

# Management of Chronic (Non-Cancer) Pain

## Organization of Health Services

AGENCE D'ÉVALUATION DES TECHNOLOGIES  
ET DES MODES D'INTERVENTION EN SANTÉ



# **Management of Chronic (Non-Cancer) Pain Organization of Health Services**

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The mission of the Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS) is to contribute to improving the Québec health-care system and to participate in the implementation of the Québec government's scientific policy. To accomplish this, the Agency advises and supports the Minister of Health and Social Services as well as the decision-makers in the health-care system, in matters concerning the assessment of health services and technologies. The Agency makes recommendations based on scientific reports assessing the introduction, diffusion and use of health technologies, including assistive devices for disabled persons, as well as the modes of providing and organizing services. The assessments take into account many factors, such as efficacy, safety and efficiency, as well as ethical, social, organizational and economic implications.

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*“Chronic Pain is like a toxic spill, with damage that eventually spreads far beyond the original site. Neglect one local disaster—a back injury, a twisted knee—and it can metastasize into more pain. More pain poisons the joy and the vitality of one individual, whose suffering then seeps into the lives of family members. Pain can destroy a wide radius of lives in the same way that clearcutting erases the history of a forest.”*

– Marni Jackson, author of *Pain: The Fifth Vital Sign*  
and chronic pain sufferer

*“Illness is the doctor to whom we pay most heed: to kindness, to knowledge we make promises only: pain we obey.”*

– Marcel Proust

## FOREWORD

### MANAGEMENT OF CHRONIC (NON-CANCER) PAIN: ORGANIZATION OF HEALTH SERVICES

This report was requested by the Ministère de la Santé et des Services sociaux (MSSS; Ministry of Health and Social Services) as a means of filling an information gap concerning how to improve management of patients with chronic pain (CP) in Québec. The Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS; Québec Health Services and Technology Assessment Agency) researchers worked separately albeit in parallel with an advisory committee, consisting of representatives from government, universities, pain clinics, and the Société québécoise de la douleur, that was preparing a document about the necessity for change in the organization of health services for CP patients.

Chronic pain is a major health problem because of its prevalence, associated disability, and the extensive use of health care services by CP patients. The impact of CP on the lives of the sufferers and their families can be devastating. Although the origin or type of pain may differ, once pain becomes chronic the modalities needed for treatment are generally similar and the health services issues cross discipline boundaries.

The main objective of this report is to describe, within a health technology assessment framework and using published and “grey” literature, the organizational components of health care for those with CP and modes of intervention employed to assist them, rather than specific treatments. A conceptual framework is used to organize the material according to structure, process, and outcome elements. Information is provided from three selected jurisdictions (France, the Veterans Health Administration in the United States, and Australia) that have prioritized management of CP services. Research from these or other regions, including Québec, is also reviewed when relevant evidence was available.

Special attention was paid to the “building blocks” of systems that could be useful for the reorganization of structures and processes for patients with CP in Québec. These included professional know-how, hierarchy of services, interdisciplinary care and case management, assessment of patient outcomes and quality of care, and the patient as a partner in health care. The conclusions and recommendations take into consideration review of the evidence and management of CP in other jurisdictions, combined with an analysis of their implications for Québec.

AETMIS recommends that CP be recognized as a major chronic health problem, and that resources be allocated accordingly. A hierarchical and integrated model, incorporating the principles of stepped care and employing an interdisciplinary approach at all levels of care, should be used for the delivery of services for CP patients. Educational strategies for health care professionals should be developed and supported, in order to promote evidence-based practice in assessment, diagnosis, treatment, rehabilitation and management. Monitoring CP services and other quality assurance mechanisms should be put into place. Finally, AETMIS recommends that funding agencies strongly consider supporting research on patient outcomes, program implementation and process evaluation in CP.

In producing this report, AETMIS aims to contribute to the improvement of health services for persons suffering from chronic pain in Québec.

Dr. Luc Deschênes  
President and Chief Executive Officer

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### DISCLOSURE OF CONFLICTS OF INTEREST

None declared.

# SUMMARY

## BACKGROUND

This report was requested by the Ministère de la Santé et des Services sociaux (MSSS, Québec Ministry of Health and Social Services) as a means of filling an information gap concerning how to improve management of patients with chronic pain (CP) in Québec. The Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS, Québec Health Services and Technology Assessment Agency) researchers worked separately but in parallel with a *Comité avisé* (advisory committee) consisting of representatives from government, universities, pain clinics, and the Société québécoise de la douleur (Québec Pain Society), that was preparing a document about the necessity for change in the organization of health services for CP patients. The main objective of our report is to describe, within a health technology assessment framework, the organizational components of health care for those with CP and modes of intervention employed to assist them (e.g., multidisciplinary teams), rather than specific medical interventions. Our report considers chronic pain not related to cancer. At the time of writing a restructuring of oncology services in Québec is a priority for the MSSS, and cancer pain is considered to be a part of those services.

Appropriate, timely, and evidence-based treatment of patients suffering from CP has the potential to have an impact on multiple stakeholders: that is, health-care policy-makers in government, managers at health-care facilities, health-care professionals providing services, and, most importantly, patients who receive care and their family members who share the burden imposed by CP. Furthermore, patient advocacy groups, such as the Association québécoise sur la douleur chronique (Québec Chronic Pain Association), have called for improved services and better patient access to services that are presently poorly funded,

and lack coherence and continuity. Other stakeholders in Québec are the workers' compensation and automotive insurance agencies,<sup>1</sup> that presently "purchase" health-care services in specialized pain clinics, when a worker has been injured or a citizen has been involved in an automobile accident and has subsequently developed CP.

There is variability in how chronic pain is defined, with respect to duration (i.e., three versus six months), anatomical site, and pain intensity. The International Association for the Study of Pain (IASP) defines CP as "pain that has persisted beyond the normal tissue healing time, usually taken to be 3 months." Chronic pain can be categorized according to musculoskeletal, neuropathic, headaches and "other," with many subtypes within these groups: thus the scope of the diagnostic categories involved is broad. Related to the fact that CP varies greatly in type, intensity, frequency, and prognosis, patients are found at all levels of the health-care system and are treated by many different health professionals. It is important to note that even though patients' pain may differ in origin or type, once pain becomes chronic the modalities needed for treatment are similar. Thus, it is appropriate to examine management of the various types of CP as an overarching topic because the issues pertaining to health services cross discipline boundaries.

## OBJECTIVES AND METHODS

This report addresses the following questions:

- 1) Is there any information from jurisdictions in or outside Canada on how health-care services for persons with chronic pain are organized, delivered and monitored, particularly if accompanied by data showing outcomes for patients?

1. The commission de la santé et de la sécurité du travail (CSST) and the Société de l'assurance automobile du Québec (SAAQ).

- 2) Is there any research evidence that examines organizational aspects of chronic pain management (e.g., who should provide care and when, multimodal versus unimodal treatment strategies, training for care providers, use of case managers) and shows impact on outcomes such as patient health status (e.g., pain, physical or psychological functioning, quality of life), satisfaction with services, or care-related factors (e.g., waiting times, use of health services, efficiency of referral)?

The published and “grey” literature were searched for information on organizational components of CP management in general, and also specific to chronic back pain and complex regional pain syndrome, two problems examined as case studies to underscore various organizational issues. Material was selected according to a number of criteria: 1) thematic content; 2) utility for decision makers; 3) strength of the evidence (i.e., controlled studies were prioritized); 4) geographical location; and 5) recency of publication. We utilize a conceptual framework to organize the material in this report according to structure, process, and outcome elements. Using these themes we provide information from three selected jurisdictions that have chosen to prioritize management of CP through organization and delivery of services. We also review research from these or other regions, including Québec, when evidence relevant to these themes was available. Our objective to find evidence linking innovations in organizational structure and/or process to outcomes for CP patients was only partially accomplished due to the limited number of publications found explicitly making these connections.

## A CLEAR NEED FOR REORGANIZATION OF HEALTH SERVICES FOR PATIENTS WITH CHRONIC PAIN

In a systematic review conducted by Ospina and Harstall in 2002, prevalence of chronic pain in

the general adult population varied from 11.5 to 55.2% internationally, with a weighted mean of 35.5%. These authors also indicated that severe or highly limiting chronic pain may be present in 11% of adults. Importantly, prevalence increases with age. Data specific to Québec from an earlier Canadian study show a CP prevalence of 20% among adult men and 24% among adult women in 1996. Chronic pain is recognized to be costly to the patient and society. Associated direct costs relate to treatment and providing health-care services, while indirect costs include time off work and increased disability payments. There is much evidence that CP is associated with frequent use of health services; according to the Canadian National Population Health Survey of 1994/95, for example, those with severe CP made more physician contacts (mean of 12.9 versus 3.8 visits) and stayed in hospital longer (mean of 3.9 versus 0.7 days), compared to those without any chronic pain, in the previous year. The impact of chronic pain on the lives of the sufferers and their families can be devastating, affecting the patients’ functioning, mood, sleep, social relationships and quality of life. These and other data presented in our report highlight the significance of CP as a major chronic health problem.

As is evident from discussions held as part of the activities of the *Comité avisieur*, services offered to CP patients in Québec are fragmented, and waiting times at all levels of the health-care system are long. The few existing multidisciplinary pain clinics (MPCs) in Québec lack adequate resources to provide care according to the modes of intervention supported by the evidence. Inequity in access to services is problematic in terms of regions served and presence of third-party payers that dictate where and which services can be reimbursed. These problems are similar to those found in most other regions considered for this report.

## EXAMPLE JURISDICTIONS PRIORITIZING THE MANAGEMENT OF CP

Three example jurisdictions with different health-care systems on three continents were examined in detail in this report. Australia, France, and the Veterans Health Administration (VHA) in the United States were selected as examples for several reasons: 1) they have made a clear commitment to CP health services and their quality control; 2) they provide services to all members of a specific region or group; and 3) they have published sufficient material pertaining to their respective programs to enable inclusion in this report.

## BUILDING BLOCKS

We paid special attention in the literature to the “building blocks” of systems that could be useful for the reorganization of structures and processes for patients with CP in Québec.

### **Professional “know-how”**

There is a consensus that professional education is a basic building block for the delivery of “state-of-the-art” pain management, yet training in CP diagnosis, treatment and follow-up is often inadequate for various health professionals. Medical schools and allied health professional training programs typically devote little time to this topic despite the fact that pain is one of the main symptoms that motivates a patient to seek health services. Efforts have been made in the example jurisdictions to fill this lacuna. In France, a series of teaching documents have been placed on the Internet to enable health-care workers to extend their knowledge of the management of pain in specific areas (e.g., back pain). Australia and New Zealand offer explicit, formal training in pain medicine. The VHA serves as a training site for nurses, psychologists, physical medicine and rehabilitation therapists, and medical students. Education of care providers and assurance of clinical competency are key objectives

of the VHA pain management strategy, and initiatives include specific residency training and continuing education opportunities such as national conferences. Recently, a model program initiated in Alberta, Canada shows promise for disseminating information on evidence-based pain management methods at the primary care level. Clearly, professional education needs to begin with students in training and persist through continuing education for all who administer therapies to CP patients. An educational emphasis on timely diagnosis and initiation of appropriate treatment in order to prevent chronicity, as well as recognition of risk factors for the development of CP, is likely to be an especially beneficial approach.

Numerous clinical practice guidelines exist for CP; these are aimed at specific health professionals (e.g., physicians, nurses), types of services (e.g., inpatient, pain clinics), types of conditions (e.g., back pain), or target particular interventions (e.g., opioids). Yet, whether or not they are implemented is in general unknown, and whether their use makes a difference for CP patient outcomes appears to be rarely studied in a systematic manner.

### **Hierarchy of services**

The majority of CP patients are treated by general practitioners who are responsible for referral of patients with pain that may be associated with a serious disease requiring specialist care, or referral to pain specialists (or other care providers), if necessary. Several studies conducted at the primary care level (i.e., the first point of entry to the health-care system, offering generalized care) point to the potential for sub-optimal outcomes (i.e., with respect to pain, quality of life) for many CP patients. Evidence indicates the need for general practitioners to have direct links to allied health professionals (e.g., physiotherapists, psychologists, occupational therapists, nurses) for patients who are at risk for becoming disabled (e.g., those with persistent low back pain), yet the strength of these connections

vary by region. The importance of including occupational medicine and therapy for injured workers with back pain is shown by the “Sherbrooke Model”, designed and tested by Loisel and colleagues in a population-based randomized controlled trial in Québec. In terms of specialist care, various types of physicians may examine and/or treat CP patients such as anesthesiologists, rheumatologists, orthopedic surgeons, physiatrists, neurosurgeons and neurologists.

A hierarchy of services does not imply that patient pathways are unidirectional; in fact, CP patients may need to move from one level of services to another and back over the course of time. The hierarchical model of services is conceptually linked to the process of *stepped care*, in which patients progressively receive more complex, specialized and, often, costly interventions according to need. The role of health professionals increases in intensity as the patient moves through the stepped care framework, and there is a clear need for both the use of evidence-based guidelines for evaluation and treatment at each stage of care and coordination between different levels of services. The Sherbrooke Model utilized an integrated combination of occupational and clinical interventions, the latter following a stepped care approach such that those not responding to treatment (i.e., not returning to work within a certain period of time) received multidisciplinary care.

*Multidisciplinary care* refers to several health professionals from different disciplines (e.g., anesthesiologists, pain specialists, nurses, psychologists, physiotherapists) working with a patient concurrently; these professionals may not necessarily share a location or patient records. The multidisciplinary pain clinic (MPC) care providers each have specialized training and experience in different aspects of pain management. Treatment objectives extend beyond lessening pain intensity to improving physical, psychological, social and occupational functioning and quality of life. In a recent synthesis of systematic

reviews by Ospina and Harstall, there was strong evidence for effectiveness of MPCs for chronic low back pain, moderate evidence for chronic pelvic pain, and limited evidence for fibromyalgia/widespread body pain, neck and shoulder pain. Cost-effectiveness data were found to be lacking. Nevertheless, the International Association for the Study of Pain (IASP) recognizes that the services of multiple disciplines will be required for many CP patients.

The three example jurisdictions display the organization of pain services according to a hierarchy, with increased specialization—as well as multidisciplinary—as the patient moves to higher levels. A cross-sectional study of all the hospital anesthesiology departments in Québec showed limitations with respect to the scope of services available for CP, particularly the paucity of sites with multidisciplinary teams of care providers. A small number of specialized pain clinics (public and private) exist in Québec, but these are concentrated in urban settings and their extent of multidisciplinary is presently unknown. Furthermore, patient outcomes data appear to be lacking. Finally, our review highlighted the importance of efficient referral of the right patient to the right health professional at the right time within the health-care service structure.

### **Interdisciplinary care and case management**

The key feature of pain management at a MPC is comprehensive evaluation and treatment using an integrated team approach. *Interdisciplinary care* can be distinguished from multidisciplinary treatment in that not only do health professionals with different backgrounds work in concert, but they also organize meetings to discuss cases, use one record system and, most importantly, employ a uniform approach to patient management. A rehabilitative approach that offers care from various disciplines is considered to be the “gold standard” for patients with CP that persists despite less intensive treatment and is recommended by the IASP.

The interdisciplinary model is considered optimal in pain clinics and is promoted in the three example jurisdictions. Canadian clinical practice guidelines recommend interdisciplinary approaches to CP management using teams composed of physicians, psychologists, and physical/occupational therapists. The Sherbrooke model in Québec demonstrates the positive effects associated with an integrated approach that incorporates both clinical and occupational interventions, as well as other types of multidisciplinary treatment for cases in greatest need.

The provision of interdisciplinary services emphasizes the need for ongoing communication and coordination of care. The three example jurisdictions display efforts in this regard. In a Québec randomized controlled trial, case management in the context of a multifaceted intervention facilitated interdisciplinary care for workers with low back pain, with the coordinated care group showing significant improvements in several domains including level of pain and functional and psychosocial status. The model of “*intervenant pivot*” (“patient navigator”), currently implemented in cancer care in Québec, may prove useful for the coordination of services by different health-care providers, particularly for complex CP cases.

### **Assessment of patient outcomes and quality of care**

Turk and colleagues have proposed key domains that should be considered to determine if pain treatment is effective (in the context of clinical trials); these include pain measures (e.g., pain intensity, pain relief), emotional functioning (e.g., depression, anxiety), pain-related physical functioning, return to work, quality of life, and patient satisfaction with pain management. Of the example jurisdictions examined in this report, the American VHA is notable for its efforts in the monitoring of patient outcomes. A “Pain Outcomes Toolkit” is used to collect data which are linked to performance improvement as part of an overall vision of accountability. It is noteworthy that the

electronic monitoring of pain assessment and effectiveness of pain management interventions is being implemented. The VHA system has incorporated quality control measures in all pain management services, mandating documentation of pain assessment, pain care plans, and patient education. In France, most evaluative efforts appear to have been directed at tracking the implementation of the national pain program rather than patient outcomes.

### **The patient as a partner**

Similar to patients living with other chronic illness, those with persistent pain need to be key players in their own health care. They must take responsibility for the aspects of treatment that are under their control, such as adherence to medications and lifestyle changes. They need to learn strategies to cope with the challenges posed by an incurable health problem. In France, one approach to “self-management” has been to provide all new inpatients (i.e., in hospital settings) with printed material informing them of their rights and their responsibilities. Other public information campaigns have been launched in France, addressing migraine/chronic headaches, pediatric pain, and services for chronic pain. In the VHA system, one objective of the national pain management strategy is to include patients and families as active participants. Pain education materials such as CDs, books, and videotapes are distributed to VHA patients. We found other examples of material written for patients in Australia and the United Kingdom.

In addition to touching on the issues above, the case studies of back pain and complex regional pain syndrome highlight the importance of timing in diagnosis and referral (if necessary) in order to minimize damage and disability.

### **The need for more evidence**

Research on CP is ongoing but there are relatively few studies of a more applied nature (e.g., predictors of patient outcomes, the impact of the structure and/or process of health services on patient outcomes). Thus,

despite impressive progress in understanding pain from a physiologic perspective in recent decades, high-quality research is needed to guide management of patients with CP. The VHA promotes research as an integral part of its vision for pain management. There appear to be no data informing policy-makers about acceptable waiting times in CP, except with regards to specific conditions such as back pain and complex regional pain syndrome. There is a potential role for health technology assessment or evaluative research in examining the effectiveness and financial implications of modes of intervention and specific treatments in CP.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the material presented in this report, we make the following conclusions:

- Due to its magnitude as a health problem in the general population, its associated burden, and the viability of modes of intervention, CP should be considered a priority within health-care systems. This conclusion applies equally to Québec.
- Appropriate resources are required to support the structures and processes involved in providing evidence-based management of CP and monitoring outcomes.
- A hierarchy of services is required to ensure that the right patients are treated by the right health professional, at the right time. This structure facilitates the process of stepped care, in which patients progressively receive more complex, specialized and, often, costly interventions according to need and in a coordinated manner.
- Primary care structures and services need to provide timely diagnosis and treatment of CP, where possible (for example, via medications, rehabilitative and physical medicine, behavioural medicine, as needed). Specialized services and MPCs are intended to serve more complex cases that persist despite previous treatments. Among more specialized structures such as MPCs it is possible to have a gradation of services, the most comprehensive type involving research and training activities in addition to patient care.
- An interdisciplinary approach—in which health professionals from different disciplines work together to provide care, as needed for the individual case—is crucial for management of CP at all levels of the health-care system. This includes links between primary care physicians and physical medicine/rehabilitation practitioners, as well as collaboration between multiple care providers in specialized clinics. Canadian clinical practice guidelines support the interdisciplinary model for management of CP patients.
- Services need to be integrated and coordinated so that different types of health professionals (from various disciplines and levels of care) can be involved in seamless delivery of care.
- Care pathways and discharge protocols need to be employed to ensure continuity of care.
- Education for physicians and allied health professionals at all levels of the health-care system is essential to optimize treatment of patients with CP.
- CP patients need to be viewed as part of the solution in that they require education about pain, including self-management strategies.
- CP patient outcomes need to be assessed systematically to ensure quality of care.
- Employment of information technology and the Internet are vital for the success of any program aimed at restructuring services for patients with CP.
- High-quality research is essential to guide management of patients with CP. For example, there is a need for data on patient outcomes associated with and cost-effectiveness of MPCs in Québec.

The following recommendations take into consideration our review of the evidence and experiences with management of CP in other jurisdictions, combined with an analysis of their implications for Québec. AETMIS recommends that:

- Québec policy-makers at the governmental level, health-care managers, physicians and other health-care professionals, as well as directors of university training programs in health fields, recognize the importance of CP as a major chronic health problem, and that resources be allocated accordingly and progressively by those with the authority to do so.
- The organization and provision of services for CP patients in Québec be developed and supported according to a hierarchical and integrated model, which incorporates the principles of stepped care.
- The organization and delivery of CP services in Québec be based on an *interdisciplinary* approach at all levels of care.
- Strategies be developed and supported to educate physicians as well as allied health professionals about assessment, diagnosis, treatment, rehabilitation, and management of CP, and to facilitate evidence-based practice (using clinical practice guidelines, for example).
- Monitoring activities of CP services and other quality assurance mechanisms be put into place, notably with regard to patient outcomes and implementation of programs.
- Funding agencies strongly consider supporting research on patient outcomes, program implementation and process evaluation in CP.

## LIST OF ABBREVIATIONS AND ACRONYMS

AAMM	Australian Association of Musculoskeletal Medicine
ADRLSSSS	Agence de développement de réseaux locaux, de services de santé et de services sociaux
AETMIS	Agence d'évaluation des technologies et des modes d'intervention en santé
AHFMR	Alberta Heritage Foundation for Medical Research
ANAES	Agence Nationale d'Accréditation et d'Évaluation en Santé (renamed the Haute Autorité de Santé in January 2005)
ANZCA	Australian and New Zealand College of Anaesthetists
APS	Australian Pain Society
ARHRA	Agence régionale de l'hospitalisation Rhône-Alpes (France)
BP	Back pain
CAM	Complementary or alternative medicine
CARF	Commission on Accreditation of Rehabilitation Facilities
CCOHTA	Canadian Coordinating Office for Health Technology Assessment
CCPMDM	Canadian Consortium on Pain Mechanisms, Diagnosis and Management (renamed the Canadian Agency for Drugs and Technologies in Health (CADTH) on April 3, 2006)
CHSLD	Centre d'hébergement et de soins de longue durée
CI	Confidence interval
CLSC	Centre local de services communautaires
CMQ	Collège des médecins du Québec
CNRD	Centre National de Ressources de lutte contre la Douleur
CORE	COordination of primary health caRE
CP	Chronic pain
CPG	Clinical practice guideline
CPRP	Chronic Pain Rehabilitation Program
CRPS	Complex regional pain syndrome
CSAG	Clinical Standards Advisory Group (United Kingdom)
CSST	Commission de la santé et de la sécurité du travail
CT	Computer tomography
DIHTA	Danish Institute for Health Technology Assessment
GDP	Gross domestic product
GP	General practitioner
HTA	Health technology assessment

IASP	International Association for the Study of Pain
ICA	International Chiropractors Association
ICSI	Institute for Clinical Systems Improvement
IMMPACT	Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials
ISQ	Institut de la statistique du Québec
IT	Information technology
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
LBP	Low back pain
MPC	Multidisciplinary pain clinic
MRI	Magnetic resonance imaging
MSFPH	Ministère de la santé, de la famille et des personnes handicapées (France)
MSSS	Ministère de la Santé et des Services sociaux
NICS	National Institute of Clinical Studies
NPC	National Pharmaceutical Council
NSAID	Non-steroidal anti-inflammatory drug
OR	Odds ratio
PREVICAP	PREvention of work handICAP
QALY	Quality-adjusted life year
RNAO	Registered Nurses Association of Ontario
RRSSS	Régie régionale de la santé et des services sociaux
RRTQ	Réseau en réadaptation au travail du Québec
RUIS	Réseau universitaire intégré de santé
SAAQ	Société de l'assurance automobile du Québec
TEAMS	Targeted early access to musculoskeletal services
UK	United Kingdom
UMHS	University of Michigan Health System
TENS	Transcutaneous electrical nerve stimulation
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Networks
WHO	World Health Organization

# TABLE OF CONTENTS

MISSION .....	i
FOREWORD .....	iii
ACKNOWLEDGEMENTS .....	iii
SUMMARY .....	v
LIST OF ABBREVIATIONS AND ACRONYMS .....	xii
1 BACKGROUND.....	1
1.1 Introduction and policy context .....	1
1.2 Potential impact and stakeholders .....	2
1.3 Overview of chronic pain .....	3
1.3.1 Definition, types and prevalence .....	3
1.3.2 Burden and costs to sufferers, families and society .....	5
1.3.3 Clinical management of CP.....	6
2 OBJECTIVES AND METHODS.....	9
2.1 Questions addressed by this report .....	9
2.2 Methods .....	9
2.2.1 Literature searching .....	9
2.2.2 Literature selection .....	10
3 ORGANIZATIONAL ISSUES .....	11
3.1 Conceptual framework for the selected material .....	11
3.2 Outcomes of CP management.....	12
3.2.1 Measurement of patient outcomes.....	12
3.2.2 Treatment satisfaction.....	12
3.3 Overview of jurisdictions prioritizing management of CP.....	13
3.3.1 France .....	13
3.3.2 Australia .....	13
3.3.3 United States Veterans Health Administration .....	14
3.4 Structure of health-care services.....	14
3.4.1 Hierarchy of services.....	15
3.4.2 Roles and responsibilities of care providers.....	21
3.4.3 Training of health-care providers .....	24
3.5 Process .....	26
3.5.1 Inter-discipline and inter-level communication.....	26
3.5.2 Coordination of care and “stepped care”.....	27

3.5.3	Waiting times and lists.....	28
3.5.4	Referral .....	30
3.5.5	Role of clinical practice guidelines .....	30
3.5.6	Discharge and continuity of care plans .....	32
3.6	Monitoring of patient outcomes.....	32
3.7	Quality control .....	34
3.7.1	Program implementation .....	34
3.7.2	Process evaluation .....	34
3.8	The CP patient as a partner in care .....	36
3.9	Organizational innovations .....	36
3.9.1	The Internet and the use of information technology .....	37
3.9.2	Telehealth .....	37
4	TWO CASE STUDIES .....	38
4.1	Back pain .....	38
4.2	Complex regional pain syndrome .....	40
5	DISCUSSION AND CONCLUSIONS .....	42
5.1	Discussion.....	42
5.2	Conclusions.....	45
6	RECOMMENDATIONS.....	46
APPENDIX A	PATIENTS' RIGHTS.....	49
APPENDIX B	PAIN CLINIC REFERRAL ALGORITHM.....	51
APPENDIX C	CASE STUDY 1: BACK PAIN.....	52
APPENDIX D	CASE STUDY 2: COMPLEX REGIONAL PAIN SYNDROME.....	65
REFERENCES	.....	70

## LIST OF TABLES AND FIGURES

Table 1	Types of (non-cancer) chronic pain.....	3
Table 2	Health-care structures for CP patients in the example jurisdictions .....	15
Figure 1	Conceptual framework for the presentation of material in this report .....	11



## 1.1 INTRODUCTION AND POLICY CONTEXT

It is recognized that the prevalence and costs (both direct and indirect) of chronic pain (CP) have reached proportions that must be addressed by policy-makers [Collett, 2004; Dr Foster,<sup>2</sup> 2003; Fricker, 2003; Phillips, 2003; Turk, 2002]. Services offered to CP patients in Québec are fragmented and waiting times at all levels of the health-care system are long [Comité aviseur ministériel du projet de développement d'un programme national d'évaluation, de traitement et de gestion de la douleur chronique,<sup>3</sup> 2005]. The few existing multidisciplinary pain clinics (MPCs) in Québec lack adequate resources to provide care according to the modes of intervention supported by the evidence [Comité aviseur, 2005]. Inequity in access to services is problematic in terms of regions served (e.g., urban-centred MPCs) and presence of third-party payers<sup>4</sup> that dictate where and which services can be reimbursed [Comité aviseur, 2005]. Further, management of chronic pain patients by third-party payers in Québec is conducted within an actuarial, rather than a medical framework.<sup>5</sup> These problems are similar to those found in most other jurisdictions examined for this report.

