
Literature Informing the Project's Approach

This review was conducted using a structured approach via an extensive Google Scholar search of “chronic pain” AND: (1) self-management; (2) primary care; (3) multidisciplinary care; and (4) interdisciplinary care. Further articles were retrieved from hand searches of article references.

Patient Centered Care and Self-Management

Chronic pain is a widespread, often debilitating disease affecting as many as 1 in 5 Canadians and chronic pain management remains a significant challenge for health-care practitioners (Dubin et al., 2015). According to the Institute of Medicine (IOM, 2011), “pain is a uniquely individual and subjective experience that depends on a variety of biological, psychological, and social factors” and effective pain management rests on addressing each contributing factor for each unique individual. Furthermore, patients who are active in the management of their own pain with high self-efficacy, low pain catastrophizing, and reduced fear-avoidance of activities that are painful, show better outcomes than patients who are passive (Bair et al., 2009; Blyth et al., 2005; Katz et al., 2015; Turner et al., 2007). Chronic pain management should aim to support patients’ abilities to manage their own pain, improve function (often measured as pain-related disability), and quality of life even if all pain cannot be eliminated (IOM, 2011).

Role of Primary Care Providers

Primary care physicians currently provide the majority of chronic pain services across Canada and yet often do not receive adequate training in techniques to promote non-pharmaceutical management (Dubin, 2015, McGillion, 2011). Within a primary care setting, best practices indicate that physicians or nurse care managers should utilize guiding and coaching, individualized to the patient, to increase feelings of self-efficacy and encourage the patient to take an active role in their care (IOM, 2011). Nurse-led primary care management has shown equal outcomes to physician led primary care management and may be a more cost effective way to deliver chronic pain primary care (Ryan, 2014).

Self-Management and Multidisciplinary Care

Many self-management interventions and allied and complementary treatments have been shown to provide support to primary care management of chronic pain. Studies of:

- low cost, group self-management programs (Brady et al., 2013; Bolscher-Niehuis et al., 2016; Carrington Reid et al., 2008; Foster et al., 2007; LeFort et al., 1998; Mann, LeFort & VanDenKerkhof 2013)
- web-based self-management programs (Eccleston et al., 2014; Wantland, 2004)
- exercise interventions (Hayden, 2011)
- yoga (Bussing, 2012; Podzaski, 2011; Chang, 2016)

All show small to moderate improvements in pain severity and pain related disability.

A scan of a large body of research on allied and complementary therapies (e.g., physiotherapy, psychotherapy, massage and acupuncture) for chronic pain shows generally beneficial results for improvements in pain severity and function (Ford, 2016; IOM 2011; Moseley, 2002, Nahin et al., 2016; Williams, 2016, Veehof et al., 2011). Greater benefits have been found for physical therapy treatments where the provider utilizes teaching methods based on the principles of cognitive behavioural therapy (Morseley 2002, Hay et al., 2005).

However, without integrated care coordination of the multidisciplinary services listed above, differing care approaches and failed treatments often leave patients frustrated and worsen the downward pain spiral (IOM 2011, Gatchel et al., 2014).

Patient Driven, Interdisciplinary, Team-Based Care

The gold-standard of chronic pain management is interdisciplinary care where a team of trained, multidisciplinary professionals simultaneously build on each others expertise to create a comprehensive and *individualized* management plan (Gatchel et al., 2014; Guzman et al., 2001; IOM 2011). However, these treatment models are costly, located in select urban centres and currently available to only a portion of complex patients in Canada (Canadian Pain Coalition, 2013; Dubin, 2014). Once a patient returns to their community, they need to be able to self-manage, with community and primary care support, emphasizing the importance of ensuring comprehensive pain management within communities (Dubin, 2015; Stanos, 2012).

Positive preliminary findings have come from initiatives aiming to link primary care practitioners to immediate, short consultations with specialists or interdisciplinary pain teams at centres of excellence (Dubin et al., 2015; Kroenke et al., 2014; Zhou et al., 2016). These initiatives provide primary care providers with support to develop optimal management plans for complex, community-based, chronic pain patients as well as ongoing, case-based continuing medical education opportunities.

