

## Evidence-based treatment of chronic pain

The WorkSafeBC Evidence-Based Practice Group (EBPG) conducted a review of systematic reviews investigating the efficacy of treatments for chronic noncancer

*This article has not been peer reviewed.*

pain. The systematic literature search of medical databases, including Cochrane Database of Systematic Reviews, Cochrane Library’s Health Technology Assessment Database, BIOSIS, Embase, and Medline, was done in April 2010.

The extended summary of the chronic pain report can be viewed at [www.worksafebc.com/health\\_care\\_providers/Assets/PDF/poster-presentations/ChronicPainTreatmentsEvidence.pdf](http://www.worksafebc.com/health_care_providers/Assets/PDF/poster-presentations/ChronicPainTreatmentsEvidence.pdf).

No limitation was employed in this search. The results are summarized below.

Treatment	Evidence			Comments
	Positive	Negative	Conflicting	
<b>Pharmacological management</b>				
Topical <sup>1-6</sup>			✓	For topical capsaicin, salicylate-based rubefacients, and topical lidocaine
	✓			For topical ibuprofen for knee pain, especially in the elderly
Anticonvulsants <sup>2,7-12</sup>	✓			For Carbamazepine, Clonazepam, Phenytoin, Lamotrigine, Sodium Valproate
		✓		For Lorazepam, Oxcarbazepine, Topiramate, Gabapentin, Pregabalin
Antidepressants <sup>13</sup>		✓		In general, for nonspecific low back pain
Tricyclic antidepressants <sup>2,9,14</sup>	✓			Except for HIV-related neuropathies
Selective serotonin reuptake inhibitors <sup>2</sup>	—	—	—	No available evidence
Serotonin-norepinephrine reuptake inhibitors <sup>2,9,14,15</sup>	✓			For diabetic neuropathy and post-herpetic neuralgia
Antipsychotics (as ADD ON) <sup>16</sup>	✓			In chronic and resistant pain
Ketamine <sup>17</sup>	✓	✓		For acute relief of chronic pain For long-term treatment of chronic pain
Muscle relaxants <sup>18</sup>	✓			For acute low back pain for short-term pain relief, although adverse effects are frequent
Non anticonvulsants <sup>19</sup>		✓		For trigeminal neuralgia
Opioids <sup>2,20-22</sup>	✓	✓		For reducing pain, not for quality of life or functional status in chronic low back pain. Adverse effects are common
Opioid switching <sup>23</sup>			✓	For long-term management of chronic low back pain In patients with inadequate pain relief or with intolerable opioid-related adverse effects
Hydromorphone <sup>24</sup>	✓			However, analgesic efficacy and tolerability are similar to morphine
Tramadol <sup>2,25-28</sup>	✓			The effect size is small, side effects are common, and may not be better than less expensive analgesics
Multimodal Pain Rehabilitation Program <sup>29-32</sup>	✓			Except for neck and shoulder pain in adults
Cognitive behavioral therapy and behavioral therapy <sup>30,33,34</sup>	✓			The effect is small, but can be retained up to 6 months in reducing pain and disability, altering mood and social function. The best content, duration, intensity, and format of the treatment delivery are still unclear
<b>Invasive/surgical management</b>				
Systemic application of local anesthetics <sup>35</sup>	✓			For IV lidocaine; however, the effectiveness is short and may not be clinically significant
Extracorporeal shock wave therapy <sup>36</sup>		✓		For low energy in treating lateral epicondylitis
Spinal cord stimulators <sup>37,38</sup>	✓		✓	For short-term pain relief, but not on function or return to work in complex regional pain syndrome For failed back surgery syndrome For all, adverse effects are common
Sympathectomy <sup>(39)</sup>			✓	
Trigger point injection <sup>(40,41)</sup>			✓	As the sole treatment in patients with chronic head, neck, or shoulder pain, as well as whiplash-associated disorders

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Treatment	Evidence			Comments
	Positive	Negative	Conflicting	
<b>Physical therapy</b>				
Traction or spinal decompression <sup>42,43</sup>		✓		As a single treatment for any low back pain, with or without sciatica
Photonic stimulation <sup>44</sup>		✓		
Interferential stimulation <sup>45</sup>		✓		
Superficial heat or cold <sup>46</sup>	✓			Short-term with small effect
Electromagnetic fields <sup>47</sup>	✓			For knee osteoarthritis; however, the effect is not clinically significant
Electrotherapy <sup>48</sup>			✓	In treating neck pain
Conservative therapy <sup>49</sup>			✓	For active or passive treatments in whiplash-associated disorders, Grades 1 or 2
Transcutaneous electrical nerve stimulation <sup>50-54</sup>			✓	For knee osteoarthritis or chronic low back pain, or in reducing pain among patients with rheumatoid arthritis of the hand
Low-level laser therapy <sup>55,56</sup>			✓	In reducing pain among patients with nonspecific low back or neck pain
<b>Complementary and alternative medicine</b>				
Touch therapy, including healing touch, reiki, therapeutic touch <sup>57</sup>	✓			In reducing pain; however, the effect is not clinically significant
Neuroreflexotherapy <sup>58</sup>	✓			Short-term effect for nonspecific low back pain
Massage <sup>59,60</sup>	✓	✓		For nonspecific neck pain Small effect for subacute or chronic nonspecific low back pain
Acupuncture <sup>61-63</sup>	✓		✓	Evidence, short-term effect in acute headache or chronic nonspecific low back pain In treating shoulder pain
Herbal <sup>64,65</sup>	✓			For rheumatoid arthritis and maybe low back pain
Vitamin D <sup>66</sup>		✓		

### References

Available on request by e-mailing [kukuh.noertjojo@worksafebc.com](mailto:kukuh.noertjojo@worksafebc.com) or calling 604 232-5883. An extended summary of this review is accessible from the Evidence-based Medicine page on WorkSafeBC.com ([www.worksafebc.com/evidence](http://www.worksafebc.com/evidence).)

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principle in the relationship between air pollution and health: a small increase in exposure in large populations (Fraser North, population 597 659) can affect larger numbers of people than a large increase in exposures in small populations (Cariboo-Chilcotin, population 26 646).

The evidence we present from this season serves as a reminder that forest fire smoke affects people all over the province, even those distant from the fires. Physicians and public health practitioners across BC can (and did) work together to reduce the health effects of exposure to forest fires, particularly among those most at risk: firefighters, young children, the elderly, and those with chronic respiratory disease. Physicians play a key role in ensuring

that patients with chronic respiratory conditions such as COPD and asthma have rescue medication and emergency response plans, and know when to seek medical help. Public health responses include issuing air quality health advisories, establishing air shelters, and evacuating those at risk during severe smoke events. Partnerships between physicians and public health practitioners become particularly advantageous when novel scenarios arise, such as how to manage patients in hospitals when the indoor air becomes smoky.

Forest fires are the norm in British Columbia, and we can anticipate that they will increase with global climate change. Physicians and public health practitioners must continue to work together to reduce the health impacts of forest fires.

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### References

1. Naeher LP, Brauer M, Lipsett M, et al. Woodsmoke health effects: A review. *Inhal Toxicol* 2007;19:67-106.
2. Brauer M, Hisham-Hashim M. Fires in Indonesia. *Environment Science Technol* 1998;32S:404S-407S.
3. Moore D, Copes R, Fisk R, et al. Population health effects of air quality changes due to forest fires in British Columbia in 2003: Estimates from physician-visit billing data. *Can J Pub Health* 2006; 97:105-108.