In September 2003, an advisory committee was formed by the Ministère de la Santé et des Services sociaux (MSSS; Québec Ministry of Health and Social Services), consisting of clinicians, researchers and patient

representatives, to develop a vision for a “national program” for the evaluation, treatment and management of chronic pain. Through to April 2005, the *Comité aviseur* (advisory committee) committed considerable time to prepare a document about the necessity for change in the organization of health services for CP. In January 2004, the Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS; Québec Health Services and Technology Assessment Agency) was invited to participate in this process by providing information to the advisory committee on how services for chronic pain were provided in other jurisdictions, outside of Québec. The AETMIS mandate was broadened in the Fall of 2004 when a larger list of topics to be considered for assessment was drawn up by MSSS. The AETMIS researchers worked with a representative of the ministry to prioritize these topics and transform the policy issues into evaluation questions that were potentially answerable using the current literature. It was clear that tackling this problem was particularly timely, given the current climate of change in the organization of health and social services in Québec: at the time of writing, such services are in the process of being restructured across the province.

This AETMIS report, then, attempts to fill an information gap concerning how to improve management of patients with CP in Québec based on the experiences of other jurisdictions, as documented in the published and “grey” literature (i.e., websites, government documents). Reflecting the distinction between chronic pain subject areas in the literature, the report addresses chronic pain not related to cancer. At the time of writing a restructuring of oncology services in Québec is a priority for the MSSS, and cancer pain is considered to be a part of those services. The research team from AETMIS worked separately but in parallel

2. “Dr Foster” denotes a research company in the United Kingdom rather than an individual researcher.

3. In the rest of the document we cite the report by this committee as Comité aviseur, 2005.

4. For example, private insurance, the workers' compensation board (Commission de la santé et de la sécurité du travail [CSST]), and the governmental automotive insurance agency (Société de l'assurance automobile du Québec [SAAQ]).

5. Dr. P. Loisel, personal communication, August 22, 2005.

with the Comité avisier, and the documents produced by these two groups are intended to complement one another. The main objective of the AETMIS report is to describe, within a health technology assessment framework and mostly based on examples outside of Québec, the overarching organizational components of health care for those with CP and modes of intervention employed to treat them (e.g., multidisciplinary teams), rather than specific medical interventions (e.g., medications, nerve blocks, neurostimulators, surgery).

The policy context for this report is first presented. Next, a brief overview of chronic pain serves as an introduction to the topic and aims to help the reader appreciate the nature and magnitude of the problem of CP in the population, and to have a sense of where and how CP patients currently receive services. Chapter 2 presents the questions addressed by this report and summarizes the methods employed to this end. Chapter 3 constitutes the core of the report. In this chapter we utilize a conceptual framework, based on a Donabedian approach to the evaluation of health-care quality and health services research [Donabedian, 1966], to organize the material according to elements useful for decision-making, namely structure, process, and outcomes. Using these themes we provide information from three selected jurisdictions that have chosen to prioritize management of CP through organization and delivery of services. We also review research from these or other regions relevant to these themes when available. Evidence pertaining to the specific topics covered is woven into the text in the appropriate sections; it was not always possible to disentangle study results on outcomes according to a particular structure or process (when more than one of these were changed and examined in concert), and in these cases we used our judgment based on the purpose(s) of the investigation. The issue of quality control, the role of the patient as a partner in care, and examples of organizational innovations employing information technology

and telehealth are presented at the end of Chapter 3. Chapter 4 provides highlights of the material presented in two “case studies” that are examined in appendices C and D respectively. In these case studies, back pain and complex regional pain syndrome are presented as specific examples of CP conditions and are used to underscore various organizational issues raised in Chapter 3. In Chapter 5 we discuss, conclude, and contextualize our synthesis in order to make recommendations to Québec policy-makers for the improvement of services, in Chapter 6.

It is important to note that even though patients’ pain may differ in origin or type (e.g., neuropathic pain, headaches, arthritis), once pain becomes chronic the modalities needed for treatment are generally similar. Thus, it is appropriate to examine management of the various types of CP as an overarching topic because the issues pertaining to health services cross discipline boundaries.

## 1.2 POTENTIAL IMPACT AND STAKEHOLDERS

Appropriate, timely, and evidence-based treatment of patients suffering from chronic pain has the potential to have an impact on all concerned: health-care policy-makers in government, managers at health-care facilities, health-care professionals providing services, and, most importantly, patients who receive care and their family members who share the burden imposed by chronic pain. Moreover, patient advocacy groups, such as the Association québécoise sur la douleur chronique, have called for improved services and better patient access to services that are presently poorly funded, and lack coherence and continuity [Comité avisier, 2005]. Other stakeholders in Québec are the Commission de la santé et de la sécurité du travail (CSST; Québec workers’ compensation board) and the Société de l’assurance automobile du Québec (SAAQ; Québec automotive insurance agency), two government bodies that presently “purchase”

health-care services in specialized pain clinics, when a worker has been injured or a citizen has been involved in an automobile accident and has subsequently developed CP.

The demand for CP services is certain to grow as the population ages [Alberta Health and Wellness, 2003]. Furthermore, it has become evident that waiting for such services can play an important role in acute pain becoming chronic, with the latter being more difficult and expensive to manage [Bond and Breivik, 2004]. Limited access to primary care providers and specialists, for a variety of reasons, and delayed access to services such as pain clinics for those needing such care contribute to the suffering and disability of CP patients. There is thus a need for chronic pain to be recognized as a disease entity, rather than being considered secondary to other illnesses. Once pain becomes a chronic illness, it compromises an individual’s quality of life and ability to be a healthy and productive member of society.

### 1.3 OVERVIEW OF CHRONIC PAIN

#### 1.3.1 Definition, types and prevalence

One of the most cited definitions of chronic pain is provided by the International Association for the Study of Pain (IASP), incorporating both duration of pain and its clinical “appropriateness.” IASP defines chronic pain as “pain that has persisted beyond the normal tissue healing time, usually taken to be 3 months” [Ospina and Harstall, 2002, p. 2]. Chronic pain is considered by Health and Welfare Canada as pain that “persists (beyond) the normal time of healing, is associated with protracted illness or is a severe enough symptom of a recurring condition” and lasts for three months or more [Ospina and Harstall, 2002, p. 2]. There is variability in how CP is defined, with respect to duration (e.g., three versus six months), anatomical site, and pain intensity. As shown in Table 1, chronic pain can be categorized according to musculoskeletal, neuropathic, headaches and “other,” with various subtypes within these broad groups.

TABLE 1

#### Types of (non-cancer) chronic pain

MUSCULOSKELETAL	NEUROPATHIC	HEADACHES	OTHER
Back pain	Herpes zoster / post-herpetic neuralgia	Migraine	Sickle cell anemia
Arthritis*	Phantom limb pain	Tension	Haemophilia
Temporomandibular pain	Diabetic neuropathy	Cluster	Irritable bowel syndrome
Fibromyalgia	Carpal tunnel syndrome		
Myofacial pain	Complex regional pain syndrome		

\* Rheumatoid or osteoarthritis.

Note: The above list is not exhaustive; it is intended as a broad overview to provide the reader with examples and to illustrate the scope of the diagnostic categories involved in CP.

Chronic pain has been “orphaned” in medicine. Anesthesiology has traditionally been the “home” for treatment but, due to the fact that CP varies greatly in type, intensity, frequency, and prognosis, patients are found at all levels of the health-care system and are treated by many different health professionals. Management of patients with chronic pain has been neglected in medical settings for a myriad of reasons [Glajchen, 2001; Phillips, 2000; Teasell and Merskey, 1997]. First and foremost, CP is typically viewed as a symptom rather than a disease. Second, training in its management is minimal in most medical schools, and thus many physicians are ill equipped to offer their patients evidence-based treatments. For instance, even though a biopsychosocial model of pain is readily acknowledged [CSAG, 2000], most physicians do not base their practice on its principles. Related to this reliance on the biomedical model, physicians tend to approach CP with an acute care rather than a chronic illness model, fragmenting service delivery between levels of care. Third, while there are validated self-report measures, there is no objective measure of pain and patients’ reports are sometimes doubted, especially in patients whose disability appears to be out of proportion to physiological indices of disease (e.g., fibromyalgia or low back pain). Fourth, cultural or social factors may influence how patients and care providers deal with this problem. Fifth, physicians are reluctant to prescribe narcotics to treat pain as there are institutionalized barriers to doing so; moreover, they have concerns about side effects, including addiction. Finally, because CP is complex and time-consuming to treat and given the nature of reimbursement policies, physicians may be reluctant to accept these patients in their practices [Comité avisieur, 2005].

In an early Canadian study, Birse and Lander [1998] conducted a cross-sectional telephone survey employing random digit dialing with adults in Edmonton, Alberta. With a response rate of 69% (n = 410) the prevalence of CP (of at least six months duration) was 44.4%.

Women were more likely to have CP than men ( $p = 0.05$ ). Moulin et al. [2002] noted that 29% of respondents from a stratified random sample of 2,012 adult Canadians reported having chronic pain of six months duration or more during a 2001 telephone interview. In this survey, however, the response rate was only 19.1%. Millar [1996] used Statistics Canada survey data to estimate prevalence of CP (of at least six months duration) in different provinces, and observed variations by region: among men 65 years and older, for example, prevalence was highest in Québec, at 39%. For elderly women, the highest figures were also obtained in Québec (38%) and Ontario (37%). In Québec, 20% of men and 24% of women reported having CP; for both genders the prevalence increased with age. The overall prevalence for Canada was 17% [Millar, 1996].

A systematic review on prevalence of CP conducted by Ospina and Harstall [2002] included 14 studies carried out between 1991 and 2002 in the United Kingdom, Australia, Canada, France, Israel, the Netherlands, Scotland, Spain, Sweden, and a multinational study conducted by the World Health Organization (WHO). Prevalence of CP in adults varied from 11.5 to 55.2%, with a weighted mean of 35.5%, based on four studies that used the IASP definition of CP (duration of more than three months). The weighted mean prevalence of chronic widespread body pain, based on three studies, was 11.8%. The Alberta Heritage Foundation for Medical Research (AHFMR) report also indicated that severe or highly limiting CP may be present in 11% of adults in the general population, considering the results of five studies that utilized the IASP definition of chronic pain and various classifications of severity<sup>6</sup> [Ospina and Harstall, 2002].

Using data derived from the Canadian 1999 National Population Health Survey (n = 17,244), Rapoport et al. [2004] reported prevalence rates of conditions associated with CP, such as 12% (for those under 60 years) and 46% (60 years

6. I.e., based on intensity, level of functional limitation, and/or disability.

and over) for arthritis/rheumatism; 15% (under 60) and 18% (60 and over) for back problems; and 10% (under 60) and 4% (60 and over) for migraine headaches. The large variability in the prevalence estimates reported can be attributed to the heterogeneity of the populations studied, the lack of consensus in the criteria used to define chronic pain (with respect to duration, severity, time frame) and to the different methods of data collection, i.e., telephone interview, postal survey [Van den Kerkhof et al., 2003].

**Despite the variability in prevalence figures, it is evident from the literature that CP is a significant problem in the population, with a prevalence that increases with age [Elliott et al., 1999], and more women than men are affected [Blyth et al., 2001; Buskila et al., 2000].** According to an international survey, the three most frequent types are back pain, headaches, and joint pain [Gureje et al., 1998].

### 1.3.2 Burden and costs to sufferers, families and society

Chronic pain is recognized to be costly to the patient and society. Associated direct costs relate to treatment and providing health-care services, while indirect costs include productivity losses due to time off from work, decreased tax revenues and increased disability payments [Turk, 2002]. It is clear that disability resulting from CP accounts for the majority of economic costs.<sup>7</sup> Calculations of the combined direct and indirect costs of chronic pain of all types do not appear to exist, with the exception of a rough estimate that exceeds US\$125 billion per year for the United States [Turk et al., 1999].<sup>8</sup> Yearly health-care costs for a chronic pain patient in the United States have been estimated to average from about \$13,000 to over \$18,000 [Turk, 2002].<sup>9</sup> No comparable data are currently available with regard to the costs of CP as a

7. Dr. P. Loisel, personal communication, August 22, 2005.

8. This estimate is based on figures from 1986 that were updated using other data from 1997 on changes in medical and hospital charges.

9. 1988–1997 US dollars.

whole in Canada (Canadian data for back and spine disorders are presented in Appendix C).

There is much evidence that CP is associated with frequent use of health services [Blyth et al., 2003; Mantyselka et al., 2001; Buskila et al., 2000]. According to the Canadian National Population Health Survey of 1994/95 and compared to those without any chronic pain, those with severe CP made more physician contacts (mean of 12.9 versus 3.8 visits) and stayed in hospital longer (mean of 3.9 versus 0.7 days) in the previous year [Millar, 1996]. Other reports [Schopflocher, 2003; Turk, 2002] have documented that there is a relationship between pain severity and utilization of health-care resources (e.g., use of pain relievers, consultations with medical professionals, hospitalization). More recently in Canada, Rapoport et al. [2004] used data from the 1999 National Population Health Survey to develop resource use rankings for several chronic diseases, including pain conditions. Diseases with the highest overall resource use (i.e., with respect to physician visits and days in hospital) in Canada were back pain, arthritis/rheumatism, high blood pressure, and migraines for citizens under 60 years, and arthritis/rheumatism and high blood pressure for those 60 years and older.

The impact of chronic pain on the lives of the sufferers and their families can be devastating, affecting the patients' functioning, mood, sleep, social relationships and quality of life [Eriksen et al., 2003; McWilliams et al., 2003; Wilson et al., 2002; Ashburn and Staats, 1999; Gureje et al., 1998]. Several studies have reported that CP is associated with an increased prevalence of anxiety or depressive disorders [McWilliams et al., 2003; Blyth et al., 2001; Gureje et al., 2001; 1998], especially for those who experience significant limitations in their daily activities. In a WHO survey of nearly 26,000 adult patients attending primary care facilities in Asia, Africa, Europe and the Americas, patients with persistent pain (for at least six months in the previous year) showed a four-fold increase in the odds of having an anxiety or depressive

disorder (odds ratio [OR]: 4.14; 95% confidence interval [CI]: 3.52 to 4.86) compared to those without persistent pain [Gureje et al., 1998]. These results parallel those reported by Ohayon and Schatzberg [2003], who surveyed nearly 20,000 individuals representative of the general population (15 or 18 and older) of five different European countries, finding a 10.2% prevalence of major depressive disorder in subjects with a chronic, painful physical condition for at least six months (compared to 2.7% in those without such a condition,  $p < 0.001$ ).

Data for Alberta stemming from the 1996 Canadian National Population Health Survey ( $n = 15,535$ ) show a positive association between intensity of pain and likelihood of experiencing psychological distress and clinical depression: specifically, depression had been diagnosed by a psychiatrist in 4% of those with no pain compared to 25% of those with severe pain [Schopflocher, 2003]. These data also show that citizens with moderate or severe pain limit their activities more than those with mild pain (with 85% of those with severe pain reporting general activity restriction), and report the highest number of days disabled (e.g., 6.19 days in the two weeks before the survey for those with severe pain, versus 1.15 days for those with mild pain).

### 1.3.3 Clinical management of CP

In this section, we provide a brief overview of the types of health-care providers involved and services used by those with CP. A number of studies have shown that the clinical management of various chronic, non-cancer pain conditions remains unsatisfactory [Jensen et al., 2003; CSAG, 2000]. Because of its deleterious consequences on the patients' physical and psychosocial functioning, pain is only one of many issues that must be addressed in the management of these patients [Veillette et al., 2005; Ashburn and Staats, 1999]. The biopsychosocial effects of CP conditions (e.g., back pain, headaches, arthritis, fibromyalgia) often lead patients to turn to complementary

or alternative medicine—known as CAM care—such as acupuncture, massage, relaxation techniques, biofeedback, hypnosis, meditation, and yoga, among others [Fisher et al., 2004; Wolsko et al., 2004; Astin et al., 2003; Fautrel et al., 2002] to relieve their suffering. CAM care, however, will not be elaborated upon herein as it is a topic in itself; also, it is currently not covered by the public insurance system in Québec.

Health-care services for CP patients can be offered in a unidisciplinary or multidisciplinary setting. Within these settings practitioners may follow different “models of care”, such as biomedical, psychosocial, or rehabilitative approaches. The majority of CP patients are treated in primary care<sup>10</sup> by general practitioners (GPs). GPs often work “solo,” and treatment methods for CP consist of pharmacologic approaches (e.g., NSAIDs, COX-2 inhibitors, antidepressants, anticonvulsants, opioids), and advice (e.g., lose weight, exercise). GPs may refer to an allied health professional (e.g., physiotherapist) or a specialist.

Allied health professionals who can be involved in the treatment of CP patients (e.g., physiotherapists, occupational therapists, psychologists) are found in both primary care (e.g., in private doctor's offices, medical clinics) and in institutional settings, such as rehabilitation centers and hospitals. They can also be found in specialized pain clinics, as will be discussed in the context of multidisciplinary care (although pain clinics can also be unidisciplinary). Hospitals usually offer allied health services, but these are often reserved for inpatients. Thus, once discharged, patients usually must seek out private services if they require more care from these health professionals. Typically, physiotherapists help patients regain function, occupational therapists assist with re-entry into the work force as well as environmental and behavioural adaptation in the home and workplace, and psychologists teach means to cope with pain, decrease psychological

10. The hierarchy of health services is discussed further in section 3.4.1.

distress (notably anxiety and depression), adhere to medical directives, and increase quality of life. Many CP patients, particularly those with back and neck pain, consult chiropractors<sup>11</sup> who perform manual manipulation of body structures such as the spine.

Various specialists may examine and/or treat CP patients such as anesthesiologists, pain specialists, rheumatologists, neurosurgeons, orthopedic surgeons, general surgeons, physiatrists, and neurologists. For example, anesthesiologists can use nerve blocks, injections, and implantable methods to modulate the sensory aspect of pain. For spinal disorders, referral to a surgeon is absolutely necessary for “sudden or progressive motor loss or neurological deficit” and may be indicated for patients with “persistent radicular pain” after interventional or rehabilitation programs [Wisconsin Medical Society Task Force on Pain Management, 2004, p. 29].

The key feature of pain management at a multidisciplinary pain clinic (MPC) is comprehensive evaluation and treatment using an integrated team approach. MPCs are often found in hospitals; private clinics also exist in Québec (and elsewhere). The MPC team is composed of care providers from various disciplines, each with specialized training and experience in different aspects of pain management, such as anesthesiologists, surgeons, physiotherapists, occupational therapists, psychologists, and others. Treatment objectives extend beyond a lessening in pain to decreased disability and improved physical, psychological, social and occupational functioning, and better health-related quality of life [Ashburn and Staats, 1999]. The patient adopts an active role in his/her treatment and is encouraged to take significant responsibility in the rehabilitative process. Treatment may include pharmacotherapy and interventional techniques along with cognitive-behavioural therapy, vocational counselling and physical therapy.

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11. Chiropractors are not part of the universal health-care system in Québec, and thus their charges are not covered by public insurance.

It is important to clarify the subtle but critical difference between two terms that are often used interchangeably in the CP arena: multidisciplinary and interdisciplinary [Ospina and Harstall, 2003]. *Multidisciplinary* care refers to several health professionals from different disciplines working with a patient concurrently (e.g., a physician and a physiotherapist). These professionals may or may not share a location (e.g., working in the same hospital) and they may or may not share patient records (e.g., when both have separate private practices). In contrast, *interdisciplinary* care implies that not only do health professionals with different backgrounds work in concert, but they also organize meetings to discuss cases, use one record system (i.e., notes on patients are filed together) and—most importantly—employ a uniform approach to patient management. Thus, the patient is clearly being treated by team members with similar goals, who make adjustments to treatment according to the patient’s responses to all interventions. This synchronized manner of working together may require specific training such that the various roles and responsibilities of team members are understood and acted upon accordingly. While a rehabilitative model that offers care from various disciplines is considered to be the “gold standard” for patients with CP that persists despite less intensive treatment (and is recommended by the IASP; see section 3.4.1), the interdisciplinary approach is considered optimal in pain clinics [Veillette, 2004]. We use the term “multidisciplinary” in this report when the reference cited does so.

The need to raise the profile of pain as an important health problem is emphasized by the “Pain Care Bill of Rights” produced for patients by the American Pain Foundation and by the Canadian Pain Society’s Patient Pain Manifesto (see Appendix A for reproductions). The Canadian manifesto has been produced in the form of a bookmark and a poster that describe the patient’s right to pain treatment, and the responsibility of hospital staff to assess pain and provide the best treatment(s) possible. In 1995,

the American Pain Society coined the expression “Pain as a 5<sup>th</sup> Vital Sign” and has encouraged doctors and nurses to assess pain as regularly as pulse, blood pressure and other vital signs are monitored.<sup>12</sup> This initiative has been adopted throughout the American VHA system,<sup>13</sup> in Ste-Anne’s Hospital (Ste-Anne-de-Bellevue, Québec, part of Veterans Affairs Canada<sup>14</sup>), and was legislated into practice in the state of New Jersey, for example, in 2000.<sup>15</sup>

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12. American Pain Society. Pain: The Fifth Vital Sign™. Available at: <http://www.ampainsoc.org/advocacy/fifth.htm> (accessed on August 31, 2005).

13. Veterans Health Administration (VHA). Pain as the 5th Vital Sign: Take 5. Section 2: An overview of the VHA National Pain Management Strategy. Available at: <http://www.va.gov/oa/pocketcard/Section2.asp> (accessed on August 31, 2005).

14. Veterans Affairs Canada. Pain as the 5th Vital Sign. Available at: [http://www.vac-acc.gc.ca/clients/sub.cfm?source=steannes/pub\\_research/msavoie\\_02](http://www.vac-acc.gc.ca/clients/sub.cfm?source=steannes/pub_research/msavoie_02) (accessed on September 5, 2005).

15. New Jersey State Nurses Association—New Jersey Nursing Legislation. Fifth Vital Sign. Available at: <http://www.njsna.org/fifthVitalSignLaw.html> (accessed on August 31, 2005).

## 2.1 QUESTIONS ADDRESSED BY THIS REPORT

- 1) Is there any information from jurisdictions in or outside Canada on how health-care services for persons with chronic pain are organized, delivered and monitored, particularly if accompanied by data showing outcomes for patients?
- 2) Is there any research evidence that examines organizational aspects of chronic pain management (e.g., who should provide care and when, multimodal versus unimodal treatment strategies, training for care providers, use of case managers) and shows impact on patient outcomes such as health status (e.g., pain, physical or psychological functioning, quality of life), satisfaction with services, or care-related factors (e.g., waiting times, use of health services, efficiency of referral)?

## 2.2 METHODS

### 2.2.1 Literature searching

For the material presented in Chapter 3 and the appendices, the published and “grey” literature was searched for information on organizational components of CP management in general, and also specific to chronic back pain and complex regional pain syndrome (the two case studies). The electronic databases used for searching included PubMed, the Cochrane Library and its subdatabases (Systematic Reviews, DARE, HTA, NHS-Economic Evaluation, CENTRAL), REhabdata, and bibliographic catalogues for North America (including Locator plus, National Library of Medicine), United Kingdom and France. The Internet was searched using web-based search engines (Google, AltaVista, HotBot, Lycos, Teoma, Incy Wincy, Scirus). We looked for relevant reports from health

technology assessment (HTA) databases and agencies’ websites. Reference lists of retrieved articles and reports were examined for relevant material.

Key words (with varying extensions denoted by \*) relating to chronic pain (or chronic disease AND pain; douleur chronique), back pain (or back ache; lumbago; dorsalg\*; lombalg\*) and complex regional pain syndrome (or reflex sympathetic dystrophy or various other related terms such as causalgia) were combined with the following types of “organizational” terms: program, model, multidisciplinary, interdisciplinary, multimodal, pain clinics, pathways, referral, consultation, continuity of patient care, critical pathways, organization, service, setup, structure, management, administration, delivery of health care, and “prevention and control.” Focussed searches on specific organizational components were carried out using the following key words:

- case management (care manage\*, care coordinator, case manage\*, case coordinator, patient care management)
- professional training (education\*; education [nursing], education [continuing], education [professional], teaching, training, curriculum, course, workshop AND nurs\*, physician\*, physiotherapy\*, profession\*, physical, therapy\*, medical staff)
- clinical practice guidelines (guideline\*, practice guidelines, health planning guidelines, guideline adherence)
- information technology and telemedicine (remote consultation, information technology, telerehabilitation\*, telemedicine, medical informatics, telecommunication\*, computer systems, computer communication, information service, information systems, information management, computer communication networks)

We particularly looked for material that linked organizational structure and/or process elements for management of CP with outcomes at the patient or provider level (see section 3.1 for more details on the conceptual framework of this report). Key words related to outcomes included: treatment outcome, evaluation, outcome assessment, outcome and process assessment, evaluation studies, program evaluation, efficiency (organizational), quality assurance (health care), quality control, follow-up studies, effective\*, efficac\*, and health status.

To respond to objective 1, we selected three example jurisdictions that show particular innovation in addressing the management of CP patients (see section 3.3 for our specific selection criteria). Once these examples were chosen, focus was placed on further searching of material originating from these jurisdictions. Focussed searching was also carried out for any material from Québec or elsewhere in Canada. In addition, a complementary search specific to literature on patient satisfaction with treatment of CP was completed, using PubMed, EMBASE, Pascal, NLM Gateway, Psychinfo, Science Citation Index, Social Science Citation, Wilson Social Science Abstracts and Sociological Abstracts. Purposeful searches were conducted to address specific topics in Chapter 1 (e.g., costs). PubMed was the main source of information in these instances.

The general search began in 1990 and ended at the beginning of 2005, whereas searching for material on chronic back pain (BP) and complex regional pain syndrome (CRPS was limited to

that published since 2000). Material solely on pain due to cancer was excluded, as was that pertaining exclusively to pediatrics.