Pain Prevention

Given the impact, complexity, and intensive resource utilization of chronic pain management, current research, guidelines, and expert opinion suggest that preventative interventions may be the most effective way to reduce the chronic pain epidemic (Friction et al., 2016; IOM 2011). As many chronic pain cases develop as a result of surgery, a novel, interdisciplinary, prevention strategy is currently being trialed at the Toronto General Hospital with promising initial results regarding opioid reduction (Katz et al., 2015), a model that Vancouver General Hospital is also looking to adopt.

Summary

This review of the literature found that the optimal chronic pain management model is one where the patient is an active participant of their own management, supported by an integrated team of community supports and allied and primary care practitioners. In turn, primary care practitioners are supported by interdisciplinary teams of pain specialists with advanced training and expertise. Given the high costs of chronic pain for both patients and the health care system, efforts should be made to develop preventative interventions and models of care.

References

- Bair, M. J., Matthias, M. S., Nyland, K. A., Huffman, M. A., Stubbs, D. L., Kroenke, K., & Damush, T. M. (2009). Barriers and facilitators to chronic pain self-management: A qualitative study of primary care patients with comorbid musculoskeletal pain and depression. *Pain Medicine, 10* (7), 1280-1290.
- BC Stats. (2015). Sub-provincial population projects - P.E.O.P.L.E.: Local health area 47 - Powell River. *In Population projects*. Retrieved from <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationProjections.aspx>
- Blyth, F., March, L., Nicholas, M., and Cousins, M. (2005). Self-Management of Chronic-Pain: A Population-Based Study. *Pain, 113*(3), 285-292.
- Bolscher-Niehuis, M., den Ouden, M., de Vocht, H., Francke, A. (2016). Effects of self-management support programmes on activities of daily living of older adults: A systematic review. *International Journal of Nursing Studies, 61*, 230–247
- Brady, T. J., Murphy L., O’Colmain, B. J., Beauchesne, D., Daniels, B., Greenberg, M. (2013). A meta-analysis of health status, health behaviors, and health care utilization outcomes of the chronic disease self-management program. *Preventative Chronic Diseases, 10*. doi: <http://dx.doi.org/10.5888/pcd10.120112>
- Bussing, A., Ostermann, T., Ludtkey, R., and Michalsenz, A. (2012). Effects of yoga interventions on pain and pain-associated disability: A meta-analysis *The Journal of Pain, 13*(1), 1-9.
- Canadian Institute for Health Information (CIHI). (2015). National health expenditure trends, 1975 to 2015. Retrieved from https://secure.cihi.ca/free_products/nhex_trends_narrative_report_2015_en.pdf
- Canadian Pain Coalition. (2013). Canadian Pain Fact Sheet. Retrieved from http://prc.canadianpaincoalition.ca/en/canadian_pain_fact_sheet.html
- Canadian Psychology Association. (2014). “Psychology works” fact sheet: Chronic pain among seniors. Retrieved from http://www.cpa.ca/docs/File/Publications/FactSheets/PsychologyWorksFactSheet_ChronicPainAmongSeniors.pdf
- Chang, D. G., Holt, J. A., Sklar, M., & Groessl, E. J. (2016). Yoga as a treatment for chronic low back pain: A systematic review of the literature. *Journal of orthopedics & rheumatology, 3*(1), 1–8.
- Dubin, R. E., Flannery, J., Taenzer, P., Smith, A., Smith, K., Fabico, R., ... & Carlin, L. (2015). ECHO Ontario chronic pain & opioid stewardship: Providing access and building capacity for primary care providers in underserved, rural, and remote communities. *Stud Health Technol Inform, 209*, 15-22.
- Eccleston, C., Fisher, E., Craig, L., et al. (2014). Psychological therapies (Internet-delivered) for the management of chronic pain in adults. *The Cochrane Library*. 1-58. <http://dx.doi.org/10.1002/14651858.CD010152.pub2>

Ford, J. J., Hahne, A. J., Surkitt, L. D., Chan, A. Y., Richards, M. C., Slater, S. L., ... & Taylor, N. F. (2015). Individualised physiotherapy as an adjunct to guideline-based advice for low back disorders in primary care: a randomised controlled trial. *British Journal of Sports Medicine*, bjsports-2015.

