire for medication change) prompt a followup call from a nurse care manager.
- Care management: The nurse care manager and physician pain specialist have weekly case conferences; nurses discuss treatment plan with patients during regular followup calls.

Findings: The intervention group experienced statistically significant improvements in pain, depression, and satisfaction with pain treatment. Few patients started or increased opioid use during the trial. Over 12 months, the estimated time spent per patient was 3-4 hours by the nurse care manager and 1 hour by the physician pain specialist,¹⁷ suggesting a single nurse could potentially manage the care of 500-600 patients with the support of a 0.25 FTE physician pain specialist.²³ Variations of this model are explored in a prior trial¹⁶ and an ongoing trial.²⁰

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Methods disclaimer | This evidence scan was completed to support Kaiser Permanente Washington decisionmakers at a particular point in time. It is not being maintained or updated. Findings may not be generalizable to other settings and contexts.



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Additional supporting documentation

HHS Pain Management Best Practices Interagency Task Force Report (2019)
<https://www.hhs.gov/sites/default/files/pmtf-final-report-2019-05-23.pdf>

British Pain Society Guidelines for Pain Management Programmes for Adults (2013)
https://www.britishpainsociety.org/static/uploads/resources/files/pmp2013_main_FINAL_v6.pdf

CDC Guideline on Safe Opioid Prescribing (2016): <https://jamanetwork.com/journals/jama/fullarticle/2503508>
Followup perspective piece on the appropriate application of the guideline:
<https://www.nejm.org/doi/pdf/10.1056/NEJMp1904190>

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