### **2.2.2 Literature selection**

Literature was selected in two phases: first, material (predominantly grey literature) on organizational issues in CP was perused, and the results of Internet searching were examined by the first author to aid in the selection of three example jurisdictions showing particular commitment to CP management and to obtain an overview of the pertinent issues. This overview and a draft of preliminary findings, as well as participation in the aforementioned *Comité avisieur*, informed the development of a thematic outline for the report. In phase 2, published and other grey literature related to organization of services for CP was selected by the first author according to a number of criteria: 1) thematic content; 2) utility for decision makers (i.e., at least somewhat relevant to the Québec health-care context and as “applied” in nature as possible); 3) strength of the evidence (i.e., controlled studies were prioritized); 4) geographical location; 5) recency of publication; and 6) type of CP (i.e., CP in general, chronic BP, and CRPS were prioritized). Given the breadth of the domain of CP management and feasibility and timing issues, a full systematic review was not attempted. Instead, the goal was to complement information from the example jurisdictions with the best research evidence that highlighted particular organizational issues.

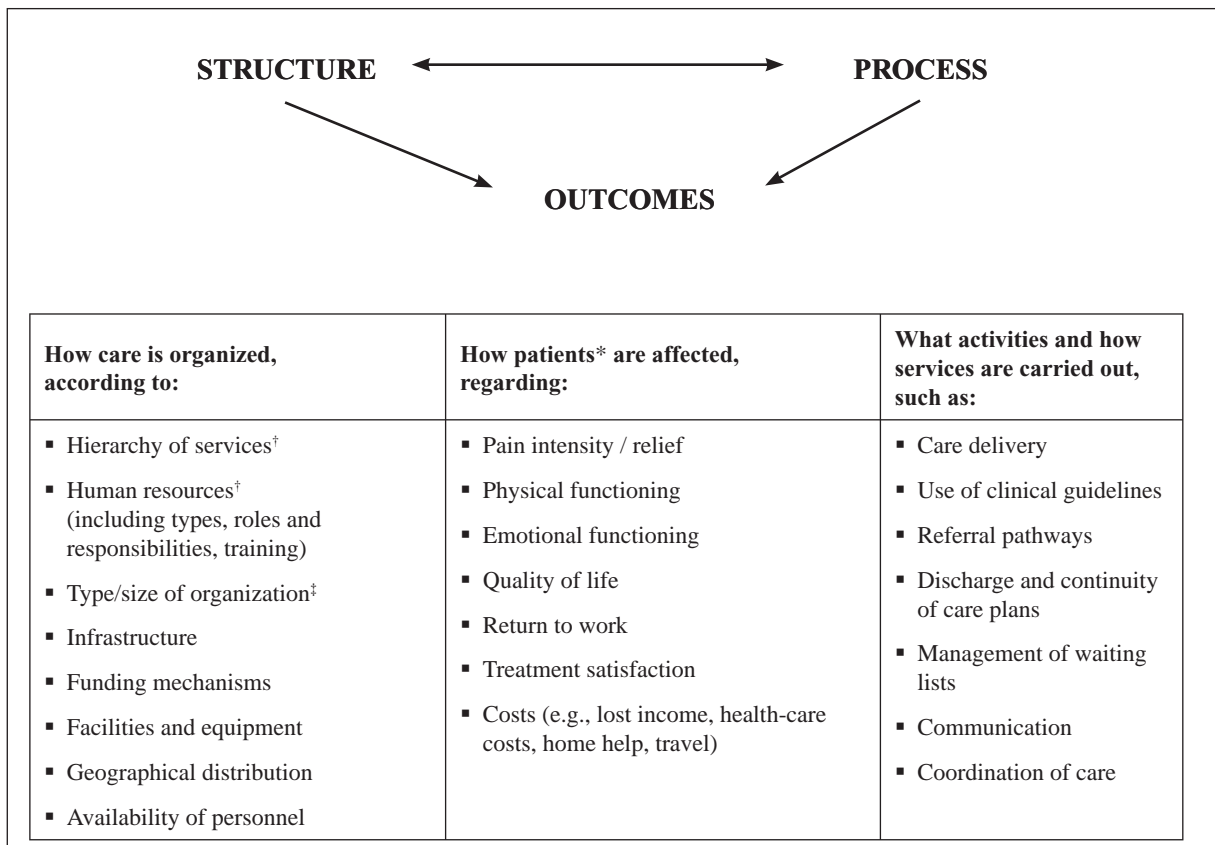
### 3.1 CONCEPTUAL FRAMEWORK FOR THE SELECTED MATERIAL

This chapter examines organizational issues in the management of chronic pain according to a conceptual framework presented in Figure 1. We follow the framework by dividing the main material according to structure or process, and then presenting any information on related

outcomes within the most relevant of these two sections. For example, research that targeted a structural component of CP care is reviewed in the section on structure. If both structure and process were addressed, we present the study in both of these sections when possible, or use our judgment to place the outcome material according to the purpose(s) of the investigation.

FIGURE 1

#### Conceptual framework for the presentation of material in this report



\* When available, outcomes according to care providers are also presented in our report (e.g., satisfaction in the work setting, use of clinical guidelines, documentation of information in medical charts).

<sup>†</sup> These two structural elements are discussed in Chapter 3, according to the availability and relevance of material for the purposes of this report. Information related to the other structural elements was either not found or was deemed insufficient for inclusion.

<sup>‡</sup> E.g., private office, clinic, hospital, rehabilitation centre.

Throughout Chapter 3, we present descriptive information from three example jurisdictions (section 3.3 describes how these jurisdiction were chosen) and also review published evidence from these or other regions/systems, including Québec. Some of the descriptive information is also specific to Québec. Some issues were better researched than others, and this is reflected in the coverage of various topics.<sup>16</sup> Our objective to find evidence linking innovations in organizational structure and/or process to outcomes for CP patients was only partially accomplished due to the limited number of publications found explicitly making these connections.

## 3.2 OUTCOMES OF CP MANAGEMENT

From the patient's perspective, a number of outcomes are important indicators of the impact of structure and process elements in the management of CP. Thus, effectiveness or efficacy of a management component, such as treatment using a particular mode of intervention, can be defined broadly to include elements relating to pain (e.g., intensity, frequency), function (physical, psychological, and social disability), quality of life, and economic costs, for example. In this report, these types of outcomes are presented when information was found from the example jurisdictions or when included in results from published studies. Of course, studies differ with regard to the types of outcomes considered as well as the tools used to measure them.

### 3.2.1 Measurement of patient outcomes

Tracking outcomes for pain patients has become a topic of great interest in recent year as is evidenced by the IMMPACT (Initiative on

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16. For example, considerable work has been done to determine if general practitioners use clinical practice guidelines for back pain, whereas relatively few publications were found concerning care pathways for CP.

Methods, Measurement, and Pain Assessment in Clinical Trials) group, a consortium of pain experts who are focused on measurement issues and methodologies crucial for pain research and clinical work.<sup>17</sup> Turk et al. [2003] proposed key domains that should be considered to determine if pain treatment is effective (in the context of clinical trials); these include pain measures (e.g., pain intensity, pain relief), pain-related physical functioning, emotional functioning (e.g., depression, anxiety), quality of life, return to work, and patient satisfaction with pain management. In these recommendations, the question of what to measure is accompanied by suggestions on when one should assess the selected outcomes. The ways to proceed depend on many factors, such as the type of treatments used, resources for data entry and analyses, and purpose of the evaluation. At minimum, a pre- and post-treatment assessment is required, as well as longer term follow-up to determine if treatment effects persist.

### 3.2.2 Treatment satisfaction

Treatment satisfaction is a complex concept that can be influenced by illness experience, patient's expectations of treatment, outcomes related to treatment (or thought to be), perceived quality of care received, and psychological and physical health at the time of measurement. In addition to overall assessments of treatment satisfaction, multidimensional scales exist which incorporate health outcomes and other elements such as care provider skills, access to treatment, and care coordination [National VA Pain, 2003; Bidaut-Russell et al., 2002; Hudak and Wright, 2000; Sitzia and Wood, 1997]. We looked for literature that addressed patient satisfaction with respect to organizational and service components of CP treatment. In various different settings, similar themes arose as important elements of treatment satisfaction: education about pain [Brown, 2004; Chapman et al., 2000; May, 2000], learning about self-care [Brown, 2004; Hertzman-Miller et al., 2002; Chapman et al., 2000; May, 2000;

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17. See the IMMPACT website at: <http://www.immpact.org>.

Nyiendo et al., 2000] or personal involvement in therapy [Brekke et al., 2001; May, 2000], and explanation of treatment [Hertzman-Miller et al., 2002; McCracken et al., 2002; May, 2000]. Other service-related factors which have been linked to patient satisfaction include attributes of care providers (empathy, friendliness, competence, completeness of the diagnostic evaluation) [Wickizer et al., 2004; Evans et al., 2003; McCracken et al., 2002; May, 2000; Nyiendo et al., 2000]; confidence in treatments [Hertzman-Miller et al., 2002; Nyiendo et al., 2000]; and structural and process aspects of care (having enough time in an appointment or longer visits, access, care coordination, flexibility of appointments) [Wickizer et al., 2004; Evans et al., 2003; Hertzman-Miller et al., 2002; May, 2000; Nyiendo et al., 2000].

### 3.3 OVERVIEW OF JURISDICTIONS PRIORITIZING MANAGEMENT OF CP

In this section, a brief description of the commitment made to the management of CP is provided for the three example jurisdictions that we have chosen to highlight. These jurisdictions were selected for several reasons: 1) they have made a clear commitment to CP health services and their quality control; 2) they provide services to all members of a specific region or group; and 3) they have made available sufficient material pertaining to their respective programs to enable inclusion in this report. In sections 3.4 and 3.5, we present information on structure, process and outcomes in these three jurisdictions<sup>18</sup> whenever relevant, paying special attention to any similarities between jurisdictions. It should be kept in mind that other regions and health-care systems are also represented in Chapter 3, since we also present information on structure, process, and outcomes from relevant published research. These other regions and health-care systems were not featured as example jurisdictions, however,

18. This material is extracted from the cited websites unless otherwise noted. For the jurisdictional information, each citation applies as the source of material until the next citation is made.

because they did not meet our three criteria mentioned above. In addition, information and research evidence from Québec is presented throughout this report when available.

#### 3.3.1 France

For the past decade, pain, and chronic pain in particular, have been a national priority for France [MSFPH, 2002]. The Minister of Health committed to improving the overall management and treatment of chronic pain, both within establishments and in ambulatory care, by initiating Phase I (1998-2000) of a “national fight against pain” (*Programme national de lutte contre la douleur*) [MSFPH, 2001]. The Ministry provided financing to set up multidisciplinary structures for the evaluation and treatment of persistent chronic pain throughout France, albeit mostly at the tertiary care level. In 2002, a second phase (2002-2005) of the national pain program began. This time, in addition to pursuing the objectives of the first phase, the strategy also focuses on three specific domains: pediatric pain, migraine, and post-operative pain. A hierarchical structure of services has been put into place. Individual hospital pain committees have been formed; these are responsible for tasks such as insuring continuing education of health professionals, promoting the development of inter-hospital and hospital-city networks, and coordinating services for pain [ARHRA, 1998; CNRD, 1998]. A methodological guide for clinicians and policy-makers on organizing management of pain in health establishments was published in 2002 [MSFPH, 2002]. France relies heavily on the Internet to disseminate policy and procedures, including materials for patients and professionals (e.g., clinical guidelines).

#### 3.3.2 Australia

Pain services have been available in Australia since the mid-1960s, with increased visibility in the late 1970s [Faculty of Pain Medicine, 2003]. During this time multidisciplinary resources for severe, persistent non-cancer

and cancer pain were developed. In addition, “acute pain programs” have been in place since the early 1980s. The past two decades have seen the evolution of a balance between the management of routine pain problems by the appropriate specialty and referral of more challenging problems to specialist pain services. Focus has been on the overall improvement in pain management through the following initiatives: educational programs for junior doctors; the development of protocols and procedures to enhance efficacy and safety of treatments and to facilitate management by general medical and nursing staff; the promotion of frequent interactions between MPC staff and referring specialists, resulting in a mutually beneficial educational process; and widespread introduction of programs for management of acute pain, usually as part of, or in association with, MPCs.

### **3.3.3 United States Veterans Health Administration**

The Veterans Health Administration (VHA) is responsible for health care for military personnel across the United States, who number about 25 million persons. Beginning in 1998, the VHA, in collaboration with the Institute for Healthcare Improvement [Cleeland et al., 2003], undertook the development of the VHA National Pain Management Strategy [VHA, 1998]. The VHA’s overall objective has been to develop a comprehensive, standardized, multicultural, integrated, monitored and system-wide approach to pain management for veterans with acute and chronic pain. In order to organize the structure for implementation of the strategy, a coordinating committee was put into place [Craine and Kerns, 2003]. This committee is made up of a chair and a national program coordinator, as well as a multidisciplinary group of experts from VHA facilities with expertise in pain management, education, research, and information technology. There are also several working groups, chaired by committee members; each group (i.e., clinical guideline development, pharmacy guidelines, outcome measurement,

research, education) is responsible for an aspect central to the strategy’s objectives. A point of contact is designated for each of the 21 Veterans Integrated Service Networks (VISN) in the VHA, to liaise between the committee and VISN facilities, which include both inpatient and outpatient services.

Structures and processes have been put into place within the VHA to enable patients with pain to receive care at various levels of the system, according to the type of pain and duration of the problem [Clark, 2004a; VHA, 1998]. Clinics have been established, multidisciplinary pain teams have been formed, and access to specialty pain care has been increased [Craine and Kerns, 2003]. Educational service representatives from all VISNs are involved in the development and dissemination of training materials to facilities [Craine and Kerns, 2003], so that a system-wide standard of practice is established. Furthering clinical competency and increasing awareness of pain management are key goals, targeting patients and families as well as staff. Interdisciplinary management of pain is promoted [Kerns, 2003]. Importantly, the VHA has invested heavily in an information technology platform to make computerized pain assessment templates available, and to facilitate the systematic monitoring of patient outcomes and assessment of the quality of services rendered throughout its system [Craine and Kerns, 2003]. In the VHA, research is advocated as an integral part of its vision for pain management [Kerns, 2003].

## **3.4 STRUCTURE OF HEALTH-CARE SERVICES**

In this section we present information pertaining to care structure from the three example jurisdictions as well as other regions/systems, including Québec, when we found research studies pertinent to the specific topics addressed. We discuss the hierarchy of health-care services (3.4.1), the roles and responsibilities of various types of health-care providers (3.4.2), and

training (3.4.3), as these relate to management of CP. It should be noted that we did not find information stating the size and composition of teams that would be needed to treat a certain number of CP patients per year in a particular setting.

### 3.4.1 Hierarchy of services

Health-care systems are generally structured according to a hierarchy of levels at which care is delivered. Such levels can be ordered with increasing specialization in terms of human resources, facilities, and equipment (and possibly increasing intensity of services rendered) as one moves up the hierarchy. Typically, the higher levels respond to more complex cases and to a portion of the general population that decreases in size as it moves up the hierarchy. A hierarchy of services does not imply, however, that patient pathways are unidirectional—in fact, patients may need to move from one level of services to another and back over the course of time—nor does it imply that one level is more important than another. Ideally, referral protocols are put in place to coordinate the movement of patients through the care levels. As examples of how these levels are often labelled, “primary” care—the first level of the hierarchy and the “entry” point to the health-care system—can denote the delivery of care by general (i.e., non-specialized) practitioners,

such as family physicians working in clinics or private offices. Non-teaching hospitals and rehabilitation centres can be considered “secondary” care facilities; specialists can also be considered part of secondary care, requiring referral from the primary care level in order to be consulted by patients. The term “tertiary” care can be used to denote highly specialized centres such as university teaching hospitals that include research and training activities and facilities. It should be recognized that different health-care systems define levels of care in different ways and use different labels to denote them; we have thus minimized our use of the above terms (particularly “secondary” and “tertiary” care) in this report.

In order to organize the material from the example jurisdictions on the structure of various CP services, Table 2 summarizes the types of structures identified in the information we reviewed. These structures are further described in the text that follows.

#### *First entry point to care*

As mentioned in Chapter 1, the initial point of contact for the majority, if not all, patients with pain is the general practitioner (GP). In some regions this first level of the service hierarchy may also formally include other health professionals, such as chiropractors and physiotherapists (e.g., Denmark).

TABLE 2

**Health-care structures for CP patients in the example jurisdictions**

FRANCE	AUSTRALIA	VETERANS HEALTH ADMINISTRATION*
<ul style="list-style-type: none"> <li>▪ Consultation service<sup>†</sup></li> <li>▪ Pain units<sup>†</sup></li> <li>▪ Pain centres<sup>†</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ Pain medicine specialists</li> <li>▪ Multidisciplinary pain clinics<sup>†</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ Single discipline or modality-oriented outpatient clinics</li> <li>▪ Multidisciplinary (or interdisciplinary) pain clinics<sup>†</sup> <ul style="list-style-type: none"> <li>▪ Outpatient clinics<sup>†</sup></li> <li>▪ Inpatient programs<sup>†</sup></li> <li>▪ Pain centres<sup>†</sup></li> </ul> </li> </ul>

\* Using pain treatment program models as outlined by Clark [2004b], with the exception of the term “pain centers” which arises from Clark [2004a]; note that there is some variation in the names of the structural categories described in the VHA materials we reviewed.

† Multidisciplinary.

Other health professionals consulted by CP patients, such as physiotherapists, occupational therapists, chiropractors, and psychologists, can be found at the first level of care in Québec, although they can also be found at other levels in the health-care system (e.g., psychologists in MPCs).<sup>19</sup>

In the documents reviewed from France, there is a paucity of information concerning first level services for CP patients. Nonetheless, we located an educational book [Hirszowski et al., 2001], designed to inform French GPs about diagnosis, treatment and the referral process for CP patients. Moreover, the Agence Nationale d'Accréditation et d'Évaluation en Santé<sup>20</sup> (ANAES) has placed numerous documents on-line such as *Évaluation et suivi de la douleur chronique chez l'adulte en médecine ambulatoire* [ANAES, 1999], and guidelines for chronic low back pain [ANAES, 2000].

We found several studies in other countries that are relevant to the management of CP at the first level of care. Stannard and Johnson [2003] conducted a nation-wide cross-sectional survey of a representative sample of GPs in the United Kingdom, to see how well these physicians felt they were managing CP patients with moderate to severe non-malignant pain. The responding physicians (n = 504/569) treated an average of 187 pain patients, 40% of whom had low back pain. The GPs estimated that they had achieved optimal control of symptoms in 46% of their patients and that 14% of their patients had been referred to hospitals for symptom management. Also in the United Kingdom, the Dr Foster research company [Dr Foster, 2004] conducted a nation-wide cross-sectional survey of primary care organizations (55% response rate) and found that, due to wide variations in funding for primary care, there was a real risk of inequitable access to CP management services. Only 20%

of the organizations surveyed reported having a formal or structured chronic pain management service.

In a large international prospective study in primary care (including 14 countries: Turkey, Greece, Germany, India, Nigeria, the Netherlands, United Kingdom, Japan, France, Brazil, Chile, United States, China, and Italy), Gureje et al. [2001] found that of 3,197 randomly selected adult patients in primary care, 1,083 patients had persistent pain (for at least six months) at baseline and about half of these (49.2%) had not recovered one year later. Over the 12-month follow-up period, the overall incidence of new cases with persistent pain was 8.8%, with great variation across centres (from 1.7% in Athens, Greece, to 18.7% in Manchester, UK).

These studies point to the potential for sub-optimal outcomes (i.e., with respect to pain, quality of life) for many CP patients at the primary care level. Some propose that this could be related to assessment and treatment approaches being predominantly based on a biomedical model [Dr. Foster, 2004], which can involve both the structure and process of care. As will be discussed in the case study on back pain (Appendix C), we found exceptions to this biomedical approach when allied health professionals have been added to the treatment protocol [Pinnington et al., 2004; Loisel et al., 2003; Loisel et al., 2002; Loisel et al., 1997].

### *Specialist care*

Medical specialists in Québec who are the most implicated in pain-related issues include neurologists, rheumatologists, psychiatrists, neurosurgeons, orthopedic surgeons, and anesthesiologists. In France, this level is referred to as a consultation service and uses a multidisciplinary approach for patients with persistent pain [Richard, 2002; Auquier and Arthuis, 2000]. One also finds pain units at this level in France; these serve to evaluate and treat pain [Richard, 2002]. In addition to being organized as a multidisciplinary consultation service, with at least three physicians on staff,

19. These services are not covered by public health insurance in Québec; the patient must pay unless she/he has private insurance, which provides partial coverage.

20. In January 2005, the ANAES was renamed the Haute Autorité de Santé.

a unit must also have designated rooms for procedures, a room for group psychotherapy, office space for support and treating staff, and access to hospital beds (at least four) or defined places in day hospitals [Richard, 2002; ARHRA, 1998]. In Australia, there are pain medicine specialists with specific pain training [Faculty of Pain Medicine, 2003]. In the VHA system, there are two general forms of specialist treatment services: single discipline outpatient clinics, providing a specific type of treatment (e.g., anaesthesiology pain clinics providing nerve blocks) but not comprehensive assessment and management; and multidisciplinary pain clinics, staffed by individuals from two or more disciplines [Clark, 2004a; 2004b]. In the VHA system there are also pain consultation (multidisciplinary) teams, that serve to advise the referring doctor or assist in case management but do not provide treatment [Clark, 2004b].

In the United Kingdom, specialists are considered part of secondary care; according to the study by Dr Foster, while links between primary and secondary care for the management of CP appeared to be “good”, over half (52%) of the primary care organizations surveyed did not have a “defined protocol for referral” to these services such as pain clinics, rheumatology, orthopedics, podiatry, or palliative care [Dr Foster, 2004, p. 7].

Wilder-Smith et al. [2001] conducted a cross-sectional survey in Switzerland comparing the management of all types of CP by various specialist physicians. Two hundred and twenty-nine (of 500; i.e., 46%) physicians responded, and the specialties represented were pain clinic physicians, rheumatologists, oncologists, and neurologists. Seventy-two percent reported that they treated their patients outside a multidisciplinary team, even though almost half had links to an interdisciplinary pain centre. Fifty-one percent lacked formal pain training, and 69% agreed that pain education was their “greatest need.” This study sheds light on areas needed for improvement, namely education and multidisciplinary diagnosis and treatment of CP.

It should be noted here that compared to CP management in primary care and at specialized centres such as multidisciplinary pain clinics (see p. 18), we found less information in the literature pertaining to the structures and processes involved in specialist health services. This is reflected in the coverage of topics in the sections that follow.

**Rehabilitation centres** may include specific programs for CP patients. There are a number of different centres operating in Québec. Such centres are often comprised of a multidisciplinary team (including occupational physicians, physiotherapists, and psychologists) and receive referrals from GPs or specialists. Addressing disability is a primary focus. As an example, the CP Rehabilitation Program in Ottawa, Ontario, provides outpatient day hospital services as well as an inpatient service.<sup>21</sup> This program is set up to provide multidisciplinary assessment and treatment that aims to increase function and quality of life [Wilson et al., 2002]. The LifeMark Health Institute, a rehabilitation centre in Edmonton, Alberta, was recently restructured as part of a demonstration project [Alberta Health and Wellness, 2003]. The Institute combines medication management, psychosocial treatment, and rehabilitation approaches, matching patient needs to treatment components within a private interdisciplinary program [Alberta Health and Wellness, 2003, p. 292–316].

Relevant to the hierarchy of pain services in the United Kingdom, a study on organizational structure in pain services was carried out using a cross-sectional survey of care providers in 12 sites (representing teaching and non-teaching hospitals), national survey data from pain service directors, review of evidence and clinical practice guidelines related to pain, and professional contacts [CSAG, 2000]. Quantitative and qualitative methods were combined. The scope of the study was

21. The Rehabilitation Centre. Focusing on abilities. Available at: <http://www.ottawahospital.on.ca/rehabcentre/> (accessed on March 18, 2004).

very large, including acute and chronic pain, palliative care, and pediatric pain. Services provided by GPs, community services, and in hospitals were examined. In general, CP services were so poorly resourced that many could not meet local needs, and waiting times were often too long. The number of consultant sessions was reported to be too low, and only half of the services had a specialist chronic pain nurse. Shortages of specialist psychology, physiotherapy, occupational therapy and pharmaceutical support hindered the multidisciplinary approach. It was reported that GPs and community staff managed most chronic pain patients but, in terms of process, most (84%) GPs were not aware of any guidelines for CP management.

### ***Multidisciplinary (or interdisciplinary) pain clinics***

Patients referred to MPCs typically are the most challenging to treat as they have not obtained adequate pain relief elsewhere within the health-care system. MPCs can be present at non-teaching hospitals and university teaching or university-affiliated hospitals; they also exist in the private sector (e.g., in Australia and Québec).

In collaboration with the Société québécoise de la douleur and the Québec Pain Research Initiative, Veillette et al. [2005] conducted a cross-sectional survey on specialized services offered for the treatment of CP in Québec through every hospital anesthesiology department in the province (obtaining a 100% response rate). Fifty of the 69 departments (73%) offered some kind of services for CP treatment, but these were often very limited in scope. Despite the fact that 26% of departments claimed to offer some form of multidisciplinary assessment and treatment, only three sites reported having a core team consisting of a pain management physician (in this case, an anesthesiologist), a nurse, a psychologist and a physiotherapist. No departments included occupational therapists or social workers in

their teams. This study does not explicitly list which departments are associated with multidisciplinary clinics; a pan-Canadian study, in progress at the time of writing this report, is expected to provide information of this kind for Québec, among other data.<sup>22</sup> A small number of specialized pain clinics exist in Québec, concentrated in urban settings.

According to the Canadian Consortium on Pain Mechanisms, Diagnosis and Management (CCPMDM),<sup>23</sup> few cities in Canada have pain clinics that provide services by an integrated team of specialists [Ospina and Harstall, 2003]. New clinics are currently being developed (e.g., the Integrated Pain Treatment Centre in Toronto/Mississauga, Ontario). Several years ago, the Calgary Chronic Pain Centre was set up as part of a demonstration project funded by Alberta Health and Wellness and the Calgary Health Region, and supported by the Alberta Medical Association [Taenzer et al., 2005; Alberta Health and Wellness, 2003]. The Calgary centre employs an interdisciplinary approach for the assessment and treatment of CP patients with musculoskeletal or female pelvic pain, or those with daily headaches [Ospina and Harstall, 2003]. It is one example of the 30 various urban and rural services available in Alberta for chronic pain management,<sup>24</sup> each operating with different staffing, funding, and access arrangements. These include the aforementioned LifeMark Health Institute, The University of Alberta Multidisciplinary Pain Centre and the facilities of the Workers' Compensation Board.

In France, pain centres are found within university teaching hospitals or hospitals affiliated with a university, and have three missions: treatment, research and education [Richard, 2002]. The numbers of both these and the aforementioned units have increased as a function of the national pain program

22. Dr. M. Choinière, personal communication, April 28, 2005.

23. Canadian Consortium on Pain Mechanisms, Diagnosis and Management. Available at: <http://www.curepain.ca> (accessed on March 19, 2005).