Foster, G., Taylor, S. J., Eldridge, S. E., Ramsay, J., & Griffiths, C. J. (2007). Self-management education programmes by lay leaders for people with chronic conditions. *Cochrane Database Systematic Review*, Issue 4, Art. No: CD005108. doi: 10.1002/14651858.CD005108.pub2.

Fricton, J., Clavel, A., and Weisberg, M. Transformative Care for Chronic Pain (2016) *Pain Week Journal*, 4(Q3), 44-56.

Gatchel, R. J., McGeary, D. D., McGeary, C. A., & Lippe, B. (2014). Interdisciplinary chronic pain management: past, present, and future. *American Psychologist*, 69(2), 119.

Guzmán, J., Esmail, R., Karjalainen, K., Malmivaara, A., Irvin, E., & Bombardier, C. (2001). Multidisciplinary rehabilitation for chronic low back pain: systematic review. *Bmj*, 322(7301), 1511-1516.

Hay, E. M., Mullis, R., Lewis, M., Vohora, K., Main, C. J., Watson, P., ... & Croft, P. R. (2005). Comparison of physical treatments versus a brief pain-management programme for back pain in primary care: a randomised clinical trial in physiotherapy practice. *The Lancet*, 365(9476), 2024-2030.

Hayden J, van Tulder, MW., Malmivaara A, and Koes BW (2005). Exercise therapy for treatment of non-specific low back pain. *Cochrane Database of Systematic Reviews*, Issue 3. Art. No.: CD000335. doi: 10.1002/14651858.CD000335.pub2.

Institute of Medicine(IOM). (2011). Relieving pain in america: A blueprint for transforming prevention, care, education, and research. Retrieved from http://www.nap.edu/catalog.php?record_id=13172

Katz, J., Weinrib, A., Fashler, S., Katznelson, R., Shah, B., Ladak, S., ... & Wentlandt, K. (2015).The Toronto General Hospital Transitional Pain Service: development and implementation of a multidisciplinary program to prevent chronic postsurgical pain. *Journal of Pain Research*, 8, 695 – 702.

Kroenke, K., Krebs, E., Wu, J., Yu, Z., Chumbler, N., Bair, M. (2014). Telecare Collaborative Management of Chronic Pain in Primary Care A Randomized Clinical Trial. *Journal of the American Medical Association*, 312(3), 240-248. doi:10.1001/jama.2014.7689

LeFort, S., Gray-Donald, K., Rowat, K., and Ellen, M. (1998). Randomized controlled trial of a community-based psychoeducation program for the self-management of chronic pain. *Pain*, 74(2), 297-306.

Mann, E., LeFort, S., and VanDenKerkhof, E. (2013). Self-management interventions for chronic pain. *Pain Management*, 3(3), 211-222.

McGillion, M., LeFort, S., Webber, K., and Stinson, J. (2011). Pain self-management: theory and process for clinicians.. M. E. Lynch, K.D.. Craig & P. W.H. Peng. (Ed.) *Clinical Pain Management: A Practical Guide*, 192-199. Oxford: Wiley-Blackwell Publisher.