24. CHR Regional Pain Program: Strategic Pain, 2005/06; P. Taenzer, personal communication, March 20, 2005.

[Annequin, 2004]. A centre consists of specialized full-time clinicians, such as two physicians with specific training in pain (one of these a neurologist) and mental health practitioners (either psychologists or psychiatrists); the centre's approach to the management of pain must be multidisciplinary [Richard, 2002; ARHRA, 1998]. The team facilitates the centre's goal to simultaneously manage their patients' pain, educate doctors and other health personnel, and advance medical research. The facilities of a centre must include consultation offices, laboratories, and a reserved hospital sector so that there is access to permanent hospital beds reserved for treating and evaluating patients with pain.<sup>25</sup>

The Australian Pain Society (APS) produced a document in 2002 titled *Pain Management Programmes for Chronic, Persistent, or Long lasting Pain*, which describes how a multidisciplinary pain management program should be structured [APS, 2002a]. According to the APS such a program should include four components: 1) cognitive-behavioural therapy; 2) graduated activity; 3) education; and 4) lifestyle modification (the document is based on [Guzmán et al., 2002]). In Australia, MPCs are established in all states.<sup>26</sup> The APS has specified criteria for patient referrals to a multidisciplinary pain management program; these are considered appropriate when: 1) there has been a failure of medical and surgical treatment; 2) there is a perception of over-reliance on medications and therapies; 3) there is pronounced inactivity; 4) there is significant depression or anxiety; 5) there is a perception of inadequate coping; and 6) the patient is receptive to adopting a self-management approach and is willing to participate in such a program [APS, 2002a].

In the VHA system, pain management services are provided to patients with chronic

25. A list of units and centres currently operating in France can be found at: [http://www.cnrd.fr/article.php3?id\\_article=444](http://www.cnrd.fr/article.php3?id_article=444) (accessed on October 23, 2005).

26. A directory of MPCs can be found at: <http://www.apsoc.org.au/facility.html>.

pain syndromes (experiencing CP as well as related life problems) via several models of multidisciplinary care delivery [Clark, 2004a]. These structures, found mainly in outpatient settings, vary in available services, required resources, and types of patients treated, and display a gradation in specialization and activities other than patient care:

- 1) Multidisciplinary outpatient clinics [Clark, 2004b]:
  - **Psycho-educational outpatient clinic**  
These are appropriate for patients with mild chronic pain syndromes. The goal is to educate motivated patients in self-help methods of pain management (e.g., exercises, relaxation, distraction).
  - **Problem-based multidisciplinary clinic**  
These are multidisciplinary groups focusing on one type of chronic pain problem; they may include patients with moderately severe CP syndromes (e.g., headache, arthritis, or low back clinics).
  - **Comprehensive multidisciplinary clinic**  
These are intensive, structured, multimodality programs which are adequate for all but the most severe CP syndromes, or where withdrawal from heavy doses of narcotic analgesics is needed.
- 2) Multidisciplinary inpatient programs [Clark, 2004b]  
These provide the most intensive patient treatment; they are appropriate for patients with moderate to severe CP syndromes or those that require closer monitoring during treatment.
- 3) Multidisciplinary (or interdisciplinary) pain centers [Clark, 2004a]  
This is the largest and most complex type of pain treatment model and is typically associated with a medical school or teaching hospital. These centers are appropriate for individuals with moderate to severe chronic pain syndromes, for those with less severe

syndromes but very complex and refractory pain problems, or for patients with CP and comorbid conditions. These pain centers must also engage in active pain-related research and staff education. In the VHA system, there is one program that meets the pain center criteria and is accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF): the Chronic Pain Rehabilitation Program (CCPRP) at James A. Haley Veterans Hospital (Tampa, Florida).<sup>27</sup>

We close this material on multidisciplinary pain clinics by addressing the question: Does the evidence support the use of the MPC in the treatment of CP? Using meta-analysis of 65 controlled and non-controlled studies (published from 1966–90), Flor et al. [1992] concluded that multidisciplinary treatment<sup>28</sup> is more effective than no treatment, a waiting list control and single-discipline treatments (e.g., medical care, physiotherapy) for chronic low back or heterogeneous pain, in terms of reduced use of health-care services and medications, increased activity and return to work, closure of disability claims, and reduction of affective distress, in addition to decreases in pain. It was, however, noted that the quality of the studies included in this meta-analysis was in general poor in terms of design, losses to follow-up, and reporting of information. Becker et al. [2000] conducted a randomized controlled trial in Denmark with CP patients (various pain locations and pathophysiologies) who were treated by either a GP, with the addition of a

27. See the CPRP manual at <http://www.vachronicpain.org/Downloads/CPRPMan2005%20for%20web.pdf> (accessed on October 22, 2005). This program manual serves as a model for other facilities who may want to set up such a management program, discussing organization, administration, roles of key staff, medical coverage, CPRP screening procedures, persons served, CPRP inpatient admission criteria, program components, discharge planning, premature discharges policy, continuity of treatment, other services, and quality management and improvement. The CPRP consists of a 19-day inpatient treatment program and associated outpatient screening and treatment clinics.

28. According to Ospina and Harstall [2003], multidisciplinary treatment was defined by Flor et al. [1992] as an interdisciplinary approach in a multidisciplinary pain clinic (private or university-based practices) provided on an inpatient or outpatient basis.

one-time pain specialist consultation, or in a MPC. These two groups were compared to CP patients on a waiting list for the MPC treatment ( $n = 63$  in each of the three study groups). After six months, the MPC patients improved significantly on pain, psychological and physical functioning, and sleep quality whereas those in the GP group exhibited no improvements. The wait-listed patients, who were managed by their GPs as usual for six months (i.e., no specific treatment except for continuation of ongoing pain medication), showed a significant deterioration in psychosocial functioning and health status.

In 2003, Ospina and Harstall reviewed the evidence on MPCs for the Alberta Heritage Foundation for Medical Research (AHFMR). The effectiveness and economic consequences of MPC treatment for non-malignant CP were examined by synthesizing results from systematic reviews (studies published from 1966–98). Four of the five systematic reviews used by Ospina and Harstall [2003] came from the Cochrane database; the other review [Flor et al., 1992], was considered to be of weaker methodological quality. There was strong evidence for effectiveness of MPCs for chronic low back pain, moderate evidence<sup>29</sup> for chronic pelvic pain, and limited evidence<sup>30</sup> for fibromyalgia/widespread body pain, neck and shoulder pain. There was a paucity of data pertaining to the cost-effectiveness of MPC treatment: only one systematic review [Thomsen et al., 2001] met the inclusion criteria, but no conclusions could be drawn due to a lack of standardized reporting of results, sparse data, and poor quality of economic evaluations [Ospina and Harstall, 2003]. Turk [2002] has made estimates of the cost savings associated with MPC treatment based on numbers of patients in American MPCs and data on reduction in medical costs after treatment from other sources, including Flor et al. [1992]. This article was excluded by Ospina and Harstall [2003] as it is a narrative review.

29. This is based on one high-quality randomized controlled trial.

30. Inconsistent findings were found among randomized controlled trials.

Nevertheless, a general rehabilitative approach that offers care from various disciplines is considered to be the “gold standard” for patients with CP that persists despite less intensive treatment, and is recommended by the International Association for the Study of Pain (IASP) for many patients. An IASP taskforce [1990] has produced a document that lists “desirable characteristics” (i.e., guidelines) for pain treatment facilities, including multidisciplinary pain centres and clinics, in order to inform the organization of such entities and for use in standard-setting and accreditation globally. This taskforce states that “a multidisciplinary approach to diagnosis and treatment is the preferred method of delivering health care to patients with chronic pain of any etiology. Not every patient referred to a pain treatment facility is in need of multidisciplinary diagnosis or treatment, but the facility should have those resources available when they are appropriate” [IASP, 1990, p. 4].

As will be discussed further in section 3.5.2, the hierarchical model of services is conceptually linked to the process of *stepped care*, in which patients progressively receive more complex, specialized and, often, costly interventions according to need. The role of health professionals increases in intensity as the patient moves through the stepped care framework [Von Korff et al., 2002].

### **3.4.2 Roles and responsibilities of care providers**

#### ***General practitioners (GPs)***

GPs evaluate and treat most CP patients. They are entrusted with the responsibility to triage patients who present with pain that may be associated with a serious disease (e.g., cancer, Crohn’s disease) that requires the services of certain specialists (e.g., oncologist, gastroenterologist), or refer to a pain specialist if necessary. Many do not have direct links to allied health professionals. In the 1998 guide *Traitement de la douleur : le point sur l’utilisation des narcotiques* written by the

Collège des médecins du Québec (CMQ; Québec college of physicians), it was clearly indicated that physicians at the primary care level can evaluate, treat, and follow most CP patients rather than refer him or her to other levels of care [CMQ, 1998, p. 7]. This reinforces the key role of the GP in the care of patients with CP. Nonetheless, the guide recognized that difficult cases may need to be referred to specialists, or to other health-care professionals.

In a cross-sectional survey of care providers in the Calgary Health Region of Alberta, Canada (63 GPs and 62 specialists), physicians were “not satisfied with the current situation with respect to CP management” in their region [Alberta Health and Wellness, 2003, p. 252]. The physicians mentioned a variety of problems, from lack of basic equipment to lack of pain specialists with whom to consult; such limitations were thought to result in “constant delays and long waiting lists that in turn negatively impact their patients’ quality of life” [Alberta Health and Wellness, 2003, p. 252]. In order to carry out their roles and responsibilities, most reported the need for continued education in pain management techniques.

#### ***Medical specialists***

Medical specialists serve to further the diagnostic process for a patient with CP (e.g., a rheumatologist may diagnose fibromyalgia) and provide treatment recommendations to the referring GP. The specialist sometimes continues to monitor the patient with regard to care for the specific problem (e.g., the rheumatologist’s patient with rheumatoid arthritis), but expects the GP to treat the patient’s other medical problems. Specialists, in turn, may refer complex cases to a MPC, where anesthesiologists and pain specialists are most likely to be found, when they recognize that pain remains unresolved after treatment attempts (e.g., neuropathic pain in a diabetic patient). Some specialists select patients with a particular type of CP for treatment (e.g., migraine headaches in neurology) because they have developed an expertise in treating that

disorder. There is, however, some indication in the literature that structures and processes may not be in place to ensure that specialists fulfil their roles appropriately. In a Swiss survey conducted by Wilder-Smith et al. [2001], 59% of specialists never or only occasionally used treatment algorithms, less than half (38%) used formal pain diagnostic procedures, and only 20% had a program in place to assess quality of pain therapy.

### **Pharmacists**

Given that medications are the first line treatment for most pain patients, pharmacists can play an important role in pain management. Their training includes physiological and pharmacological issues in pain treatment, as well as social and ethical concerns. Pharmacists are experts on the various pharmacologic agents used to alleviate pain (e.g., non-steroidal anti-inflammatory drugs, opioids, antidepressants, anti-convulsants, topical agents) and, importantly, on drug interactions. They may counsel patients directly when the latter purchase their medications, or work with prescribing physicians as consultants. Pharmacists need to be cognizant about substance abuse and behavioural signs of addiction. One rarely finds a pharmacist as part of a pain clinic team, but clinic personnel may communicate with the hospital pharmacist, especially when medications are provided within this context.

### **Nurses**

In general, nurses assist physicians with procedures, educate patients, communicate with families, and coordinate patient care. In 2002, the Registered Nurses Association of Ontario (RNAO) published guidelines which relate to the nurse's role in the assessment and management of pain based on systematic review of clinical practice guidelines (CPGs) and expert consensus. Both acute and chronic pain are covered, as are directives for patients of all ages and in all health-care settings [RNAO, 2002]. Detailed nursing practice recommendations are made for the following: screening for

pain, assessment of various parameters of pain, reassessment of pain on a regular basis, establishment of a pain management plan, and working in collaboration with a multidisciplinary team when pain is chronic and unresponsive to other modalities. These recommendations are concordant with those provided by the IASP.

Also in 2002, the British Chapter of the IASP published *Recommendations for Nursing Practice in Pain Management*. This report incorporates a survey of nurses in acute and chronic pain practice to determine actual practices and to provide detailed descriptions of skills and competencies required. It was noted that nurses in the two domains share skills but enact them in different settings (e.g., a surgical unit for acute and a pain clinic for chronic pain). Both types of nurses need good communication skills and knowledge of the medications used to treat pain. The chronic pain nurse may be trained in clinic waiting list prioritisation and referral to appropriate team members. Some nurses are trained in behavioural lifestyle strategies, such as relaxation therapy. In pain clinics, nurses assist with drug delivery systems such as indwelling epidural infusion pumps, intrathecal systems, transdermal patches, and regional anaesthesia.

In France, much emphasis has been put on the tasks expected of nurses, as part of the medical team, during painful procedures (such as injections, diagnostic tests, etc.) [MSFPH, 2001]. In fact, in Phase 2 of the national pain program, this was listed as a priority with regard to post-operative pain [Annequin, 2004].

In the United States, the United Kingdom, and some provinces in Canada<sup>31</sup> (Alberta, Ontario, Newfoundland and northern parts of the country) nurse practitioners play an important role in lessening the burden of care for GPs at the primary care level. In the Chronic Pain Rehabilitation Program (CPRP) at James A. Haley Veterans Hospital (part of the VHA

31. Canadian Nurse Practitioner, available at: <http://www.npcanada.ca/modules/news/>.

system), for example, an “early intervention clinic” is held by a nurse practitioner on a daily basis and is available to ambulatory care walk-in individuals in need of CP evaluation, brief treatment, or referral services [CPRP, 2005]. The nurse carries out this work with back-up physician coverage.

### ***Chiropractors***

Many CP patients seek treatment from chiropractors, particularly for back and neck pain [Coté et al., 2001]. This service is typically provided on a fee-for-service basis, and coverage of fees varies by region. For example, the Alberta provincial health plan reimburses partial costs of visits, whereas Québec’s does not. Coverage was recently approved in the American VHA system.<sup>32</sup> Many private insurance companies cover a portion of the costs incurred by patients. Despite these recent public coverage changes which point to a growing acceptance of the discipline in health-care systems, the role of chiropractic in CP treatment as an effective alternative to other modalities remains controversial [Assendelft et al., 2004; Bronfort et al., 2004; Ernst et al., 2003; AHFMR, 2002; Gross et al., 2002].

### ***Physiotherapists***

Physiotherapists assess and treat pain from a patient-centered rehabilitation perspective. They may be integrated into a team of pain specialists, work in a rehabilitation centre or hospital, or be in private practice. These therapists use techniques such as exercise, manual therapy, movement facilitation, application of electro or physical agents based on thermal, mechanical, or electrical (e.g., transcutaneous electrical nerve stimulation [TENS]) energy, or phototherapeutic modalities [IASP, 1998]. They aim to reduce pain and restore function by teaching patients how to pace activities, and set realistic goals in three domains: physical, functional, and social. While often working independently, they may be

integrated into a team of pain specialists or part of hospital personnel.

### ***Occupational therapists***

Occupational therapists, much like physiotherapists, also assist the patient to restore function, but the focus is more on work (paid and unpaid, such as household chores). The overall goal is to assist participation in occupations that are meaningful, by overcoming obstacles due to changes in function brought about by illness, disability, and/or social or environmental barriers.<sup>33</sup> Intervention strategies include assistive devices and adaptive equipment, purposeful and productive activities, vocational rehabilitation or work conditioning to improve endurance. These therapists generally work for community or social agencies, health-care establishments such as rehabilitation centres, hospitals, clinics, and chronic care facilities, or as consultants; such employment may involve being part of a multidisciplinary team.

### ***Psychologists***

The Australian Pain Society has published a position statement concerning *The Role of the Psychologist in the Management of Persistent Pain* [APS, 2002b]. According to this statement, the psychologist’s role is to assess the psychosocial aspects of the persistent pain by evaluating: 1) behavioural changes (e.g., sleep); 2) cognitive factors (e.g., expectations for treatment outcomes); 3) emotional states (e.g., depression); 4) predisposing factors (e.g., history of abuse, post-traumatic stress disorder, if any); and 5) learning factors (e.g., adoption of sick role). As for the patient’s treatment this may include cognitive-behavioural treatment, working on adjustment and adaptation, and teaching management strategies (e.g., with respect to sleep, anxiety, anger), among other modalities. Psychological treatment may be provided on an individual or group basis. While the role of psychologists in the treatment of

32. International Chiropractors Association (ICA). Chiropractic care program announced by US Department of Veterans Affairs. Available at: <http://www.chiropractic.org/index.php?p=news/vetsaffairs> (accessed on January 17, 2005).

33. Canadian Association of Occupational Therapists. Available at: <http://www.caot.ca/default.asp?pageid=1344> (accessed on August 30, 2005).

pain is widely recognized, most jurisdictions lack sufficient numbers of properly trained psychologists and resources to provide adequate services [Dr Foster, 2003 on the United Kingdom; Laurent, 2002 on France].

When working as part of a team, psychologists share assessment results, comment on the suitability of the patient for a pain management program, and help resolve difficulties that may occur during treatment (e.g., poor adherence to medication). In terms of competency, psychologists working within pain clinics typically have extensive clinical experience in general, and training in pain, in particular.

### 3.4.3 Training of health-care providers

There is a consensus that professional education is a basic building block for effective and efficient delivery of pain management. Jurisdictions that have made pain a priority (i.e., France, Australia, the VHA) have all implemented educational programs for their health professionals, as briefly described below. In this section, we also present an important training initiative from Alberta, Canada, an example of evidence-based professional education, and a published study from Sweden that links a training intervention to results.

In France, physicians learn pain management strategies in medical school and their training has been reinforced, particularly for specialists, since the national pain program was put into place.<sup>34</sup> A mandatory module on pain management and palliative care has been introduced in medical school [MSFPH, 2001]. Education for health-care professionals was harmonized by creating an inter-university diploma (i.e., *formation des professionnels de la santé à la prise en charge de la douleur* [training

in pain management for health professionals]).<sup>35</sup> Other health professional education for pain management has been enhanced (e.g., for nurses, physiotherapists, psychologists), and hospital-based continuing education has been emphasized [Richard, 2002]. Furthermore, a series of teaching documents have been placed on the Internet to enable health-care workers to extend their knowledge of the management of pain in specific areas (e.g., back pain,<sup>36</sup> migraine, pediatrics) [MSFPH, 2001].

In Australia, the Pain Management and Research Institute of the University of Sydney at the Royal North Shore Hospital offers education for individuals studying to be pain specialists.<sup>37</sup> The Faculty of Pain at the Australian and New Zealand College of Anaesthetists (ANZCA) website<sup>38</sup> describes advanced training opportunities for pain physicians. This faculty has stated that explicit, formal training in pain medicine is unique in Australia and New Zealand under its auspices [Faculty of Pain Medicine, 2003]; we did, however, find that many university diploma programs and other types of training which are specific to pain are available in France.<sup>39</sup> Many pain centres in Australia run continuing education programs for GPs which fits with the mandate for MPCs to maintain close communication with each patient's GP [Faculty of Pain Medicine, 2003].

In the United States, the VHA Office of Academic Affiliations, in collaboration with the National Pain Management Strategy

34. Sécurité sociale : le retour à l'équilibre. Une politique de santé publique renforcée : améliorer la prise en charge de la douleur. Available at: <http://www.social.gouv.fr/htm/actu/secu/980922ej.htm> (accessed on November 18, 2004).

35. Programme national de lutte contre la douleur : état d'avancement au 1<sup>er</sup> février 2004. Available at: [http://www.sante.gouv.fr/htm/dossiers/prog\\_douleur/suiviplan0104.pdf](http://www.sante.gouv.fr/htm/dossiers/prog_douleur/suiviplan0104.pdf) (accessed on October 21, 2005).

36. Roche A. Prise en charge du lombalgique en médecine générale. Available at: <http://www.univ-st-etienne.fr/facmed/finit/medgene/lomb.htm> (accessed on December 15, 2004).

37. Postgraduate education in pain management—Curriculum. Available at: <http://www.painmgmt.usyd.edu.au/html/dipcurriculum.htm> (accessed on January 17, 2005).

38. Faculty of Pain Medicine. Australian and New Zealand College of Anaesthetists. Available at: <http://www.fpm.anzca.edu.au/> (accessed on January 17, 2005).

39. A list of university diplomas is available at: [http://www.cnrd.fr/rubrique.php3?id\\_rubrique=133](http://www.cnrd.fr/rubrique.php3?id_rubrique=133) (accessed on October 21, 2005).

Coordinating Committee, has set up advanced clinical training in pain management [Craine and Kerns, 2003]. Specific residency training in pain management which incorporates clinical research is offered within anesthesiology, psychiatry, physiatry and neurology specialties. VHA personnel are encouraged to take part in continuing education opportunities such as national pain conferences, national satellite broadcasts, system-wide teleconferences, and an electronic mail group [Cleeland et al., 2003; Kerns, 2003]. The VHA serves as a training site for nurses, psychologists, physical medicine and rehabilitation therapists, and medical students. The CPRP at James A. Haley Veterans' Hospital in Florida offers training to pain fellows (usually neurologists), psychology pain residents (post-doctoral), psychology interns, physical medicine and rehabilitation residents, medical students, and other students from a variety of rehabilitation therapies,<sup>40,41</sup> both for internal staff and those from distant VHA facilities [CPRP, 2005].

The Canadian Coordinating Office for Health Technology Assessment (CCOHTA), renamed the Canadian Agency for Drugs and Technologies in Health (CADTH) on April 3, 2006, recently funded a one-year project via AHFMR in Alberta, Canada, titled *The HTA Ambassador Program*. This program employs "respected clinical leaders to communicate research evidence on non-malignant chronic pain management to health-care providers through workshops held in Alberta's health regions."<sup>42</sup> The aim is to educate health-care providers and encourage clinicians to incorporate evidence into their practice when working with patients with chronic pain. Workshop attendees are provided with one-page *Evidence in Brief* teaching tools that summarize research evidence in areas such as behaviour therapy, exercise therapy, long-acting opioids,

antidepressants, non-steroidal anti-inflammatory drugs, spinal manipulative therapy, and trigger point injections (the evidence summaries are available on their website,<sup>43</sup> a detailed report on the methods used to generate the summaries is also available). Over a three-month period in late 2004, 11 workshops were conducted in 8 out of 9 provincial health regions and involved a total of 130 participants, including physicians, nurses, occupational therapists, pharmacists, psychologists and social workers.<sup>44</sup> Eighty participants (62% of the total) completed a survey both before and six weeks after the workshops. Preliminary results from an independent evaluation indicate that care provider awareness of best evidence increased through the workshops, the evidence summaries were considered excellent communication tools, and the program had a positive impact on clinician knowledge. The evaluators concluded that the program's impact on practice could not be determined in such a short time frame; moreover, it was acknowledged that many intervening factors, e.g., organizational contexts and resources, may influence this outcome.

In Sweden, Törnkvist et al. [2003] carried out a controlled intervention in which five district nurses working in primary care settings were trained as "pain advisors", using a 4-day course and network meetings. Training included taking a pain history, assessing a patient's pain, and evaluating and documenting pain control. The comparison region contained nurses who did not receive the course and did not have regular meetings with test region staff. Among nurses in the test region who completed questionnaires after the program (n = 28), more were satisfied with overall routines in their work settings, more used visual analogue scales to assess pain and evaluate treatment, better pain control was reported for patients with leg ulcers, and greater availability of "written information or policy"

40. Physical therapy, occupational therapy, vocational rehabilitation, recreation therapy, and kinesiotherapy.

41. M. Clark, personal communication, October 24, 2005.

42. HTA Ambassador Program. Available at: <http://ahfmr.ab.ca/hta/ambassador/> (accessed on February 5, 2005).

43. HTA Ambassador Program. Evidence in brief summaries. Available at: [http://ahfmr.ab.ca/hta/ambassador/intervention\\_summaries.php](http://ahfmr.ab.ca/hta/ambassador/intervention_summaries.php) (accessed on February 5, 2005).

44. C. Harstall and P. Taenzer, personal communication, March 8, 2005 and poster presented at CCOHTA, April 25, 2005.

was reported, compared to before the program. No statistically significant changes were reported by the 25 control nurse respondents. Both groups reported improvements in documentation over time. No other results related to patients were reported.

In closing it is clear that professional education on CP needs to start in various professional schools (e.g., medicine, pharmacy, physiotherapy, occupational therapy, psychology) and be offered on a continuing education basis as the evidence for treatments evolves. “Know-how,” a basic building block for effective CP management, includes both knowledge and its application. This is essential at all levels of care, for all health professionals working with these patients.

### 3.5 PROCESS

In this section, as in section 3.4, we present information from the example jurisdictions as well as from other areas where pertinent research evidence was found. The elements of process described herein comprise communication activities (3.5.1), coordination of care and “stepped care” (3.5.2), waiting times and lists (3.5.3), referral (3.5.4), role of clinical practice guidelines (3.5.5), and discharge and continuity of care plans (3.5.6).

#### 3.5.1 Inter-discipline and inter-level communication

A consistent problem in many health-care systems is the lack of communication both between health-care professionals (e.g., GP and physiotherapist) and between levels of care (e.g., GP and the medical specialist). This problem can negatively impact patient outcomes if diagnostic test results are not received in a timely matter, or if no one is keeping in mind the various professionals a patient has seen, and the treatments tried, when making referrals or treatment decisions. Poor inter-professional communication leaves patients—many who are not prepared or able to do so—to try to keep

track of their own test results, consultations with various health professionals, treatments, etc. Wiecha and Pollard [2004] have suggested that the Internet is a logical platform for supporting interdisciplinary clinical teamwork. They note that the effectiveness and efficiency of how health-care teams function rest on two factors: patient data and coordination of team members’ activities, both of which can be handled using information technology. In the VHA system, information is relayed back to the referring physician in a general clinic or in primary care for patients treated in comprehensive multidisciplinary (outpatient) clinics [Clark, 2004b]. Once a patient has completed treatment in the CPRP, a progress summary letter with discharge status and recommendations for follow-up care is sent to the referring physician [CPRP, 2005].

In France, communication between the various levels of the health-care system is considered to be indispensable for the successful management of chronic pain [ARHRA, 1998]. In Australia, MPCs are expected to maintain close communication with patients’ GPs [Nicholas, 2004]. Moreover, metropolitan MPCs in Australia have a responsibility to interface with regional/remote pain specialists.<sup>45</sup> In the United Kingdom, Dr Foster [2003] noted that despite recommendations from the Clinical Standards Advisory Group (in 1997) that links between primary care services and specialist pain clinics need to be improved, more than 75% of low-budget and 40% of high-budget clinics had not developed any linking initiatives.

We identified a recent prospective study that examined the integration of specialist psychiatry services into primary care by GPs, for CP patients who were using or considering opioid treatment [Chelminski et al., 2005]. To deliver services from different disciplines and system levels to these patients, a multidisciplinary care team was formed which consisted of the

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45. The Faculty of Pain Medicine at the Australian and New Zealand College of Anaesthetists has resolved to foster this relationship, including the rotation of trainees to regional centres [Faculty of Pain Medicine, 2003].

patient's primary care physician, a clinical pharmacist, a program assistant trained in health behaviour, a psychiatrist with sub-specialization in pain medicine, and a study nurse. Almost all (93%) patients were being treated with opioids at the beginning of the study; the service model emphasized the use of evidence-based guidelines for prescription management. Patients with co-morbid psychiatric disorders (depression, substance abuse, bipolar disorder) received psychiatric evaluation within the multidisciplinary structure. With regard to inter-level communication (i.e., between GP and specialist), an electronic database was used to record patient contacts, medications prescribed, outcomes and adjustments to therapy. A formal practice-wide committee used secure electronic mail to discuss cases of suspected misuse of opioids. Patients were followed for three months to examine whether the integration of care delivery and exchange of information through an electronic medical record contributed to improved pain, function, and psychiatric outcomes for 85 study participants. Improvements in all of these factors were evident for those who provided data at three months (73% of the initial sample). While not a randomized trial nor a controlled study, the findings suggest that pain management teams can work in an integrated manner even with "difficult" cases exhibiting depression and substance abuse tendencies along with prescribed (and monitored) opioid use.

### **3.5.2 Coordination of care and "stepped care"**

Given that CP often requires treatment from different health professionals, it is interesting to examine whether the employment of case managers, responsible for overseeing a patient's encounters with the health-care system, may improve the integration of services from multiple care providers. In Québec, an "*intervenant pivot*" (officially translated as a "patient navigator") is a case manager who is often a nurse; this model is currently promoted by health authorities, particularly in cancer

care. In a Québec randomized controlled trial, the impact of case management was studied in the context of a multifaceted intervention by Rossignol et al. [2000]. One hundred and ten Montréal workers with low back pain, being compensated by the Commission de la santé et de la sécurité au travail (CSST, the Québec workers' compensation board) and off work for 4 to 8 weeks, were randomly assigned to either usual care or coordinated care (the CORE—COordination of primary health caRE—group). Primary health care for the experimental CORE group was coordinated by two GPs and a nurse, in liaison with the treating physicians. In addition to the key element of case management, the intervention program included several other process components: a complete clinical examination and biopsychosocial and occupational diagnosis by a CORE physician, use of guidelines for clinical management, logistical support to follow the recommendations, communication between care providers and with the patient, and patient education and support by the nurse through weekly telephone contact. The case managers assisted the treating physicians in locating and scheduling procedures. At the six-month follow-up, the CORE group returned to work an average of 6.6 days earlier than the usual care group; however, this difference was not statistically significant. Importantly, the CORE group experienced significant improvements in pain, functional and psychosocial status at 6 months ( $p < 0.05$ ), were three times less likely to have had specialized imaging tests at three months ( $p < 0.01$ ) and were twice as likely to be exercising at six months ( $p < 0.05$ ). While the CORE approach involved a combination of components, the coordination of care appeared to be central and thus this strategy appears promising.

Several pilot projects have demonstrated the necessity of coordinating patient care. For example, Harrington et al. [2001] described implementing a process of pre-appointment management of specialty referrals for low back pain (and lumbar radiculopathy) in a

community-based health system in Wisconsin, USA. Nurse coordinators and physician managers followed interdisciplinary care guidelines to ensure that the right patient saw the right health-care provider at the right time (e.g., primary care physician, physiotherapist at the spine clinic, non-surgical specialist, or orthopedic specialist). Pre-appointment management of cases involved a physician's review of medical records and consultation with the referring physician, as needed, prior to making an appointment with a specialist. Uniform coding for lower back pain in patient records shared by the care providers and patient education (including why they were receiving care from a certain health professional at a particular point in time) were also used. In order for the pre-appointment management process to be consistent with care recommendations, physicians were educated with regard to guidelines for treatment and their role in the overall treatment of back pain. Efficient communication between health professionals was maintained; moreover, the nurse scheduled appointments and ensured that test results and documents were sent to physicians on time.

This study by Harrington et al. demonstrated a reduction in inappropriate referral to specialists and the advantages of care coordination, in terms of shortened waiting lists and fewer patients going to surgeons. In a prospective evaluation, a consecutive series of patients (112/139 seen in the first three months of the program) was interviewed by telephone by the nurse to ascertain outcomes after three months. Sixty-six percent reported either "resolved or improved" pain, and return of function, and 90% were satisfied with the referral program. It is not known, however, if such progress can be generalized to the other patients in the program or if the changes were stable past three months.

Care coordination plays an important role in "stepped care," an approach to disease management in which patients progressively receive more complex, specialized and, often, costly interventions according to need. The stepped care approach has been put forward

as a particularly appropriate model for chronic conditions (e.g. back pain [Von Korff and Moore, 2001], diabetes [Glasgow, 1995]). To be effective, this approach relies on the use of evidence-based treatments at each stage, careful evaluation of the patient's progress, and organization of services in terms of their access and coordination [Von Korff et al., 2002; Katon et al., 2001]. In this way, primary care practitioners can provide an early line of treatment, but more specialized care services can be offered if indicated by lack of progress and by patient preferences. This movement from lower to higher levels of care when needed based on the individual patient's outcomes is viewed as a means to increase effectiveness of the management approach, while reducing overall costs for the targeted patient population [Von Korff and Tiemens, 2000].

Ahles et al. [2001] carried out a randomized controlled trial which employed a nurse-educator delivered intervention for patients with CP being treated in primary care practices in semi-rural settings (New Hampshire and Vermont, USA). Patients who screened positive for persistent pain (n = 744) were randomized to a "stepped care" intervention (n = 320) or usual practice (n = 383). The multifaceted experimental intervention included patient-, nurse-, and physician-focussed components. In accordance with the principles of stepped care, patients with both pain and psychosocial problems in the experimental group received the most comprehensive care. All interventions delivered to the patient by the nurse-educator were conducted via the telephone and mailed-out patient education materials. Physicians received computer-generated patient flow sheets to facilitate communication and coverage of psychosocial topics at patient visits. The Medical Outcomes Study SF-36, a measure of health-related quality of life which includes a sub-scale for pain, was used to gather data at three to six months post-treatment. Patient functioning and satisfaction with services were also measured. Patients in the experimental group showed a clinically important decrease

(27%<sup>46</sup>) in the level of pain, had significantly better scores on the physical, emotional and social SF-36 sub-scales at follow-up, showed reductions in the effect of pain on functioning, and a greater proportion were satisfied with treatment compared to the usual care group. However, conclusions are tempered by the relatively low screening response rate and high attrition from the study (only 53% provided follow-up data).

### 3.5.3 Waiting times and lists

Across health-care systems access to care is a chronic and critical problem for patients with CP. In Montréal, a substantial proportion of citizens does not have a GP and cannot find one who will take new patients [RRSSS Montréal-Centre, 2003]. In a qualitative study undertaken in Vancouver, British Columbia (Canada), community members with CP indicated that they had difficulty finding “accessible, effective and acceptable care” [Dewar et al., 2003, p. 44].

Limited or no access to a GP implies the same for the other levels of care, given that the GP can be considered the “gatekeeper” for specialists and other forms of care (e.g., rehabilitation center, physiotherapist, psychologist). Even once a patient with CP is referred, waiting times for specialists vary and can also be problematic. For some types of CP, *waiting too long for appropriate diagnosis and treatment contributes to the development of long-term disability* (see appendices C and D). In the United Kingdom, for example, the average waiting time between primary and secondary care for an individual with persistent pain is 14 weeks, according to the survey by Dr Foster [2004]; most GPs were not satisfied with waiting times for pain assessment in another UK survey [Stannard and Johnson, 2003]. Patients and physicians alike are frustrated by these delays and there appears to be a general lack of awareness regarding the potential for long-term negative consequences

for patients who wait too long for appropriate services.

According to the province-wide survey by Veillette et al [2005] (see section 3.4.1), approximately 4,500 patients were waiting for their first appointment in departments of anesthesiology in Québec hospitals (not all of which had a pain clinic). The wait for nearly 3,000 of these patients (67%) had extended to 9 months or more. According to a survey of 161 hospitals with CP clinic services in the United Kingdom, the average wait for patients referred for the first time by GPs to pain consultants was five months;<sup>47</sup> patients referred by a specialist waited longer on average, for nearly six months [Dr Foster, 2003]. In the physician survey conducted in Calgary, Alberta [Alberta Health and Wellness, 2003, p. 251] (see section 3.4.2), GPs and specialists reported waiting times of 4 to 104 weeks for assessment of their patients by a pain specialist after referral. They required input from pain specialists on: 1) medications (reported by 64.9%); 2) diagnosis (59.6%); 3) interventional therapies (78.7%); and 4) cognitive-behavioural therapy (60.6%). While waiting for pain consultation three quarters of physicians reported “relying on their own expertise” [Alberta Health and Wellness, 2003, p. 253]; about half consulted other non-pain specialists and/or referred their patients to alternative therapy.<sup>48</sup>

In France, the average waiting time to be seen in a pain centre is three to six months [Laurent, 2002]. In Australia, the waiting time for an appointment in the major MPCs is also three to six months [Faculty of Pain Medicine, 2003]. In Alberta, the most often reported length of time to get into a pain clinic for a patient referred by a GP was 12 months [Alberta Health and Wellness, 2003, p. 245].

46. The 27% figure is reported by the National Institute of Clinical Studies [NICS, 2003] (a systematic review) with reference to Ahles et al. [2001].

47. The average waiting time from GP referral actually falls within the National Health Service’s target of 21 weeks [Dr Foster, 2003].

48. Only half of the study participants were confident about these other strategies in the interim.

### 3.5.4 Referral

In order for a patient with pain to see a specialist or be admitted to a pain clinic, he or she must be referred by a GP. Several issues arise with the referral process. The first relates to knowing when and where to refer a patient. The second issue relates to patient access to the next level of care, be it for diagnostic testing or treatment, which can be problematic. As we have already noted, timely communication between care providers and adequate access to GPs for patients is crucial. Finally, the referring GP should state explicitly that she/he will continue to treat the patient once the latter is discharged from speciality care (see section 3.5.6).

Nicholas [2004] specifies when and how to refer a patient to a pain clinic in Australia; the pain clinic referral algorithm suggested for use is presented in Appendix B. The referral should be based on the identification of a need for comprehensive, multidisciplinary assessment. In terms of timing, when progress is not being made with appropriate treatment modalities outside of the pain clinic setting, patients should be referred within the first few weeks or months after the onset of pain, depending on the type of pain.

A key element of the VHA pain management strategy is to develop a national management system, which, among other actions, will facilitate a national referral system to ensure access to appropriate services in every service network [VHA, 1998]. Single discipline outpatient clinics receive referrals from other ambulatory care services, as do psycho-educational and problem-based multidisciplinary outpatient clinics [Clark, 2004b].

Multidisciplinary outpatient clinics receive referrals from primary care, general clinics, and other specialty pain clinics. For the Chronic Pain Rehabilitation Program (CPRP) in the VHA, patients are referred by a VHA physician after work-up is completed [CPRP, 2005]. Physicians are asked to place a notation on the referral form, specifying that the patient fulfils all the referral criteria, and provide a description of the past history of pain management for the

patient. The referral criteria are outlined in the *CPRP Referral Guide*<sup>49</sup> provided on the Internet. Patients whose needs may be better served by other treatment methods receive appointments in related clinics (anesthesiology, neurosurgery, or rehabilitation medicine).

A Pan-European cross-sectional survey involving interviews with over 46,000 adults in 2002–2003 found that consultations for chronic pain most frequently occurred with general and family practitioners (for 70% of the 4,839 respondents with CP) [Fricker, 2003]. Specialties most frequently consulted were orthopedists (27%), neurologists (10%), and rheumatologists (9%). Only 23% of CP sufferers had ever been referred to pain management specialists. Not atypically, a cross-sectional study in Hong Kong found that patients being treated in an outpatient chronic pain service were not generally referred by GPs [Chen et al., 2004]. Rather, most patients were referred by surgeons (64%). The authors attributed the low rate of referrals from GPs (only 3.6% of patients) to an unclear procedure of how and when to refer patients to a pain clinic. This problem is echoed in the UK study by Dr Foster [2004], regarding the lack of defined referral protocols in over half (52%) of the primary care organizations surveyed, as previously noted.

### 3.5.5 Role of clinical practice guidelines

For the purposes of completeness in this section we first introduce the notion of providing clinical practice guidelines to structure the delivery of services, and then discuss use of guidelines as a process. In 1990, a report was published by the Subcommittee on Institutional Program Guidelines in Canada to establish standards for chronic pain programs [Health and Welfare Canada, 1990]. The report illustrated that the need for standardization across programs had been recognized for some time. It provided guidelines for the assessment of chronic

49. Chronic Pain Rehabilitation Program: Referral Guide, 4th edition; 2002. Available at: [www.vachronicpain.org/Downloads/referralguiderevised102002.PDF](http://www.vachronicpain.org/Downloads/referralguiderevised102002.PDF) (accessed on October 23, 2005).

pain, described programs (e.g., personnel and staffing; facilities and equipment), and discussed community and professional liaison services, as well as needs for treatment outcome and quality assurance.

Canadian clinical practice guidelines (CPGs) for chronic non-malignant pain management have been published by the Colleges of Physicians and Surgeons in the following provinces: Alberta,<sup>50</sup> New Brunswick,<sup>51</sup> and Ontario.<sup>52</sup> Other provinces have focused on position statements regarding the use of controlled substances (e.g., Newfoundland, Nova Scotia, Québec, Saskatchewan).<sup>53</sup> Ospina and Harstall [2003] reviewed CPGs from four provinces (Alberta, Manitoba, New Brunswick, Ontario) and from the Canadian Consortium on Pain Mechanisms, Diagnosis and Management (CCPMDM) in their HTA report on multidisciplinary pain programs for CP. According to these authors, the guidelines assert that “the most appropriate therapeutic paradigm for most chronic pain patients should follow a rehabilitative rather than an acute medical model” [Ospina and Harstall, 2003, p. 8]. The guidelines concur on the objectives of all pain interventions: functional restoration (in the physical, psychological, and social domains) and symptomatic relief. Other important targeted outcomes include reduction of the need for pain therapy, limitation of adverse effects of interventions, improvement in quality of life, and the optimal use of and minimization of costs related to services.

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50. Management of chronic non-malignant pain. Available at: <http://www.cpsa.ab.ca/publicationsresources/policies.asp> (accessed on February 19, 2005).

51. Guidelines for management of chronic non-malignant pain. Available at: <http://www.cpsnb.org/english/Guidelines/guidelines-6.html> (accessed on January 17, 2005).

52. Evidence-based recommendations for medical management of chronic non-malignant pain: Reference guide for clinicians. Available at: <http://www.cpsno.on.ca/publications/pain.htm> (accessed on January 17, 2005).

53. Purdue Pharma. Pain management guidelines. Available at: [http://www.purdue.ca/links/links\\_guidelines.asp](http://www.purdue.ca/links/links_guidelines.asp) (accessed on February 29, 2005).

The CCPMDM notes that, while traditional management of CP has predominantly involved single modalities, the multidimensional nature of CP demands a broadly based approach [Henry and CCPMDM, 2000]. The Canadian CPGs reviewed by Ospina and Harstall [2003] recommend interdisciplinary/multidisciplinary approaches to CP management using teams composed of physicians, psychologists, and physical/occupational therapists. As noted by these authors, “the Canadian guidelines do not seem to have been independently developed as they appear to be based on a core statement that was progressively adopted by the different Colleges of Physicians and Surgeons in each of the provinces” [Ospina and Harstall, 2003, p. 9]. Ospina and Harstall found that the sources of the guideline recommendations were a mix of consensus- and evidence-based statements, and that the lack of information on the guideline development processes precluded an evaluation of the methods of selecting and interpreting evidence. Moreover, some of these guidelines may be out of date (e.g., the Albertan guideline, which dates from 1993).

Guidelines for the treatment of CP abound [JCAHO and NPC, 2003]; many have been written with particular health professionals in mind (e.g., nurses, GPs) [Marcus, 2003; The Pain Society, 2002]. Some guidelines target treatment of specific types of pain (e.g., complex regional pain syndrome) or particular modalities of treatment (especially management of pain with narcotics; [Jovey et al., 2003]). It seems that guidelines are rarely compared; often in-house versions are created. For example, the American VHA system has written its own guidelines (e.g. on opioid therapy) and posted them on the Internet, as have the French health authorities. The Faculty of Pain Medicine at the Australian and New Zealand College of Anaesthetists provides easy access to a number of guidelines for the treatment of both acute and chronic pain.<sup>54</sup>

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54. Faculty of Pain Medicine. Professional documents. Available at: [www.fpm.anzca.edu.au/documents/profdocs/index.htm](http://www.fpm.anzca.edu.au/documents/profdocs/index.htm) (accessed on June 4, 2004).

In the United Kingdom, practice guidelines were reviewed and clinicians were queried regarding their use [CSAG, 2000]. Apart from recognizing two particular guidelines for the treatment of back pain, very few care providers or managers showed awareness of the large body of published literature regarding pain services in general. Clinicians expressed a need for guidance on managing difficult conditions and on the referral process for specific types of patients. In the UK-wide survey by Dr Foster [2004] many primary care organizations had no clinical recommendations for prescribing medications (57%) or self-management (69%) in CP.

Negrini et al. [2001] surveyed 318 GPs in a province in Italy (68% response rate) to determine if their diagnostic management of patients with low back pain was consistent with clinical guidelines. GPs reported how often they used imaging techniques, laboratory tests and consultations. The correspondence between physicians' actions and clinical guidelines varied widely, from 14.6 to 89.4%. Only 33% of the GPs were aware of all "red flags" (i.e., symptoms that require rapid response). The authors concluded that diagnostic tests were overused in acute cases and appropriate examinations—that follow clinical recommendations—were underused in some chronic cases.

While guidelines abound, the key question is: "Does the use of guidelines improve patient outcomes?" Manchikanti et al. [2002] evaluated health-care use and costs in a mixed-design study: 100 patients were randomly allocated to the group using guidelines and followed prospectively, 200 were studied retrospectively since they were treated prior to putting the guidelines into place. Across three years, the results consistently demonstrated a reduction in the number of visits to physicians and concomitant reductions in costs when guidelines were used. However, no patient outcomes (e.g., pain, mental health) were reported and the intervention was unimodal, using a pain specialist. (See Appendix C on back pain for evidence addressing the link between use of guidelines and patient outcomes.)

### **3.5.6 Discharge and continuity of care plans**

"Discharge" is likely the wrong term to use for what happens to CP patients because very few are cured. Rather, they may reach the limit of what a particular service offers them, and then they are expected to return to the GP for continued care. One stumbling block at this stage is that patients and care providers may have lost sight of who is responsible for the patient's care, especially if a long period of time has elapsed between when the patient was first referred, received care and ended treatment(s). In one of the example jurisdictions we studied (VHA), integration of care is apparent: in the process of ending the delivery of a service at one level of care the return to another level is clearly indicated. In the Chronic Pain Rehabilitation Program, follow-up care needs are documented in the medical record, and plans for their implementation are developed [CPRP, 2005]. Clearly, standards for continuity of care need to include a discharge planning process [Phillips, 2000].

## **3.6 MONITORING OF PATIENT OUTCOMES**

In this section we look at the monitoring of patient outcomes in the example jurisdictions as well as in a research study from the United Kingdom. In France, reports on implementation of the national pain program are available but do not show measurement of the kinds of outcomes discussed by the IMMPACT group mentioned in section 3.2.1. Instead, care provider and "administrative" factors such as use of pain scales, physician knowledge of treatment methods, distribution of pain information to health professionals and patients, and numbers and types of training initiatives, have been studied [Lothon-Demerliac et al., 2001]. Site- and region-specific surveys of patients have been completed in France in the pain management domain. One hospital pain committee, for example, noted that only

29% of 95 patients reported that they were very satisfied with pain treatment efficacy [Département de Santé Publique – Hôpital Paul Brousse, 2001]. In a regional survey of 13 health facilities, 11.8% of 1,293 patients reported poor management of their pain [Domecq et al., 2002]. Supporting our search results, Auquier and Arthuis [2000] contended that efficacy and effectiveness studies of pain centers were lacking in France. The guide for implementation of the national pain program, however, promotes the use and regular analysis of discharge questionnaires that include pain management questions and patient satisfaction surveys as evaluation tools in French health establishments [MSFPH, 2002].

In Australia one finds patient outcomes monitored in various pain clinics or other service settings. The Australian Pain Society (APS) surveyed pain clinics in 2002 to determine which outcome measures were being used.<sup>55</sup> Nine pain clinics identifying themselves as multidisciplinary responded: all measured psychological functioning, all but one measured pain perception and all but one other measured physical functioning; there was little uniformity with respect to the measures that were used. This lack of standardization is reflected in published journal articles documenting different patient outcomes in various settings for pain control. For example, Wilkes et al. [2003] used the Medical Outcomes Study SF-36 to document improvements in quality of life for patients treated at a pain centre in Western Sydney. Giles et al. [2003] documented patient satisfaction for those attending a multidisciplinary spinal pain unit.

In contrast with the less uniform examples we found above, the Pain Outcomes Toolkit [National VA Pain, 2003] used in the American VHA system explains specifically how and when to measure patient status. One can

request on-line a copy of the Pain Outcomes Questionnaire used throughout the VHA to collect data pertaining to a patient's progress.<sup>56</sup> This questionnaire consists of 45 items to be used at "intake" to a treatment program, 28 items for post-treatment, and 36 items for follow-up. Outcomes include pain intensity, pain interference, negative affect, vitality, pain-related fear, vocational functioning, patient satisfaction, and medical resource utilization. The psychometric properties of this instrument have been studied and demonstrate its validity and reliability [Clark et al., 2003]. Patient outcomes are linked to continual performance monitoring and improvement, and thus their measurement is central to a key objective of the VHA's pain management strategy, and an overall vision of accountability [VHA, 1998]. It is noteworthy that the electronic monitoring of pain assessment and effectiveness of pain management interventions is being implemented; pain assessment templates, for example, are available on the Internet (in addition to electronic clinical reminders [Kerns, 2003]) and VHA health professionals are mandated to perform this measurement in a consistent manner [National VA Pain, 2003].<sup>57</sup> In the Chronic Pain Rehabilitation Program, outcomes are summarized quarterly and are communicated to all staff [CPRP, 2005].

Peat et al. [2001] conducted a national cross-sectional survey of current practice in the United Kingdom with regard to pain management program follow-up evaluations. Sixty-six of 70 programs were contacted; 58 completed questionnaires. Of these, only 21% fulfilled three criteria for adequate follow-up (i.e., routine follow-up for at least six months, with at least 70% of treated patients and including self-rated interference and mood/affect). While

56. See Pain Outcomes Questionnaire at: <http://www.vachronicpain.org/Pages/POQReq.htm>.

57. Such initiatives are consistent with accreditation agency standards, such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Commission on Accreditation of Rehabilitation Facilities (CARF).

55. Australian Pain Society (APS). Questionnaire. Available at: [http://www.apsoc.org.au/quest\\_pre.html](http://www.apsoc.org.au/quest_pre.html) (accessed on January 17, 2005).

a general commitment to follow-up evaluations was identified, there was great variability with regard to outcome measurement and length of follow-up (most reported 6 or 12 months; range = 1 month to 3 years).

### 3.7 QUALITY CONTROL

In this section we discuss quality control of health-care services according to the assessment of program implementation and process evaluation, drawing on information from the example jurisdictions.

#### 3.7.1 Program implementation

Program implementation is important to assess because failure to adequately administer interventions is one of the most frequent reasons that these do not work in real-world settings; implementation should be documented to facilitate interpretation of program results [Glasgow et al., 2006; Bellg et al., 2004]. Program implementation refers to the establishment of both structure and process elements; outcomes used in assessment can be measured at the patient, provider or system level.

In France, most evaluative efforts appear to have been directed at tracking the implementation of the national pain program: a national committee, with representatives from various disciplines and interest groups, follows the program's progress.<sup>58</sup> For example, a steady rise in the use of analgesics since 1996 has been inferred by market data on the sale of analgesic medications of varying types and strengths [MSFPH, 2001]. A million visual analogue pain scales have been distributed, practice guidelines have been published by the Agence Nationale d'Accréditation et d'évaluation en santé (ANAES),<sup>59</sup> and new facilities for

chronic pain treatment have been created. The Centre National de Ressources de lutte contre la Douleur (CNRD) website<sup>60</sup> documents the number of posts opened at the pain units and centres; among the many materials found on this site are announcements of projects that are currently underway. The various hospitals have pain committees (*Comités de lutte contre la douleur*) that are responsible for informing and coordinating activities that respond to the national pain program's objective to improve the quality of pain management in all health-care establishments, among other responsibilities [MSFPH, 2001; CNRD, 1998]. Reports have been produced on topics such as the use of scales to measure pain, use of pain medications, and pain treatment protocols.<sup>61</sup> The activities of the hospital pain committees are linked to quality assurance and accreditation of facilities [CNRD, 1998].

Among its various responsibilities, the VHA National Pain Management Strategy Coordinating Committee is mandated to establish target goals, mechanisms for accountability, and a timeline for implementation of the strategy [VHA, 1998].

#### 3.7.2 Process evaluation

While patient outcome assessment can determine how well a particular patient or care unit is doing with pain treatment, process evaluation is an integral aspect of quality control of health-care delivery, incorporating a broad range of study objectives and targets. Such evaluation addresses questions such as: Do patients have timely access to treatment? Are health professionals using guidelines? Are services integrated between levels of care and between health professionals? [JCAHO and NPC, 2003].

58. Programme national de lutte contre la douleur : état d'avancement au 1<sup>er</sup> février 2004. Available at : [http://www.sante.gouv.fr/htm/dossiers/prog\\_douleur/suiviplan0104.pdf](http://www.sante.gouv.fr/htm/dossiers/prog_douleur/suiviplan0104.pdf) (accessed on October 21, 2005).

59. Renamed The Haute Autorité de Santé in January 2005.

60. Centre National de Ressources de lutte contre la Douleur (CNRD). Available at: <http://www.cnrld.fr/> (accessed on January 18, 2005).

61. La politique de prise en charge de la douleur à l'AP-HP. Available at: <http://interclud.aphp.fr/ext/comiteap-hp/comit2.pdf> (accessed on October 27, 2004).

In 2003, the National Institute of Clinical Studies (NICS) in Australia conducted a systematic literature review of institutional approaches to pain assessment and management. This report examined inpatient and outpatient services, as well as all types of pain for all populations (e.g., acute, chronic, cancer, pediatric, etc.) [NICS, 2003]. Three research questions were addressed: 1) What strategies have been used to introduce an institutional approach to pain assessment and management? 2) How is the decision-making process of pain assessment and management documented and recorded? and 3) Have the strategies been successful and/or sustainable? Data were extracted on process measures (e.g., assessment of program reach: behavioural change and compliance of staff), direct impact measures (i.e., patient outcomes such as pain intensity), and indirect impact measures (e.g., rate and pattern of analgesia use). A qualitative synthesis rather than a meta-analysis was completed due to heterogeneity of the evidence base; the highest level of evidence was obtained by one “poor-to-average” randomized controlled trial and only three studies were comparative.

In response to question 1, two main types of strategies were identified: “multi-level” and “dedicated-service.” Multi-level strategies were usually initiated by a multidisciplinary taskforce, pilot-tested and then implemented hospital-wide. All but one of these were carried out at the tertiary care level and one was Canadian (Vancouver Hospital, British Columbia). Targets for change were policies, procedures, and the pain management “culture.” Dedicated services were initiated by a champion or group interested in pain management, funded by the institution; examples were acute pain services and pain management teams in general practice (one of the latter was Ahles et al. [2001]; see section 3.5.2).