Meyers, C., Durlak, J., & Wandersman, A. (2012). The quality implementation framework: A synthesis of critical steps in the implementation process. *American Journal of Community Psychology, 50*(3-4), 462-480. doi:10.1007/s10464-012-9522-x

Ministry of Health. (2014). Setting priorities for the B.C. health system: Supporting the health and well-being of B.C. citizens; Delivering a system of responsive and effective health care services for patients across British Columbia; Ensuring value for money. Retrieved from <http://www.health.gov.bc.ca/library/publications/year/2014/Setting-priorities-BC-Health-Feb14.pdf>

Ministry of Health. (2015). Primary and community care in BC: A strategic policy framework; Cross sector policy discussion paper. Retrieved from <http://www.health.gov.bc.ca/library/publications/year/2015/primary-and-community-care-policy-paper.pdf>

Moseley L. (2002). Combined physiotherapy and education is efficacious for chronic low back pain. *Australian Journal of Physiotherapy, 48*(2), 297-302.

Nahin, R., Boineau, R., Khalsa, P., Stussman, B., and Weber, W. (2016). Evidence-based evaluation of complementary health approaches for pain management in the United States. *Mayo Clinic Proceedings, 91*(9), 1292-1306

Posadzka, P., Ernsta, E., Terrya, R., Soo Leea, M. (2011) Is yoga effective for pain? A systematic review of randomized clinical trials. *Complementary Therapies in Medicine, 19*(5), 281—287.

Powell River Regional District. (2011). Geographic boundaries. Retrieved from <http://www.powellriverrd.bc.ca/inside-the-prrd/about-the-prrd/geographic-boundaries/>

Province of British Columbia. (2015). Rural programs: A guide to the rural physician program in British Columbia. In Rural practice programs. Retrieved from <http://www2.gov.bc.ca/assets/gov/health/practitioner-pro/rural-guide-2015-final-web.pdf>

Reid, M.C., Papaleontiou, M., Ong, A., Breckman, R., Wethington, E., & Pillemer, K. (2008). Self-Management strategies to reduce pain and improve function among older adults in community settings: A review of the evidence. *Pain Medicine, 9*(4), 409-424. doi:10.1111/j.1526-4637.2008.00428.x.

Ryan, S., Packham, J., Dawes, P., and Jordan, K. (2012). The impact of a nurse-led chronic musculoskeletal pain clinic on healthcare utilization. *Musculoskeletal Care, 10*(4), 196–201.

Stanos, S. (2012). Focused review of interdisciplinary rehabilitation programs for chronic pain management. *Current Pain and Headache Reports, 16*(2), 147-152. doi:10.1007/s11916-012-0252-4

Thielke, S., Sale, J., Reid, C. (2012). Aging: Are these 4 pain myths complicating care? *Journal of Family Practice, 61*(11). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4356472/pdf/JFP-61-666.pdf>

Turner, J., Holtzman, S., Mancl, L. (2007) Mediators, moderators, and predictors of therapeutic change in cognitive-behavioral therapy for chronic pain. *Pain*, 127(3), 276-286.

Vancouver CoastalHealth (2015). 2015/16-2017/18 Service Plan. Revised July 20, 2015. Retrieved from http://www.vch.ca/media/Service%20Plan_2015_2016_FINAL_October_2015.pdf

Veehof, M., Oskam, M-J, Schreurs, K., Bohlmeijer, E. (2011) Acceptance-based interventions for the treatment of chronic pain: A systematic review and meta-analysis. *Pain*, 152(3), 533-542.

Wantland, D. J., Portillo, C. J., Holzemer, W. L., Slaughter, R., & McGhee, E. M. (2004). The effectiveness of Web-based vs. non-Web-based interventions: a meta-analysis of behavioral change outcomes. *Journal of medical Internet research*, 6(4), e40. doi: 10.2196/jmir.6.4.e40

Williams ACDC, Eccleston C, Morley S. (2012). Psychological therapies for the management of chronic pain (excluding headache) in adults. Cochrane Database of Systematic Reviews. Issue 11. Art. No.: CD007407. doi: 10.1002/14651858.CD007407.pub3.

Zhou, C., Crawford, A., Serhal, E., Kurdyak, P., & Sockalingam, S. (2016). The Impact of Project ECHO on