Regarding question 2, results from a controlled trial and other studies with lower levels of evidence showed that notation of pain assessment increased in accordance with new policies on recording decision-making

processes, and documentation in charts reflected these policies (e.g., use of pain flow sheets and recording pain relief following interventions). The impact of institutional strategies (question 3) was found to be variable. Noted were changes in prescribing practices, reductions in analgesia-related adverse effects, and increases in patient satisfaction (the latter being two patient outcomes) with pain management practices. No studies reported meaningful data pertaining to changes in referral rates to pain specialists following program implementation. Data pertaining to costs and cost-effectiveness of institutional approaches or on patient quality of life were insufficient to draw conclusions. The report concluded with the statement that “predominantly low level evidence suggests that despite improvements in pain assessment and documentation, as well as analgesia prescribing and usage practices, pain relief is still an issue after the introduction of institutional approaches to pain assessment and management” [NICS, 2003, p. 4]. Whether this would be true for programs specifically aimed at management of chronic pain is not known.

All VHA facilities are mandated to incorporate measurements of outcome in their services.<sup>62</sup> Pain assessment is to be tracked, pain care plans are to be documented, and patient education activities are to be included in treatment plans. The VHA Office of Quality and Performance is responsible for setting performance indicators consistent with the national pain management strategy and to assure quality, access and patient satisfaction [National VA Pain, 2003]. These indicators are used for performance evaluation at the facility and Veterans Integrated Service Networks (VISN) levels. An External Peer Review Program monitors compliance with the Office’s standards through quarterly review of samples of records and reporting of results to VHA leadership.

Based on a 9-month collaborative project between the VHA and the Institute for

62. VHA Directive 2003-021. Pain management. Available at: [http://www1.va.gov/pain\\_management/docs/VHAPainDirective\\_03.pdf](http://www1.va.gov/pain_management/docs/VHAPainDirective_03.pdf) (accessed on October 26, 2005).

Healthcare Improvement, pain assessment increased (from being measured 75 to 85% of the time at study units) once the “Pain as a 5th Vital Sign Toolkit” was put into place and this procedure was promoted by teams<sup>63</sup> representing the VISNs [Cleeland et al., 2003]. Educational materials were distributed to almost twice as many persons, an increase from 35 to 62% of patients. For patients with at least mild pain, the proportion with documented care plans increased from 58 to 78%. Best practice guidelines have been published on the VHA website, and web-based educational tools have been made available for health professionals through the Internet [Craine and Kerns, 2003].

### 3.8 THE CP PATIENT AS A PARTNER IN CARE

In this overview of organizational issues in the management of CP, it is important to note the importance of the role of the CP patient in his/her care. Similar to patients living with other chronic illness (e.g., diabetes, hypertension) [Von Korff et al., 1997], those with persistent pain need to be key players in their own health care. They must take responsibility for the aspects of treatment that are under their control, such as adherence to medications and lifestyle changes. They need to learn strategies to cope with the challenges posed by an incurable health problem. One patient characteristic that has been shown to predict poor outcomes is a passive stance towards treatment, i.e., expecting health professionals to “fix the problem.” Patients can change this attitude and successful programs include psycho-education that aims to help them do so [Udermann et al., 2004]. It has been suggested that the stepped care approach to disease management (discussed in section 3.5.2) implement self-care, with minimal care practitioner support, as an early level of care [Von Korff et al., 2002].

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63. Teams included care providers, quality improvement professionals, managers, clinical leaders, and administrators, and focused on a particular setting as a pilot site [Cleeland et al., 2003].

Looking at the three example jurisdictions, one of the approaches to “self-management” in France has been to provide all new inpatients (i.e., in hospital settings) with printed material informing them of their rights and their responsibilities [MSFPH, 2001]. Other public information campaigns have been launched in France, addressing migraine/chronic headaches, pediatric pain, and services for chronic pain. In Australia, a widely used book for patients [Nicholas et al., 2000] outlines what steps to take to improve quality of life [Faculty of Pain Medicine, 2003]. Likewise in the United Kingdom, *The Back Book* [Roland et al., 1996] informs those with low back pain how to improve their own pain problem. In the VHA system, one objective of the national pain management strategy is to include patients and families as active participants in pain management [VHA, 1998]. Pain education materials such as CDs, books, and videotapes are distributed to VHA patients [Craine and Kerns, 2003]. Of course, all individuals may go on-line and discover countless websites that address specific types of pain. Many patients turn to the Internet as a source of medical and other information; unfortunately, there are no imposed standards to ensure they obtain correct information that is appropriate for their particular situation. Nonetheless, examples of health-care professionals providing patient education support the consensus that patients need to be well informed and play an active role in their own rehabilitation.

### 3.9 ORGANIZATIONAL INNOVATIONS

In this final part of Chapter 3 we briefly discuss the role of information technology in delivering services and monitoring outcomes, and describe initiatives in Australia and the United States which take advantage of technological advancements.

### 3.9.1 The Internet and the use of information technology

Information technology (IT) is becoming indispensable for health-care delivery and can be used to facilitate communication [DIHTA, 1999] and monitor quality of care and patient outcomes (as clearly shown in the VHA system). While costly to set up and maintain, the use of electronic databases is common (e.g., for hospital records) and may improve delivery of services. Obstacles are many, such as the use of different systems that are not compatible, the cost of frequent upgrading of systems, and the human resources needed to input and analyze results on a regular basis. Nonetheless, many health-care systems have adopted IT as current practice (e.g., VHA, Health Maintenance Organizations). IT can be used innovatively as a means of communication between health professionals (e.g., for the sharing of test results, progress notes, etc.). While it currently remains unknown how the use of the Internet can enhance teamwork, this is an area ripe for exploration. Obviously, safeguards for patient confidentiality need to be in place and computers must be available for those involved, but these are issues that can be addressed and have been tackled in certain jurisdictions (e.g., VHA).

### 3.9.2 Telehealth

Given that a certain percentage of the Québec population lives outside urban areas, the innovative Illawarra Health Chronic Pain Management Program in Australia is pertinent. In 2001, the New South Wales Health Department and its Telehealth network launched a project via the Port Kembla Hospital that employs videoconferencing to transmit a

CP program to patients and care providers in distant, rural regions [NSW Telehealth, 2002]. Various models of service delivery have been implemented: health professionals in rural areas are trained to conduct programs, services (e.g., psycho-education, relaxation training) are provided directly to patients, and resources, such as patient workbooks and program manuals, have been shared with rural care providers.<sup>64</sup> Prior to participation in the program, patients undergo medical and psychological assessment, both of which take place face-to-face with a health professional [NSW Telehealth, 2002]. Videoconferencing sessions that teach patients how to cope with pain are offered, and sessions are also held for family members to increase their awareness of chronic pain and strategies to assist those with CP. This initiative was expanded in 2003; it is said to show comparable effectiveness to established on-site programs, according to a program leaflet available on the Internet.

In the United States, Appel et al. [2002] studied the efficacy of behavioural telehealth interventions that aimed to educate CP patients in self-regulation skills. Twenty-seven patients were randomly allocated to receive psychologist interventions, delivered face-to-face, via speaker phone or by closed-circuit television. Outcome measures included pain intensity, distress about pain, physical and cognitive tension, and consumer satisfaction. Significant improvements were found across measures; these were independent of delivery method. Consumer satisfaction ratings were generally positive and most patients were comfortable with interventions that were not delivered face-to-face. The authors interpreted the study findings to indicate that delivery of services via technological devices holds promise.

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64. Nagy B. Group pain management by telehealth: Where to from here? Presentation available at: <http://www.health.nsw.gov.au/pmd/telehealth/003news/003bsymp/2003Symposium/pdf2003/Nagy.pdf> (accessed on January 20, 2005).

While the scope of this assessment was necessarily broad, it was reasoned that it would be useful to examine two specific examples of different types of chronic pain that touch upon different organizational issues, using the same conceptual framework employed throughout this report. Back pain (BP) was selected because of its high prevalence and related costs as well as the fact that most treatments are carried out at the primary care level. To provide contrast, complex regional pain syndrome (CRPS) was chosen as a second example as it is less prevalent but difficult to diagnose and requires timely services by care providers other than general practitioners, often at higher levels of the service hierarchy. Due to the more detailed and specific nature of the two case studies, this text is presented as appendices to this report (for the full text, please see Appendices C and D in lieu of Chapter 4). Highlights of the case study material are presented below.

#### 4.1 BACK PAIN

In Appendix C we present information regarding the health-care structures and processes used in the management of BP. As in Chapter 3, we look at the three example jurisdictions as well as other regions/systems when we found research studies pertinent to the specific topics addressed. We first present information pertaining to the definition, prevalence and incidence, etiology, treatment and costs of BP. It is noteworthy that 70–85% of adults will experience at least one episode of BP during their lifetime [Pérez, 2000]. While the most common form of BP is acute, chronic BP is more physically and psychologically debilitating. The transition period from acute to chronic BP has received much attention in the scientific literature. Main and Williams list the following types of variables which can influence the development of chronic BP: psychological or behavioural

(iatrogenic factors, beliefs, coping strategies, distress, illness behaviours, willingness to change); social and economic (family reinforcement, work status, health benefits and insurance, litigation); and occupational (work satisfaction, working conditions, work characteristics, and social policies) [Main and Williams, 2002, p. 535]. Importantly, when acute pain becomes chronic, not only the length of time of suffering increases but the condition worsens, becoming more debilitating, and recovery is much less likely. As a result, there is a clear movement in the delivery of BP treatment towards intervening earlier (i.e., in the sub-acute phase, after six but before 12 weeks) to prevent chronicity.

In terms of structural components in BP management, most patients with BP are treated in primary care. The general practitioner (GP) is expected to diagnose the nature of the problem, advise the patient about appropriate behaviours (e.g., to stay active) and prescribe medications, and refer the patient to a specialist, as needed. The GP should inform the patient about his or her role in the treatment plan, with an emphasis on the importance of self-care behaviours (e.g., exercise, adherence to medications) [Goodyear-Smith et al., 2002]. Allied health professionals, including physiotherapists, occupational therapists, and psychologists play an important role in patient care once back pain becomes chronic. The evidence for effectiveness of multidisciplinary treatment for chronic low back pain is strong [Ospina and Harstall, 2003].

In Australia, 13 musculoskeletal medicine clinics were recently established across the country in hospital and community settings, coinciding with the publication of guidelines for acute BP [Masters, 2004; McGuirk et al., 2001]. Within the clinics, conduct of audits and controlled studies of evidence-based

practice were carried out for the management of musculoskeletal health problems.<sup>65</sup> Acute pain management was offered at these sites, addressing patient fears, education of patients, and use of evidence-based interventions [Masters, 2004]. Patients with acute low back pain were followed for two years and, in the short term, those attending the clinics experienced slightly less pain, more satisfaction, decreased reliance on medications, used less alternative care, and were given X-rays less often, compared to usual care patients in four comparison general practice regions [Masters, 2004; McGuirk et al., 2001]. In the long term, pain and costs were reduced, there was less continuing care, and patients were less likely to relapse (i.e., become chronic). Importantly, no red flags were missed and the use of a red flag checklist was viewed as safe.

In Québec, the importance of including occupational medicine and therapy for injured workers is shown by the “Sherbrooke Model,” designed and tested by Loisel et al. [2003a; 2003b; 2002; 1997; 1996]. This multidisciplinary mode of intervention includes timely, stepped care with good coordination between health-care providers and integration of workplace considerations and personnel in the program structure and process. The study, which was funded by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail du Québec (Québec research institute in occupational health and safety), was designed to prevent prolonged disability in injured workers with sub-acute BP. A population-based randomized controlled trial in the surrounding industries of the city of Sherbrooke was conducted.

One hundred and thirty workers at 31 eligible and consenting workplaces in the Sherbrooke area, and who had been off work for more than four weeks for BP, were randomized to one of four treatment arms: 1) usual medical care; 2) clinical and rehabilitative intervention only;

3) occupational intervention only (occupational physician visits and a “participatory ergonomics evaluation” in the workplace that involved an ergonomist, the patient, his/her supervisor and union/employer representatives to determine need for job modifications); and 4) full intervention i.e., an integrated combination of (2) and (3) (the “Sherbrooke Model”). The clinical intervention was comprised of a back pain specialist visit and “back school” (education and exercises for the back), after 8 weeks off work *and*, in the case of 12 weeks off work, was “stepped-up” to include a *multidisciplinary* intervention (fitness training, and “therapeutic return to work” following “work hardening” with a cognitive-behavioural approach, to restore work abilities). The “integrated clinical-occupational” model more than doubled the rate of return to regular work, compared to usual medical care. Moreover, the mean combined costs during the follow-up period (mean = 6.4 years) of the intervention (usual health care plus any experimental components) and the “consequences of disease” (income replacement) were lowest for the full intervention compared to the three other groups [Loisel et al., 2002].

Actual provision of multidisciplinary services for back (and other) chronic pain in many regions is limited, because of a confluence of factors such as the limits of health-care coverage for such services and a paucity of units in regions outside of urban centres (as is the case for Québec). Referring to the need for interdisciplinary, evidence-based treatment, Harrington et al. [2001] note that care for chronic BP is often uncoordinated, repetitive, wasteful, and delayed.

In 1999, the French Rheumatology Society [Duquesnoy et al., 2001] outlined the indications and approach needed for comprehensive care of BP. It stated that multidisciplinary care is required after 12 weeks of pain, outlined multidisciplinary diagnostic evaluation methods and the basic structure of the care team, proposed specific outcome measures, and made recommendations for

65. Australian Association of Musculoskeletal Medicine (AAMM). Available at: <http://www.musmed.com/about.html> (accessed on April 7, 2005).

patient follow-up. Duplan and Guillet [2001] surveyed physicians in public and private establishments in France to describe existing structures and services offered to patients with BP, particularly with respect to multidisciplinary care. With a response rate of almost 75%, it was found that more than one-third of the French health regions (i.e., 36/95) did not provide multidisciplinary services; in these regions, physiotherapy alone was most often used to treat BP, in an ambulatory setting. Other structures in which services were provided were pain centres, rehabilitation centres, and rheumatology facilities. The rehabilitation centres favoured the use of physiotherapy, whereas the pain centers included the services of allied health professionals such as occupational therapists and psychologists. When the process of continuity of care was planned, appointments varied in frequency from monthly (at pain centres) to once every four months. Three quarters of the establishments surveyed indicated that they systematically monitored patient clinical progress.

With regard to the role of clinical practice guidelines in BP, we found a disappointing example of an enormous effort to examine the impact of implementation of guidelines within the American VHA system [Farley et al., 2004]. A guideline program was implemented for low back pain in four military medical centres as a demonstration project (followed by system-wide distribution); this included education for GPs and patients. Patterns of service delivery and pain medication prescriptions were tracked prospectively at the four sites. The authors found that guidelines were not incorporated into practice due to a lack of leadership commitment. Progress was not monitored systematically in part because the program was launched before the materials to document progress were ready to be used. The only change noted was a reduction in referrals to physiotherapy services.

We note at the end of this case study that despite significant efforts to restructure services and devise care protocols for patients with chronic

BP to optimize their outcomes, many patients fail to receive the right treatment, by the right health-care provider, at the right time. Most are treated by a GP using a unimodal approach. Limited access to services, subsequent delays in treatment, and psychosocial factors may contribute to the development of disability [Main and Williams, 2002]. The reasons for this systems failure are likely many: lack of education for health-care providers; a dearth of health professionals in place to provide the services; non-utilisation of clinical guidelines; lack of integration between levels of care; poor communication between health-care workers; unrealistic patient expectations for cure, and importantly a lack of resources to provide the proper services and to track outcomes. Nonetheless, demonstration projects are presented [Johansen et al., 2004; Maddison et al., 2004; Pinnington et al., 2004] that provide direction for improving services for patients with chronic BP.

## 4.2 COMPLEX REGIONAL PAIN SYNDROME

In Appendix D we describe a little-known and poorly understood chronic neurological condition known as complex regional pain syndrome (CRPS), which is characterized by burning pain and abnormalities in the sensory, motor, and autonomic nervous systems. While relatively rare, CRPS usually occurs in middle-aged adults and can be devastating with regard to its negative impact on quality of life and work-related functioning. Health professionals typically fail to diagnosis the condition in time such that when the patient finally reaches the right care provider, prognosis is seriously compromised. Multidisciplinary pain clinic (MPC) staff members are acutely aware of this situation and therefore give these patients high priority. After an overview of CRPS with respect to definition, prevalence and treatment, we present organizational issues related to structure and process such as interdisciplinary care, timing, and discharge planning. Emphasis

on health professional and patient education underscores the importance of early detection and patient participation in treatment to optimize outcomes.

In an update of an earlier consensus report [Stanton-Hicks et al., 1998], organizational issues—such as how and when a patient with CRPS is to be diagnosed and treated—have been elaborated upon by Stanton-Hicks et al. [2002]. The expert panel points to the importance of integrated, concurrent (rather than sequential) interdisciplinary treatment that includes pain management, rehabilitation, and psychotherapy. The guidelines specify which kind of care provider needs to do what and when. For example, in the early stages of the disease, physical and occupational therapy are key; if the patient fails to respond adequately, the next step (six weeks after onset) may include a psychological intervention to

motivate the patient to adhere to treatment, learn to cope better with pain, and to address co-morbid conditions such as depression. Medical interventions—increasingly more invasive in the absence of progress within a short timeframe—are used to manage pain.

We note in our summary to this case study that health-care professionals (e.g., general practitioners, nurses, surgeons) need to be informed about CRPS [Pittman and Belgrade, 1997], and referrals to physiotherapists, for example, and/or pain specialists must be made quickly [Burton et al., 2004] to minimize damage and disability. Education of patients is equally important in CRPS because they need to actively engage in their treatment process. Finally, given that MPCs contain experts in CRPS (as well as other complex pain conditions not discussed in this report), adequate resources need to be provided to these centres.

## 5.1 DISCUSSION

Having reviewed the published and grey literature pertaining to the management of pain it is evident that chronic pain (CP) is considered by some to be a major health problem because of its high prevalence and the intense use of health-care services by patients with CP [Turk, 2002; Millar, 1996]. **As the population ages, CP is certain to increase in prevalence, highlighting the urgency to reorganize health services to improve patient care and subsequent outcomes.**

Certain **challenges** can be identified with respect to the management of CP. These challenges need to be kept in mind when considering the organization of services for patients with CP, and include the following:

- CP management is a complex and slow process; often treatment is initiated and a “wait-and-see” period follows.
- CP patients are, in general, viewed as difficult to treat [Stannard and Johnson, 2003], and the nature of reimbursement policies may discourage physicians from taking care of these patients due to the time-consuming nature of case management.
- Early intervention is required for some types of CP to prevent the development of disability; a tendency to provide “reactive” rather than “preventive” care contributes to chronicity.
- CP patients require access to several services throughout their care process; often these need to be provided concurrently.
- Access to care is limited, waiting times are typically long and regional variations in availability of diagnostic and treatment services are common.

- Services for those with pain are often fragmented, without multidisciplinary integration.
- Gaps in communication and differences in care models can exist between medical and rehabilitative disciplines leading to isolation of practitioners and service establishments.
- Psychological and other allied health services (e.g., physiotherapy, occupational therapy) are often unavailable.
- Treatment(s) provided is (are) not always evidence-based.

In our reading of the literature we found that the **overall vision** of pain management and subsequent steps taken to realize the vision differ across different regions and health-care systems. Some areas target the entire spectrum of pain (acute and chronic, pediatric to geriatric; e.g., France) whereas others concentrate on particular groups at risk for chronicity (e.g., the Ontario Workplace Safety and Insurance Board<sup>66</sup> in Canada advocates considering a “secondary prevention” approach among injured workers). Few regions appear to have taken the enormous steps evident in France and the American VHA to **organize and finance** the appropriate management of CP across a country or system. It is clear that resources are needed to support various endeavours that aim to promote evidence-based CP management, such as appropriate remuneration for physicians (and other health professionals) delivering care to CP patients. The European Union appears to be preparing to make the case that more needs to be done to address CP. Pain societies throughout the world are calling for more uniform services.

66. Ontario Workplace Safety and Insurance Board. Chronic Pain Initiative. Report of the Chair of the Chronic Pain Panels. August 2000. Available at: [http://www.wsib.on.ca/wsib/wsbsite.nsf/LookupFiles/DownloadableFileChronicPainReport/\\$File/chronicp.pdf](http://www.wsib.on.ca/wsib/wsbsite.nsf/LookupFiles/DownloadableFileChronicPainReport/$File/chronicp.pdf) (accessed on January 20, 2005).

Organizing health services in a **hierarchical manner**, that is, using multiple levels of care that are progressively used by the patient if increasingly specialized care is needed, is a basic building block for jurisdictions that have set out to improve care of CP patients in a systematic manner. The hierarchical model of services is thus conceptually linked to the process of stepped care, in which patients progressively receive more complex, specialized and, often, costly interventions according to need. The role of health professionals increases in intensity as the patient moves through the stepped care framework, and there is a clear need for both the use of evidence-based guidelines for evaluation and treatment at each stage of care and coordination between different levels of services [Von Korff et al., 2002].

There is no question that most CP patients are treated by general practitioners (GPs) and relatively few ever receive services at a multidisciplinary (MPC); in fact, many patients—if treated early enough and with evidence-based methods—should not need the highly specialized services offered by MPCs. Yet, GPs typically do not have the training to handle these complex cases, may not use available clinical practice guidelines, and often do not know where, how or when to refer patients with CP to specialists [Dr Foster, 2004]. Medical specialists often assist GPs with regard to assessment and treatment of patients with specific types of pain (e.g., migraine headaches, rheumatoid arthritis). MPCs are reserved for the most recalcitrant cases because it is there that pain expertise is concentrated; thus, these will be limited in number.

There is a consensus in the literature regarding the need for **interdisciplinary services** for the assessment and treatment of CP. This is considered especially important for treatment once disability has set in. Canadian clinical practice guidelines recommend interdisciplinary approaches to CP management using teams composed of physicians, psychologists, and physical/occupational therapists. The Sherbrooke Model in Québec demonstrates the

positive effects associated with an integrated approach that incorporates both clinical and occupational interventions, as well as other types of multidisciplinary treatment for cases in greatest need (stepped care).

For cases of CP manageable at the primary care level, the use of allied health professionals is not always necessary and therefore should be assessed on a case-by-case basis. When treatments specific to allied health professionals are necessary, however, a structure which allows for interdisciplinary management at the primary care level is likely to be beneficial for the patient [Pinnington et al., 2004]. At more-specialized care levels, the structures described in the example jurisdictions for the optimal interdisciplinary pain clinic are very similar; most rely on the International Association for the Study of Pain recommendations.

**Training** in CP diagnosis, treatment and follow-up is often inadequate for various health professionals. Medical and other professional schools typically devote little time to this topic despite the fact that pain is one of the main symptoms that motivates a patient to seek health services [Turk and Dworkin, 2004]. Efforts have been made in the example jurisdictions to remedy this lacuna. Also, a model program initiated in Alberta, Canada, shows promise for disseminating evidence-based pain management methods at the primary care level within a continuing education framework. An educational emphasis on timely diagnosis and initiation of appropriate treatment in order to prevent chronicity, as well as recognition of risk factors for the development of CP, is likely to be an especially beneficial approach.

While this report aimed to distinguish the structural aspects of health-care organization (as exemplified above) from processes of care delivery, it is recognized that structure and process are closely connected (i.e., a change in one usually affects the other; for example, looking at roles and responsibilities implies in which processes the particular health-care provider will be involved). It was thus not

always easy to disentangle one from the other; however, this strategy was adopted to aid in the presentation of the material in this report. When restructuring services, both must be considered as critical elements in need of improvement.

Regarding the process of care delivery for CP patients, **communication** between GPs and specialists, in particular, is sometimes limited; sharing important information (e.g., diagnostic results) can be problematic. The fact that many CP patients will require interdisciplinary care implies that a team approach—accompanied by effective and efficient lines of communication—will be necessary in the delivery of care. Some jurisdictions have experimented with the use of **case managers** (also known as care coordinators or case workers) to address this problem. In Québec, the “*intervenant pivot*” (“patient navigator”) model has been implemented to coordinate care for patients with cancer. Although care coordination was part of a multifaceted intervention that included other process components, the randomized controlled trial by Rossignol et al. [2000] in the context of workers with chronic back pain is a promising example of coordinated care and effective communication between physicians, nurses, and patients.

Numerous **clinical practice guidelines** exist for CP; these are aimed at specific health professionals (e.g., physicians, nurses), types of services (e.g., inpatient, pain clinics), types of conditions (e.g., back pain), or target particular interventions (e.g., opioids). Yet, whether or not they are implemented is in general unknown and whether their use makes a difference for CP patient outcomes appears to be rarely studied in a systematic manner. Canadian guidelines reviewed for an Alberta health technology assessment present a consensus view that a rehabilitative rather than acute medical model is the most appropriate therapeutic approach for most patients with CP.

Based on our search of the literature, **CP patient outcomes** rarely appear to be monitored in a systematic way; for patients treated in MPCs,

this may be due to lack of time and resources to collect and analyze data before and after treatment. There is a momentum underway to standardize measurement as evidenced by the IMMPACT group and the VHA Pain Outcomes Toolkit. Equally scarce in the literature are **quality control** studies of existing pain programs. The innovations described in demonstration projects (e.g., the Calgary Chronic Pain Centre in Alberta [Taenzer et al., 2005]; the Illawarra Health Chronic Pain Management Program by Telehealth in Australia [NSW Telehealth, 2002]) may provide direction for the future. When **information technology** is employed to set up data collection methods in the planning stage of services, both patient outcomes and factors related to quality control can be monitored.

**Research** on CP is ongoing but there are relatively few studies of a more applied nature (e.g., predictors of patient outcomes, the impact of the structure and/or process of health services on patient outcomes). Thus, despite impressive progress in understanding pain from a physiologic perspective in recent decades, high-quality research is needed to guide management of patients with CP. The VHA promotes research as an integral part of its vision for pain management. As another example of missing information, there appear to be no data informing policy-makers about acceptable waiting times for evaluation and treatment of CP, except with regard to specific conditions such as back pain and complex regional pain syndrome. More work needs to be done to inform managers of health services with regard to this issue. Data on cost-effectiveness of MPCs, in particular, are lacking. There is a potential role for health technology assessment or evaluative research in examining the effectiveness and financial implications of modes of intervention and specific treatments in CP.

Finally, this report focussed on organizational issues in the management of chronic pain not related to cancer. In practice, the structures and processes for managing chronic cancer pain and chronic non-cancer pain will overlap. We also

recognize the existence of rich expertise in the area of palliative care in Québec, which may be drawn on to inform organizational endeavours supported by this report.

## 5.2 CONCLUSIONS

Based on the material presented in this report, we make the following conclusions:

- Due to its magnitude as a health problem in the general population, its associated burden, and the viability of modes of intervention, CP should be considered a priority within health-care systems. This conclusion applies equally to Québec.
- Appropriate resources are required to support the structures and processes involved in providing evidence-based management of CP and monitoring outcomes.
- A hierarchy of services is required to ensure that the right patients are treated by the right health professional, at the right time. This structure facilitates the process of stepped care, in which patients progressively receive more complex, specialized and, often, costly interventions according to need and in a coordinated manner.
- Primary care structures and services need to provide timely diagnosis and treatment of CP, where possible (for example, via medications, rehabilitative and physical medicine, behavioural medicine, as needed). Specialized services and MPCs are intended to serve more complex cases that persist despite previous treatments. Among more specialized structures such as MPCs it is possible to have a gradation of services, the most comprehensive type involving research and training activities in addition to patient care.
- An interdisciplinary approach—in which health professionals from different disciplines work together to provide care, as needed for the individual case—is crucial for management of CP at all levels of the health-care system. This includes links between primary care physicians and physical medicine/rehabilitation practitioners, as well as collaboration between multiple care providers in specialized clinics. Canadian clinical practice guidelines support the interdisciplinary model for management of CP patients.
- Services need to be integrated and coordinated so that different types of health professionals (from various disciplines and levels of care) can be involved in seamless delivery of care.
- Care pathways and discharge protocols need to be employed to ensure continuity of care.
- Education for physicians and allied health professionals at all levels of the health-care system is essential to optimize treatment of patients with CP.
- CP patients need to be viewed as part of the solution in that they require education about pain, including self-management strategies.
- CP patient outcomes need to be assessed systematically to ensure quality of care.
- Employment of information technology and the Internet are vital for the success of any program aimed at restructuring services for patients with CP.
- High-quality research is essential to guide management of patients with CP. For example, there is a need for data on patient outcomes associated with and cost-effectiveness of MPCs in Québec.

The following recommendations take into consideration our review of the evidence and experiences with management of CP in other jurisdictions, combined with an analysis of their implications for Québec.

**Recommendation 1:** *It is recommended that policy-makers at the governmental level, health-care managers, physicians and other health-care professionals, as well as directors of university training programs in health fields, recognize the importance of CP as a major chronic health problem, and that resources be allocated accordingly and progressively by those with the authority to do so.*

**Rationale:** Chronic pain has to be viewed as a high-prevalence chronic disease entity and thus a health priority for public service resources. The impact of chronic pain on the lives of the sufferers and their families can be devastating, affecting the patients' functioning, mood, sleep, social relationships and quality of life. Chronic pain is recognized to be costly to the patient and society. There is much evidence that chronic pain is associated with frequent use of health services.

This recommendation stems from the current paucity of appropriate health services for CP patients in Québec (as outlined by the *Comité avisieur*), the fact that the three example jurisdictions have seen fit to develop and support particular structures and activities to address CP (e.g., training of care providers, increased access to specialized care, use of guidelines, communication mechanisms, case management, integrated approach), and research evidence supporting individual components of such strategies in various regions.

**Recommendation 2:** *It is recommended that the organization and provision of services for CP patients in Québec be developed and supported according to a hierarchical and integrated*

*model, which incorporates the principles of stepped care.*

**Rationale:** The organizational structure and process of providing care to CP patients should aim to ensure timely access to the appropriate level of service for diagnosis and/or treatment—an important aspect of reducing chronicity of pain—and movement of the patient through levels of care, as needed (e.g., from general practitioners to allied health professionals and specialists to multidisciplinary pain clinics, if required). The fluidity of the patient's care pathway is linked to both structures and processes being in place to facilitate care coordination, continuity and integration, through such initiatives as case managers and active discharge planning. Hierarchy of services can be viewed in terms of the “stepped care” approach to providing increasingly intensive (and often more costly) treatments, if necessary, and also as an emphasis on the right level of service provider(s) being involved at the right time in the care pathway. A pilot project, perhaps overseen by an integrated university health network (*réseau universitaire intégré de santé* [RUIS]), may be a starting point for the reorganization of services for patients with CP.

The organization of health and social services in Québec is in the process of being restructured at the time of writing this report. The principles guiding this restructuring reiterate organizational themes underscored in this report, including the integration of hierarchical services. For example, it is proposed that new Health and Social Service Centres (composed of hospitals, long-term facilities and community clinics) be linked to other “front-line” services such as rehabilitation centres and primary care groups, as well as to more specialized care in bidirectional service corridors that will ensure accessibility, case management, follow-up, and coordination of care [ADRLSSSS, 2004].

**Recommendation 3:** *It is recommended that the organization and delivery of CP services in Québec be based on an interdisciplinary approach at all levels of care.*

**Rationale:** Interdisciplinary care should be available to CP patients, when required, at all levels of the health-care system. Examples include the collaboration of general practitioners and physiotherapists (i.e., both at the primary care level), of general practitioners, specialist physicians, occupational therapists, and ergonomists (i.e., providers from mixed care levels) in rehabilitative models such as the “Sherbrooke Model” for injured workers, and of specialist physicians, psychologists, and physical and occupational therapists, for instance, at interdisciplinary pain clinics. A recent systematic review showed that Canadian clinical practice guidelines support the interdisciplinary model for management of CP patients.

The provision of interdisciplinary services emphasizes the need for ongoing communication and coordination of care, processes that are consistent with service delivery principles underlying the current implementation of Health and Social Service Centres in Québec. The model of “*intervenant pivot*” (“patient navigator”), currently implemented in cancer care in Québec, may prove useful for the coordination of services by different health-care providers, particularly for complex CP cases. The integrative nature of interdisciplinary services (as distinct from a multidisciplinary model without such integration) should be supported in terms of structure and process. It is recognized here that the interdisciplinary model represents an ideal, and that there will be practical difficulties in implementing this principle. As an example, the separation between medical and rehabilitative practitioners and establishments, reflecting differing philosophies and models of care, needs to be bridged. Nonetheless, incentives should be encouraged which enable and support interdisciplinary care. Health professionals from different disciplines, levels of care, and types of facilities need to be taught explicitly how to work in teams (i.e., with

clear roles and distribution of responsibilities), as well as be remunerated for time spent on these activities.

**Recommendation 4:** *It is recommended that strategies be developed and supported to educate physicians as well as allied health professionals about assessment, diagnosis, treatment, rehabilitation and management of CP, and to facilitate evidence-based practice (using clinical practice guidelines, for example) .*

**Rationale:** Enhanced training of health-care professionals in all aspects of chronic pain management should be geared towards increasing the timeliness of diagnosis and initiation of treatment, in order to reduce chronicity and severity of disability. Knowledge of evidence-based interventions—such that pharmacologic and non-pharmacologic modalities are used appropriately—will serve to increase quality of care. To this end, there appears to be a need to increase the availability and knowledge of evidence-based guidelines for CP management, particularly for care providers in “front-line” services, where patients first enter the health-care system. Initiatives such as the Albertan Ambassador Program appear to be promising in this regard, and translated tools such as the one-page evidence summaries could be considered to enhance the “know-how” of care providers in Québec. The Internet provides a means to offer training and disseminate information at a distance. A crucial aspect of health professional education is awareness of when and where to refer CP patients to other service providers. Training programs should recognize the different needs of care providers with distinct roles and responsibilities and working at different levels of the service hierarchy. Educational initiatives at the care provider level should also recognize the role of the CP patient in self-management.

**Recommendation 5:** *It is recommended that monitoring activities of CP services and other quality assurance mechanisms be implemented, notably with regard to patient outcomes and implementation of programs.*

**Rationale:** The monitoring of patient outcomes (e.g., in MPCs), assessment of program implementation, and process evaluation are important for quality assurance of health-care services. Information technology is an essential tool for these activities. Valid and reliable tools to measure patient outcomes such as pain intensity, physical functioning, psychological well-being, quality of life, and treatment satisfaction should be used at all levels of the health-care system in a standardized and systematic manner. The use of the Internet and information technology also provides means to enhance the processes of care.

**Recommendation 6:** *It is recommended that funding agencies strongly consider supporting research addressing patient outcomes, program implementation and process evaluation in chronic pain.*

**Rationale:** In addition to gauging the success of treatment methods and modes of intervention, collection and analysis of patient data allows for clinical, epidemiological, and health service research initiatives. There is particular need for the evaluation of the effects of changes to structure and process on patient outcomes and satisfaction of care providers in Québec, particularly within the context of the proposed “Project for the development of a national program for the evaluation, treatment and management of chronic pain.” There is a potential role for health technology assessment or evaluative research in examining the effectiveness and financial implications of modes of intervention and specific treatments in CP.

## APPENDIX A PATIENTS' RIGHTS

### The Pain Care Bill of Rights

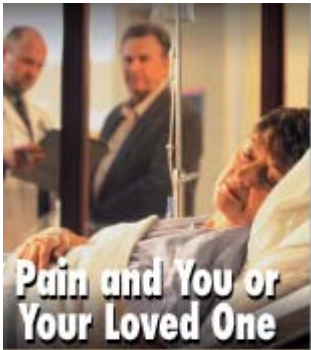
As a person with pain, you have the right to:

- Have your report of pain taken seriously and to be treated with dignity and respect by doctors, nurses, pharmacists and other healthcare professionals.
- Have your pain thoroughly assessed and promptly treated.
- Be informed by your healthcare provider about what may be causing your pain, possible treatments and the benefits, risks and costs of each.
- Participate actively in decisions about how to manage your pain.
- Have your pain reassessed regularly and your treatment adjusted if your pain has not been eased.
- Be referred to a pain specialist if your pain persists.
- Get clear and prompt answers to your questions, take time to make decisions and refuse a particular type of treatment if you choose.

*Although not always required by law, these are the rights you should expect, and if necessary demand, for your pain care.*

Source: The American Pain Foundation. Available at: <http://www.painfoundation.org/downloads/EnglishBOR.doc> (accessed on June 28, 2004).

# The Patient Pain Manifesto



**Pain and You or Your Loved One**

Pain is often linked to being in hospital. Pain may have brought you there. Tests and treatments, especially surgery, can be painful.

**You have a right to have your pain treated and the staff caring for you have an obligation to treat your pain.**

Pain is important because it warns you that there is a problem. Once you know about that problem, pain should be relieved because it can be harmful to you.

Sometimes, persistent pain can be difficult to treat, but options are available to help most pain.

**Did you know that**  
 Pain SLOWS recovery,  
 Pain INTERFERES with sleep,  
 Pain INTERFERES with eating,  
 Pain WORSENS fear, anxiety and depression.


**Did you know that**  
 It is extremely rare that people become addicted to the pain killers they are given in the presence of pain.



Problems with pain killers (constipation, itching, nausea) can be controlled.



**You and your family can help with your pain management by reporting it to the staff caring for you.**

**Every effort should be made to give you the best pain relief possible.**

This program has received support from:

 JANSSEN-ORTHO Inc.  
<http://www.canadianpain.com>

 PAROIE  PHARMACIA

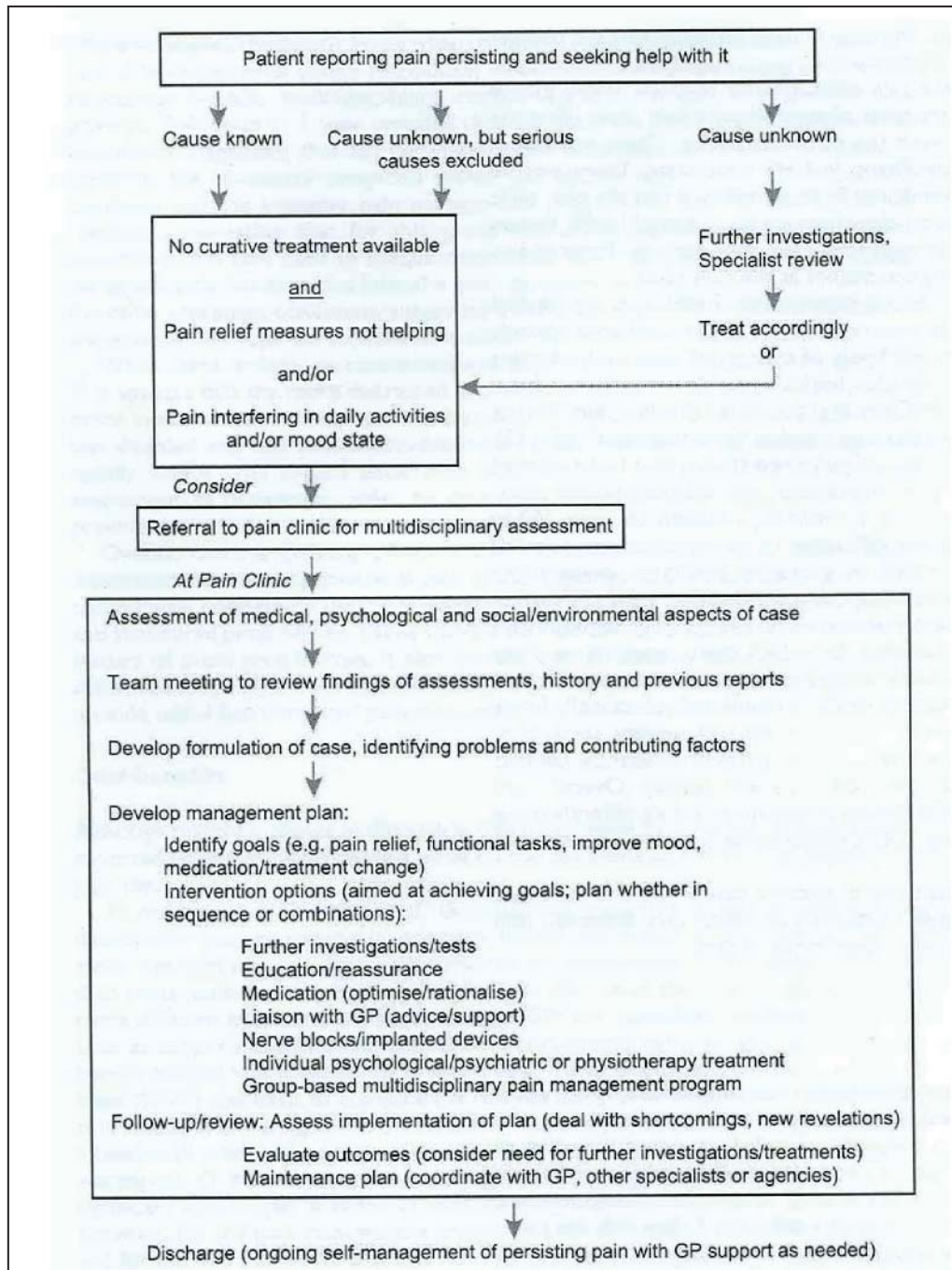
 Canadian Coalition of Pain Management  PAIN RELIEF

**0 1 2 3 4 5 6 7 8 9 10**  
 On this scale, how much pain are you having right now?  
**No Pain** **Worst Pain Possible**

The Canadian Pain Society  
 Société canadienne pour le traitement de la douleur

Source: Canadian Pain Society. Available at: <http://www.canadianpainsociety.ca/cont-ang/4nouvelles-manifeste.htm#4> (accessed on August 20, 2005).

## APPENDIX B PAIN CLINIC REFERRAL ALGORITHM



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## APPENDIX C CASE STUDY 1: BACK PAIN

In this section we highlight organizational issues specific to the management of back pain (BP) as a case study of chronic pain (CP). Back pain can be viewed as a prototype because it is the most prevalent type of CP. Seventy to eighty-five percent of adults are estimated to experience at least one episode of BP during their lifetime [Carey et al., 2000; Pérez, 2000]. The trajectory of the condition from acute to sub-acute to chronic has been examined in many regions. In fact, of the published literature pertaining to CP, BP appears to be the most advanced in terms of research and guidelines for patients and health-care providers. It should be noted that the literature sometimes refers to back pain and other times to low back pain in particular. When the latter is the focus, we specify this in the following text.

Given that this is a case example, we have not been exhaustive in our review of the vast literature on management of back pain; instead, we sought information specific to structure and process issues from our example jurisdictions and in the research evidence, and paid particular attention to studies which linked initiatives in these areas to outcomes for patients and/or care providers. We begin case study 1 with a brief overview of back pain in terms of definition, prevalence and incidence, etiology, treatment, and costs.

### OVERVIEW OF BACK PAIN

#### **Definition**

BP refers to a feeling of tiredness, discomfort, ache or pain in the back and is most common in the lumbosacral region; when this region is affected, it is known as low back pain (LBP) [DIHTA, 1999]. Acute BP is the most common form and is characterised by pain which lasts less than three months, with the likelihood of recurrent episodes. Chronic BP is more physically and psychologically debilitating and persists past normal tissue healing time [Ehrlich, 2003a]. BP can be divided into specific and non-specific types. Specific BP can be attributed to a “structural” cause (such as a fracture, herniated disc, infection or cancer), and accounts for 5 to 10% of all BP cases.<sup>67</sup> Common or non-specific pain has an etiology which is more difficult to decipher (e.g., discogenic, facet, sacroiliac or myofascial pain) and makes diagnosis and treatment challenging [Ehrlich, 2003a].

#### **Prevalence and incidence**

BP is a leading cause of disability and appears to be present worldwide in similar proportions [Ehrlich, 2003b]. Cole et al. [2001] used the 1994/95 Canadian National Population Health Survey to study back problems in a working population aged 18 to 64 years: prevalence of diagnosed chronic (i.e., six months or more) back problems, as reported by the survey participants, was 14.5% for men and 12.5% for women. As previously noted in section 1.3.2, 1999 data from the same national survey showed a 15% prevalence for back problems among Canadian persons under 60 (18% among those 60 and older) [Rapoport et al., 2004]. Prevalence of self-reported back or spinal pain, in the two weeks prior to the survey, was 10.2% in the general population of Québec in 1998 [ISQ, 2001]. Coté et al. [2001] estimated that, in any six-month period, 5 to 11% of adults in Saskatchewan, Canada, have disabling neck or back pain that limits their activities of daily living. Iron et al. [2003],

<sup>67</sup>. C. Cloutier, personal communication, April 4, 2005.

using data from the 1994/95 Canadian National Population Health Survey, found that 17.6% of the population in Ontario reported having been diagnosed by a health professional with “back problems,” when questioned about “long-term conditions.”

In a 1998 survey, 40% of Britain’s adult population had suffered from BP for more than one day in the past year, and 15% of these suffered from chronic BP (i.e., pain throughout the past year), according to the Omnibus Survey [UK Government Statistical Service, 1999]. In France, 35 to 50% of the population experience back pain annually; 7 to 10% of BP is chronic [Genêt et al., 2002]. The one-year prevalence of low back problems in the American population has been estimated at 15 to 20% [UMHS, 2003].

As for incidence using Canadian National Population Health Survey data, Pérez [2000] found that 9% of Canadians 16 years or older—more than 1 million persons—developed chronic back problems between 1994/95 and 1996/97. George [2002] also used Canadian survey data for individuals aged 20–69 years in Saskatchewan and found that the cumulative incidence of LBP was 8% in a six-month period. BP is clearly a significant chronic health problem.

## **Etiology**

### ***Specific back pain***

Diagnoses such as lumbago, facet syndrome, sciatica, disc herniation, muscle tension, crooked or curved spine (scoliosis or spondylolisthesis), inflammatory or infectious arthritis, osteoporosis, and cancer generally cover the wide range of problems associated with specific BP. However, the diagnosis of disk herniation versus bulging disc is controversial because these are quite common; although they can be visualised through CT scans and MRIs, they are not always the direct cause or source of pain [Ehrlich, 2003a]. Specific BP problems are not the focus of this review, because they do not present the same quandary regarding management of patients in the health-care system. Also, these pathologies have a specific surgical and medical treatment and are usually treated successfully.<sup>68</sup>

### ***Non-specific or common back pain***

Non-specific (“common”) back pain has less well-known causes. Psychosocial factors have been shown to be significant in its etiology [Karjalainen et al., 2003; Carter and Birrell, 2000]. For example, Kopec et al. [2004] found that in addition to age group (particularly 45 to 64 years), usual daily activity (particularly heavy work), greater height, lower self-rated health and no yard or garden work, predictors of BP in men included “general chronic stress.” As for women, the predictors were restrictions in activities, arthritis or rheumatism, “personal stress,” and two or more events of “psychological trauma in childhood or adolescence” (for example, fearful experiences, hospitalization, physical abuse, parental disturbance).

### ***Development of chronic back pain***

There is a “grey zone” between acute and chronic BP; one frequently sees the term “sub-acute” in the literature, which refers to the state in between acute and chronic (i.e., pain for more than six weeks but less than three months [UMHS, 2003]). In light of this, experts have identified determinants of chronicity which are known as “yellow flags” or psychosocial risk factors [Main and Williams, 2002; Carter and Birrell, 2000; Linton, 2000]. Main and Williams list the following types of variables which can play a role in the development of chronic BP: psychological or behavioural

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68. Dr. C. Cloutier, personal communication, April 4, 2005

(iatrogenic factors, beliefs, coping strategies, distress, illness behaviours, willingness to change); social and economic (family reinforcement, work status, health benefits and insurance, litigation); and occupational (work satisfaction, working conditions, work characteristics, and social policies) [Main and Williams, 2002, p. 535]. It should be emphasized that when acute pain becomes chronic, not only the length of time of suffering increases but the condition worsens, becoming more debilitating, and recovery is much less likely.

## **Treatment**

Treatment of BP varies depending mainly on its etiology but also on stage (acute, subacute, chronic) and co-existing conditions. The treatment of chronic and non-specific LBP is controversial. The evidence for the effectiveness of various treatments (such as some medications, injections, acupuncture, massage, transcutaneous electrical nerve stimulation [TENS]) is inconsistent or unknown [van Tulder and Koes, 2004], except for behavioural treatments (specifically, respondent-cognitive therapy and progressive relaxation training) for chronic LBP which have been shown to reduce pain in the short term [Ostelo et al., 2005]. This controversy is related to the fact that 90% of people who experience their first episode of LBP will recover within 12 weeks [DIHTA, 1999]. Furthermore, 60 to 80% of people suffering from acute BP will recover spontaneously, irrespective of treatment [DIHTA, 1999]. This has important implications for treatment of first-time acute BP because expensive diagnostic tests, procedures and treatments can be withheld for a certain period of time as they may be unnecessary.

There is an abundance of cohort studies and randomized controlled trials for various treatments of BP. Several HTA reports, guidelines, and systematic reviews are available which summarize the evidence and make recommendations regarding particular treatments for different types of BP [Ostelo et al., 2005; van Tulder and Koes, 2004; French, 2003; Karjalainen et al., 2003; Guzmàn et al., 2002; Carter and Birrell, 2000; van Tulder et al., 2000a; 2000b; SBU, 2000; DIHTA, 1999; Tunks et al., 1999]. Usually, acute and chronic pain are dealt with separately. In this case study we focus on the organizational issues pertaining to providing these health services rather than the evidence for treatment effectiveness *per se*.

## **Costs**

Coyte et al. [1998] estimated that total economic costs for back and spine disorders in Canada was 8.1 billion (1994) Canadian dollars, or 1.1% of the gross domestic product (GDP). Indirect costs (lost productivity) were much higher than direct costs (resources for research, prevention, detection and treatment), accounting for 91.7% of the total. In France, the cost of BP accounts for more than one-fifth of total health expenditure and 1.5% of annual GDP [Phillips, 2003]. Maniadakis and Gray [2000] found that greater costs are associated with BP in the United Kingdom than with any other disease for which an economic analysis has been conducted (e.g., coronary heart disease, rheumatoid arthritis, lower respiratory tract infections, Alzheimer's disease). Direct costs of BP in 1998 were estimated as £1632 million, 35% of which were related to private sector services. The indirect costs (including productivity losses and informal home care) were much greater, estimated at as high as £10,688 million. In Sweden, the total socioeconomic costs attributed to BP in 1995 equalled about US\$377 million per million population, 98% of which were the costs of sick leave and early retirement due to BP [SBU, 2000].

Maetzel and Li [2002] reviewed studies published between 1996 and 2001 and listed in Medline, with regard to the economic burden of LBP. They found that the costs (measured as lost work days, health-care interventions, effects on productivity) of LBP were high and similar to other conditions

such as headache, heart disease, depression and diabetes, but they generated various estimates depending on the costing methods employed. While regional variations existed, excessive and inappropriate use of diagnostic tests and treatments for LBP was evident. Despite showing some clinical improvements treatments were not associated with benefits in economic terms, suggesting a weak link between such outcomes.

## STRUCTURE OF HEALTH-CARE SERVICES

How, when, and where a person with BP should be treated has been the subject of many publications in the form of articles, reviews, and clinical guidelines. In this section we sketch the structure of services, firstly in terms of the roles and responsibilities of various health-care professionals—at multiple levels of care—who can be involved in treating patients with chronic BP. We also examine the role of multidisciplinary treatment “packages” in management of chronic BP. Information from the example jurisdictions, other regions or health-care systems, and research evidence is used where relevant. Outcome data are presented when available.

### **Roles and responsibilities of care providers**

#### *General practitioners and allied health professionals*

The first health professional a patient with BP needs to consult is the general practitioner (GP). This is a logically and economically sound approach given that up to 85% of the population at one time or another will experience BP [Linton, 1998]. Furthermore, it is the GP who has (or should have) access to previous illness information and medical reports. The GP is expected to diagnose the nature of the problem, advise the patient about appropriate behaviours (e.g., to stay active), and prescribe medications, as needed. The GP should inform the patient about his or her role in the treatment plan, emphasizing the importance of self-care behaviours (e.g., exercise, adherence to medications) [Goodyear-Smith et al., 2002].

Clinical guidelines for BP concur that GPs must identify any “red flags” for specific problems or lombalgia such as trauma, non-mechanical pain that is constant and progressive, a tumour, weight loss, persistent restrictive lumbar flexion, and recent bowel or bladder dysfunction, among others [Koes et al., 2001]. If any of these “red flags” are detected, the patient must be referred immediately to specialty care.

The Centre for Advancement of Health in the United States recommends that a general practitioner (GP) “should address psychosocial issues or refer the patient for a psychological evaluation” after four weeks of unremitting symptoms [CFAH, 2000, p. 22]. The notion that psychological distress or psychiatric disorders are more important risk factors for the development of chronicity and disability than clinical manifestations of BP is widely accepted [Carter and Birrell, 2000].

While different modalities of care, both physiotherapy and occupational therapies aim to improve the patient’s physical functioning and are commonly used for BP along with primary care interventions prescribed by GPs (i.e., medication). GPs commonly refer back pain patients for physiotherapy.

Lang et al. [2003], in a German prospective study, compared a control group of 157 patients undergoing usual care by community physicians and physiotherapists to a cohort of 51 patients who were provided with comprehensive multimodal treatment delivered at the primary care level by a team of local allied health professionals (physiotherapists, a psychologist, sport teachers) and a community physician. There were no changes in the first group following treatment (at six months) whereas the second group showed statistically significant improvements in physical and mental

health status (using the Medical Outcomes Study SF-36) and took fewer days off from work. While the results appear promising as an indicator of the benefits of multidisciplinary care at the primary level, it should be noted that this was not a randomized controlled trial and there were no group differences for pain, pain-related interference with function, or depression.

### *Medical specialists*

The GP may request that a medical specialist carry out a CT (computer tomography) or MRI (magnetic resonance imaging) scan to determine if symptoms or physical examination suggest neurological deficits or there has been no improvement of symptoms despite six weeks of conservative treatment [ICSI, 2004]. In the guidelines we examined that included referral for diagnostic imaging, both recommended that this be done later rather than earlier (except for routine X-rays if a fracture, infection, inflammatory disease or cancer is suspected) [UK Department of Health, 2002; DIHTA, 1999]. If the patient continues to experience pain and scans show that she/he is eligible for surgery, then she/he should be referred to a neurosurgeon or orthopedic surgeon.

In Australia, 13 musculoskeletal medicine clinics were recently established across the country in hospital and community settings, coinciding with the publication of updated guidelines for acute BP in 2003 [Masters, 2004; McGuirk et al., 2001]. Within the clinics, conduct of audits and controlled studies of evidence-based practice were carried out for the management of musculoskeletal health problems.<sup>69</sup> Acute pain management was offered at these sites, addressing patient fears, education of patients, and use of evidence-based interventions [Masters, 2004]. Patients with acute LBP were followed for two years and, in the short term, those attending the clinics experienced slightly less pain, more satisfaction, decreased reliance on medications, used less alternative care, and were given X-rays less often, compared to usual care patients in four comparison general practice regions [Masters, 2004; McGuirk et al., 2001]. In the long term, pain and costs were reduced, there was less continuing care, and patients were less likely to relapse (i.e., become chronic). Importantly, no red flags were missed, and the use of a red flag checklist was viewed as safe.

The importance of including occupational medicine and therapy for injured workers is shown by the multidisciplinary “Sherbrooke Model,” designed and tested by Loisel et al. [2003a; 2003b; 2002; 1997; 1996]. This team conducted a population-based randomized controlled trial on BP management in the surrounding industries of the city of Sherbrooke, Québec (Canada). This study, which was funded by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail du Québec (Québec research institute in occupational health and safety), was designed to prevent prolonged disability in injured workers with sub-acute back pain. One hundred and thirty workers at 31 eligible and consenting workplaces in the Sherbrooke area, who had been off work for more than four weeks for BP, were randomized to one of four treatment arms: 1) usual medical care; 2) clinical and rehabilitative intervention only; 3) occupational intervention only (occupational physician visits and a “participatory ergonomics evaluation” in the workplace that involved an ergonomist, the patient, his/her supervisor and union/employer representatives to determine need for job modifications); and 4) full intervention i.e., an integrated combination of (2) and (3) (the “Sherbrooke Model”). The clinical intervention was comprised of a back pain specialist visit and “back school” (education and exercises for the back) for those still absent from regular work after 8 weeks *and*, for those still off work after 12 weeks, was “stepped-up” to include a *multidisciplinary* intervention (i.e., fitness training, and “therapeutic return to work” following “work hardening” with a cognitive-behavioural approach, to restore work abilities). The “integrated clinical-occupational” model more than doubled the rate of return to regular work, compared to usual medical care.

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69. Australian Association of Musculoskeletal Medicine (AAMM). Available at: <http://www.musmed.com/about.html> (accessed on April 7, 2005).

Most importantly, a six-year follow-up study showed that the fully integrated Sherbrooke Model saved a greater number of sick days (spent on benefits) than the usual care or partial interventions. Moreover, the mean costs (1998 Canadian dollars) during the follow-up period (mean = 6.4 years), that is the combined costs of the intervention (usual health care plus any experimental components) and the “consequences of disease” (income replacement) were: i) usual care: \$33,079 (intervention = \$9,562; consequences = \$23,517); ii) clinical intervention: \$16,902 (intervention = \$6,857; consequences = \$10,045); iii) occupational intervention: \$16,252 (intervention = \$3,432; consequences = \$12,820); and iv) full intervention: \$14,494 (intervention = \$7,434, consequences = \$7,060), supporting the Sherbrooke Model [Loisel et al., 2002].<sup>70</sup> The importance of the workplace connection was emphasized by Brooker et al. [1999] in their document titled *Effective disability management and return to work practices: What can we learn from low back pain?*, written for the Royal Commission on Worker’s Compensation in British Columbia.

### ***Multidisciplinary/interdisciplinary teams***

There is a consensus regarding the importance of a multidisciplinary approach to diagnosis and treatment of chronic BP [Karjalainen et al., 2003; Guzmàn et al., 2002]. Guzmàn et al. [2001] conducted a systematic review of randomized controlled trials of biopsychosocial rehabilitation for chronic LBP. Eligible study treatment was defined as a minimum of the physical dimension plus at least one component from allied health such as a psychological, social or occupational intervention, excluding back schools if they failed to meet these criteria. Ten trials including 1,964 patients indicated that there was strong evidence that function improves with intensive multidisciplinary rehabilitation when compared to inpatient or out-patient unimodal interventions. There was moderate evidence for pain reduction with intensive multidisciplinary rehabilitation compared to usual care or outpatient unimodal treatment. Finally, the evidence for vocational outcomes (e.g., return to work) was contradictory. Less intensive outpatient psychosocial programs, defined as less than 30 hours of treatment in once or twice weekly sessions, did not seem to be effective.

A HTA report from Sweden found that evidence is strong for multidisciplinary treatment in general and for cognitive-behavioural therapy as a complement to medical treatment for chronic LBP [SBU, 2000]. Actual provision of multidisciplinary services for back (and other) chronic pain in many regions is limited, however, because of a confluence of factors such as the limits of health-care coverage for multidisciplinary services and a paucity of care units in regions outside urban centres (as is the case for Québec).

In 1999, the French Rheumatology Society [Duquesnoy et al., 2001] outlined the indications and approach needed for comprehensive care of back pain. It stated that multidisciplinary care is required after 12 weeks of pain, outlined multidisciplinary diagnostic evaluation methods and the basic structure of the care team, proposed specific outcome measures, and made recommendations for patient follow-up. Duplan and Guillet [2001] surveyed physicians in public and private establishments in France to describe existing structures and services offered to patients with BP, particularly with respect to multidisciplinary care. With a response rate of almost 75%, it was found that more than one-third of the French health regions (i.e., 36/95) did not provide multidisciplinary services; in these regions physiotherapy alone was most often used to treat BP, in an ambulatory setting. Other structures in which services were provided were pain centres, rehabilitation centres, and rheumatology facilities; two-thirds of these services were found in the public sector. The rehabilitation centers tended to rely on physiotherapy whereas the pain centers included the services

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70. The results of the Sherbrooke Model have recently been confirmed in a Dutch study and published as a thesis dissertation: Anema JR, Low back pain, workplace intervention and return-to-work. 2004, Thesis Vrije University: Amsterdam (Dr. P. Loisel, personal communication, August 22, 2005).

of allied health professionals such as occupational therapists and psychologists. When the process of continuity of care was planned, appointments varied in frequency from monthly (at pain centres) to once every four months. Three quarters of the establishments surveyed indicated that they systematically monitored patient clinical progress.

In late 1999 and early 2000, Johansen et al. [2004] carried out a prospective cohort study of 300 sub-acute LBP patients 15 to 80 years treated in a back clinic in Denmark. The clinic uses multidisciplinary teams (including physicians, physiotherapists, chiropractors and nurses) and patients with pain for 4 to 24 weeks are referred by GPs, chiropractors, and specialists. Clinical effectiveness was defined as 80% of patients experiencing 50% improvement in activities of daily living and pain. A cost-utility analysis showed that the cost of gaining a QALY (Quality Adjusted Life Year) was four to five times less than gaining a QALY through total hip replacement. Moreover, there were reductions in the number of patients off work of about 50% at week 16 and 60% at week 40. In terms of process, evidence was found for the timing of intervention; that is, if pain had persisted between 4 and 12 weeks before referral, there was more than a doubling of the chance of a global assessment rating of “better” or “much better” by patients, when compared to those referred after 12 weeks of pain. Finally, patients who understood the need for self-care were more likely to consider themselves improved. Thus, this study demonstrates the potential for benefits in the context of a multidisciplinary care structure and is an excellent follow-up to the Danish Institute for Health Technology Assessment (DIHTA) recommendations [DIHTA, 1999], outlined below in the section on care pathways, despite the lack of control group.

## KEY PROCESS ISSUES

In this section, we examine the key process issues that have the potential to impact patient outcomes: timing and communication, access to services, care pathways, and role of algorithms and clinical guidelines. Referring to the need for interdisciplinary, evidence-based treatment, Harrington et al. [2001] note that care for chronic BP is often uncoordinated, repetitive, wasteful, and delayed.

### **Timing and communication**

As noted by Carter and Birrell in UK occupational health guidelines for LBP management at work,<sup>71</sup> “there are strong logical and humanitarian arguments, and strong empirical evidence, that treatment at the sub-acute stage (approximately 4–12 weeks) is more effective at preventing chronic pain and disability than attempts to treat chronic, intractable pain and disability once it is established” [Carter and Birrell, 2000, p. 25]. The guidelines go on to state that, according to a systematic literature review, evidence is strong for beneficial occupational outcomes as a result of “intervention packages” targeted at this sub-acute stage. Limited evidence was found for cost-effectiveness of these interventions, however. The guidelines state that if within 4–12 weeks an injured worker has not been able to return to normal occupational duties, she/he should be sent for multidisciplinary rehabilitation.

A cross-sectional study conducted in the Netherlands [Anema et al., 2002] showed that ineffective medical management by doctors was an obstacle for return to work in a cohort of 467 LBP patients on sick lists for three to four months. Occupational physicians (for 300 of the patients) believed that the duration of treatment and the waiting time before treatment had a negative effect on patients returning to work in 41% and 43% of the cases, respectively. Limited communication between

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71. Occupational health guidelines for the management of low back pain at work. 2000. Available at: <http://www.facocmed.ac.uk/library/index.jsp?ref=383> (accessed on March 22, 2004).

the occupational and treating physicians was also noted, as this process occurred for only 19% of the cases. The authors suggested that this may have been related to misunderstandings about the respective roles and responsibilities of the physicians. The content of the communications was dominated by factual information rather than process issues (e.g., regarding harmonization of care policy).

### **Access to services**

While there is a consensus in the literature that BP patients need to receive treatment sooner than later, access to care is a pervasive problem. Maddison et al. [2004] reported on the TEAMS (Targeted Early Access to Musculoskeletal Services) approach which integrated four secondary care departments (all having long waiting times of 36–52 weeks) in a hospital-based centre, and implemented a common pathway for all musculoskeletal referrals from GPs in northwest Wales, UK. A senior manager and a full-time coordinator were responsible for tracking patients through the centralized triage and referral system. Chronic BP patients were sent either to the “back pain” pathway (a new physiotherapy-based service) or “pain management services.” Training workshops addressing uncomplicated cases were provided for GPs with particular interest in musculoskeletal conditions and “extended-scope” physiotherapists in the community. Despite more than a doubling in numbers of patients seen over the 18-month study period, waiting times decreased, especially for pain management and rheumatology services, and for patients referred with BP (as opposed to other musculoskeletal problems) to 10 or fewer weeks.<sup>72</sup> Duplicate referrals—previously a common problem—were essentially eliminated and patient satisfaction was high. The authors concluded that *integration* of hospital services (previously working independently) and *targeted referrals* can improve access to treatment for musculoskeletal conditions, and that uncomplicated cases can be managed in multidisciplinary (GP, physiotherapist) clinics in the community.

Pinnington et al. [2004] examined early access to physiotherapy as part of primary care management of LBP in the UK. Back pain clinics run by physiotherapists were established, to which patients 18 to 65 years with a new episode of LBP were referred by their GP, in five single or group practices. Of the 614 patients referred over one year, 85% were seen at a clinic, with an average delay of four days (62% were seen within three days); 72% required only one visit. As part of the process, clinical guidelines were followed at the clinics such that patients with red flags were referred back to their GPs, and those with serious nerve root compression were fast-tracked to appropriate specialists; patients with yellow flags were referred to a regional back pain rehabilitation service. In a prospective evaluation, short-term outcomes (at 12 weeks) were reported for functional impairment, pain, quality of life, time off work, costs for treatments, and patient perceptions of the back clinics. There were particularly significant improvements for functional impairment and pain, but the case mix and lack of control group preclude reaching the conclusion that the restructured services (and accompanying processes) were responsible for these favourable outcomes.

### **Care pathways**

On the basis of a systematic literature review, an ideal course of action for management of LBP has been proposed by the DIHTA [1999]. The recommended care pathway is as follows: the patient goes to a GP; if needed the patient is treated by a physiotherapist or chiropractor *in conjunction* with the GP, maintaining *good communication* between all involved. If this treatment is unsuccessful, the GP recommends the patient to a spine center in a hospital (i.e., a specialized orthopedic centre); if hospital treatment fails, CT scans are done, surgery is performed if needed and is followed by

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72. No statistical testing was carried out on these data.

rehabilitation. This model, however, does not mention the psychological factors that can affect a patient which, as numerous studies have shown [Karjalainen et al., 2003; Linton, 2000], are crucial to consider when treating chronic BP. The most important aspect of this model is that there is *no waiting time* between each aspect of care. As the DIHTA report shows, the longer the wait the more expensive it becomes for the health-care and social system. For example, if the desired course of action is followed with no delays, a 50% reduction in costs is envisaged via: 1) avoidance of waiting times, which are expensive since the patient's condition generally worsens; 2) achieving successful and timely communication between health professionals and other social authorities involved in a case; and 3) avoiding unnecessary diagnostic examinations and treatments.

The notion of stepped care, i.e., beginning with the least invasive and least expensive treatment and moving up to more complex care, is seen throughout the literature pertaining to chronic illness, including pain. The timing of each step varies, but there is an obvious need to have one person responsible for the patient's care, to guide them through the steps, explain the process along the way, and help the patient find the right services at the right time. While it seems logical that a nurse would be the right health professional to carry out this task, Breen et al. [2004] documented barriers to nurse-led services for acute BP in the context of general practice in the UK. Difficulties arose from lack of capacity (not being trained adequately) and work load pressures. This suggests that the role of the nurse could be expanded, but nurses would first need to be educated and supported in carrying out these duties.

### **Role of algorithms and clinical practice guidelines**

There are a large number of algorithms and clinical guidelines for the treatment of all types of back pain, at various stages of the illness [e.g., ICSI, 2004; UK Department of Health, 2002]. Importantly, Koes et al., an international panel of experts in the field of LBP, published a useful review article in 2001 that compared and contrasted the many guidelines that were available at that time for primary care providers [Koes et al., 2001]. They reviewed guidelines published in 1994 or later in English, German or Dutch from 11 countries (USA, the Netherlands, Israel, New Zealand, Finland, Australia, UK, Switzerland, Germany, Denmark—DIHTA, and Sweden—SBU). The guidelines agreed that most BP patients should be treated in primary care; they supported diagnostic triage (including red flag identification) and generally agreed on tasks related to diagnosis of LBP. There was a broad consensus regarding treatment for acute or sub-acute pain (e.g., discourage bed rest, provide reassurance) and for chronic pain (e.g., exercise). However, there were also some discrepancies in treatment recommendations (e.g., regarding the type and intensity of exercises, use of or timing for spinal manipulation, and use of some drugs such as muscle relaxants and opioids). All agreed that psychosocial factors can play a role in establishment of disability. Despite the progress made with regard to basing these recommendations on evidence, the panel found that systematic implementation of the guidelines was not being carried out consistently across the different countries. As a more recent example from the UK, Armstrong et al. [2003] examined the medical records of 200 patients with LBP who were referred to a teaching hospital. It was apparent from this cross-sectional chart review that clinical practice was not usually based on guidelines (e.g., X-rays were frequently used whereas biopsychosocial assessment was rare).

In the United Kingdom, implementation of the Royal College of General Practitioners' guidelines for the management of acute back pain was tested in a randomized controlled trial, involving 24 primary care centres. Outreach visits to promote the guidelines were offered to the experimental group, and the GPs in this group were given fast-track access to physiotherapy and a triage services to assist referrals for patients with persistent BP (i.e., those who failed to respond within six weeks of

conservative treatment) [Dey et al., 2004]. While the educational strategy essentially failed to change the management of patients with acute BP (i.e., regarding use of X-rays, medications prescribed, provision of sickness certificates, secondary care referral), there was a significantly higher referral to physiotherapy or back pain unit educational programs for the experimental group, mostly through the triage service.

One disappointing example of an enormous effort to examine the impact of implementation of BP guidelines comes from a study conducted within the American VHA system [Farley et al., 2004]. A guideline program was implemented for LBP in four military medical centres as a demonstration project (followed by system-wide distribution); this included education for GPs and patients. Patterns of service delivery and pain medication prescriptions were tracked prospectively at the four sites. The authors found that guidelines were not incorporated into practice due to a lack of leadership commitment. Progress was not monitored systematically in part because the program was launched before the materials to document progress were ready to be used. The only change noted in association with the guideline program was a reduction in referrals to physiotherapy services.

## QUALITY CONTROL

In a recent attempt to improve the quality of services for LBP patients, Mootz et al. joined forces with the Institute for Healthcare Improvement, a non-profit educational foundation whose mission is to assist “health organizations to improve health care delivery in the USA and Canada” [Mootz et al., 2000, p. 44]. A LBP team of specialists advised three chiropractic-based practice settings in California, Texas, and Iowa; each identified their own goals and means of making changes that could be measured. For example, at the Texas Back Institute, patient needs were identified through focus groups and surveys addressed to all stakeholders (patients, physicians, payers, employers). This institute is the largest freestanding multidisciplinary spine care clinic in North America and includes a staff of pain management specialists, orthopedic surgeons, chiropractors, physiatrists, occupational medicine physicians, and behavioural health practitioners. There was strong agreement among stakeholders regarding the need to educate patients and foster cooperation between payers and employers. For complex (e.g., chronic) cases, case managers were identified as a need to facilitate care and communication. In California, the aims were more concrete; the chiropractic clinic set targets to decrease time to treatment and use of radiology, and improve both patient functional status and level of pain by 30% over their existing clinic standards. Preliminary results of a prospective evaluation showed an increase in the number of patients who received treatment at the first visit and a reduction in the use of X-rays. Importantly, all of these activities and outcomes were measured and data were used to continually improve the process.

## SELF-MANAGEMENT: PATIENTS’ ROLES AND RESPONSIBILITIES

Patients are not and cannot be passive recipients of health care in the 21st century. They often request specific tests and treatments, seek health information on the Internet, and they expect physicians and allied health-care professionals to provide them with timely, up-to-date care. Clearly, patients also need to be educated concerning their condition in order for them to participate in shared decision making with their health-care providers. The arena of BP has noted this need. Cherkin and Sherman proposed that the primary care physician might include the following in a chronic LBP patient’s treatment plan: “physical treatment to break the cycle of chronic pain (e.g., massage, acupuncture), strategies to increase body awareness and efficiencies of movement (e.g., Alexander technique, yoga), self-care strategies (e.g., stress reduction, meditation), and recommendations for educational resources” [Cherkin and Sherman, 2004, p. S-173].

*The Back Book* [Roland et al., 1996], an evidence-based patient educational booklet, was developed in the UK in conjunction with the 1996 Royal College of General Practitioners clinical guidelines. The booklet differs from other tools in its emphasis on patient beliefs and the patients' role in addressing BP. Burton et al. [1999] conducted a randomized controlled trial (n = 162 at baseline, in six primary care practices) to determine if patient use of the booklet could be linked to favourable outcomes two weeks, three months and one year later. Patients aged 17 to 70 years had non-specific LBP (acute or recurrent) for less than 3 months. The booklet was most successful in influencing patients' beliefs about LBP (e.g., decreasing fear-avoidance of physical activity); however, its impact on disability was not statistically different from the group who received a control booklet (containing traditional biomedical concepts and general advice). As expected by the investigators when planning the study, pain severity was not affected. The authors concluded that the booklet might be more effective when it is integrated into a management plan whereby all health professionals provide consistent and coherent treatment advice to patients.

A population-based intervention to change back pain beliefs and disability was carried out in Australia [Buchbinder et al., 2001] using a quasi-experimental, non-randomized, non-equivalent (two regions), pre-post study design. The intervention consisted of a mass media public health campaign based on *The Back Book* using television, radio, billboards, posters, seminars, workplace visits, and other publicity. Citizens (n = 4,730) were surveyed on the telephone and GPs (n = 2,556) were questioned via the postal service to determine changes in beliefs two years following the campaign. Data pertaining to workers' financial compensation claims for back problems, sick days, and medical payments for claims related to BP were abstracted from a claims data-base. Beliefs about BP were positively altered in the experimental region for both citizens and GPs ( $p < 0.001$ ). Moreover, disability claims and related costs were reduced over the duration of the campaign.

Little et al. [2001] conducted a randomized controlled trial comparing four groups given: 1) physician advice to take up regular exercise; 2) a self-management booklet; 3) a combined approach; or 4) no intervention regarding exercise. A cohort of 311 patients at baseline (in six practices) with a so-called "new" episode—a mix of incident acute cases and chronic cases experiencing a recurrence—were studied (aged 16–80 years); those with "stable" chronic pain were excluded. Mobilization and use of simple analgesics was recommended to all patients. Doctor advice alone, or the booklet alone, were found to improve patient satisfaction with the consultation and to have modest effects on pain and function during the next week, based on 239 respondents. However, by week 3 there were no group differences. Surprisingly, when doctor advice and the booklet were combined, they had less effect than when given individually; why this occurred is not known but could be related to providing too much information.

A self-management program for acute LBP was tested using a randomized controlled trial with 211 socioeconomically disadvantaged primary care patients [Damush et al., 2003]. The participation rate was low despite the relatively small burden incurred by participation: 52% of eligible patients were interested, 39% of eligible patients were randomized, and of those who were randomized to treatment, only 28.3% (n = 30) attended at least one group class.<sup>73</sup> Three classes and follow-up telephone contact focused on "understanding BP, increasing physical activity, and dealing with fears and frustrations" [Damush et al., 2003, p. 179], through supported self-management. Compared to the usual care control group, those who participated in the intervention reported, after four months, better emotional functioning, increased confidence in their ability to manage BP, and less fear of movement. While the results were encouraging with regard to those patients who participated in the intervention,

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73. For 62.3% of the intervention group, information was delivered by audiotapes, mailed material and telephone instead.

the authors concluded that more innovative strategies were needed to deliver the program to this vulnerable population. Program non-completers were significantly more limited in physical function and in their self-efficacy to manage symptoms.

## ORGANIZATIONAL INNOVATIONS

### **Information technology**

An innovative use of the Internet for chronic BP was recently described by Lorig et al. [2002], who conducted a population-based randomized controlled trial to determine if an e-mail discussion group could improve health status and decrease health-care costs. Five hundred and eighty people with chronic BP from 49 American states participated. The intervention consisted of closed, moderated, e-mail discussions, a patient booklet, and a videotape modeling appropriate behaviours for people with BP. Outcomes were assessed on-line (for all but 2% of participants) by self-report, and included pain, disability, function, health distress (i.e., worry or frustration regarding one's health), and health-care utilization over six months (hospitalization; physician, physiotherapist and chiropractor visits). The intervention cost approximately US\$100 per person; this included the materials and professionals' time. At one year of follow-up, those in the e-mail discussion group reported less pain, less disability, higher role function, and less health distress compared to the usual care control group. Trends were reported for less use of physicians and hospitalization. The authors concluded that this low-cost informational and supportive intervention for back pain may be an effective treatment component for people who are comfortable with and have access to the Internet.

### **Community-based rehabilitation in Québec**

In 2003, Loisel et al., published a paper titled *From evidence to community practice in work rehabilitation: The Québec experience*, which is relevant to many of the structure and process issues discussed in this case study [Loisel et al., 2003a]. The article describes three phases that were implemented to transfer evidence accrued in rehabilitation research to community practice in Québec. In the section above on medical specialists, we summarized the Sherbrooke Model [Loisel et al., 2003b; 2002; 1997; 1996]; in the second phase (starting in 1995), a program was developed and established which addressed the “disability paradigm” [Loisel et al., 2003a, p. 105] called PREVICAP—PREvention of work handICAP. The program is evidence-based, and facilitates communication between stakeholders (i.e., Commission de la santé et de la sécurité au travail [CSST; Québec workers' compensation board]), employer, attending physician, and interdisciplinary team) for each disabled worker. The approach is interdisciplinary, workplace-centred, and provided in a timely manner, encompassing identification of the disability causes and a “progressive return-to-work process” [Loisel et al., 2003a, p. 108], and modification of the worker's job. In the third phase, a management, research, and education network in the domain of work rehabilitation was created: the Réseau en réadaptation au travail du Québec (RRTQ; Québec Network in Work Rehabilitation). PREVICAP was implemented in 1997 at a teaching hospital (Hôpital Charles-LeMoyne, Longueuil), for workers being compensated by the CSST and living in the Montréal region. In a prospective study of each patient served over a three-year period, the majority of patients had LBP (i.e., 85/127). At follow-up, 24% of study responders were off work after one year and 8% after three years. Loisel et al., stated that the PREVICAP program will be evaluated in terms of effectiveness with a randomized controlled trial of construction workers. Given the promising preliminary results (albeit in the absence of comparison data), the CSST committed to support progressive implementation

of the program through the RRTQ. The CSST ended this funding, however, in December 2003. A research evaluation of the Québec Network in Work Rehabilitation is forthcoming.<sup>74</sup>

## SUMMARY

Despite significant efforts to restructure services and devise care protocols for patients with chronic back pain to optimize their outcomes, many patients fail to receive the right treatment, by the right health-care provider, at the right time. The reasons for this systems failure are many: lack of education for health-care providers, a dearth of health professionals in place to provide the services, resistance to implementing clinical guidelines, lack of integration between levels of care, poor communication between health-care workers, and unrealistic patient expectations for cure. Perhaps the biggest obstacle is lack of resources to provide the proper services and to track outcomes.

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74. Dr. P. Loisel, personal communication, August 22, 2005.

## APPENDIX D CASE STUDY 2: COMPLEX REGIONAL PAIN SYNDROME

To highlight particular organizational issues in chronic pain management, complex regional pain syndrome (CRPS)<sup>75</sup> (Type I) was selected as a second case example for several reasons. First, unlike back pain, CRPS will most often be identified in specialist care settings (e.g., by orthopedic, neurological, and surgical specialties) and will be treated by primary care providers other than general practitioners (most often physiotherapists). Second, organizational issues in care delivery, such as early detection and timely treatment, are crucial to this patient population. If undetected and left untreated, pain and other symptoms can spread to all extremities: in this case, rehabilitation is extremely difficult [Kirkpatrick, 2003]. Third, CRPS is more common in middle age and often results in disability. Finally, this syndrome serves as a good example of the need for education for health professionals and more interdisciplinary team work [Allen et al., 1999]. We have grouped the retrieved information and research evidence according to structure and process issues in the management of CRPS patients, as elsewhere in this report. We begin case study 2 with a brief overview of CRPS, in terms of definition, prevalence, and treatment.

### OVERVIEW OF COMPLEX REGIONAL PAIN SYNDROME

#### Definition and prevalence

CRPS Type I is a chronic neurological condition characterized by burning pain and abnormalities in the sensory, motor, and autonomic nervous systems. In its initial stages, pain and swelling from an injury intensify rather than subside and spread to a larger area than the initial region affected. This injury can be non-medical in cause (e.g., damage sustained in a motor vehicle accident or fall) or the result of medical trauma (e.g., “failed” back surgery). It was first believed that CRPS presents in three stages—acute, dystrophic, and atrophic—each marked by physical changes and progressive pain; yet, views on the staging of this syndrome have been challenged [Kirkpatrick, 2003; Veldman et al., 1993]. The etiology of CRPS Type I is unknown, and only one population-based prevalence study appears to have been conducted. Sandroni et al. [2003a] conducted a database and chart-review study in Olmsted County, Minnesota (USA; including the city of Rochester) which covered the period 1989–1999; the incidence rate was 5.46 per 100,000 person-years at risk, and the period prevalence was 20.57 per 100,000. The female to male ratio was 4 to 1.

These findings, however, have been contested by CRPS experts on the grounds that the International Association for the Study of Pain (IASP) diagnostic criteria used were “too difficult to apply to a retrospective chart-review study” [Bennett and Harden, 2003, p. 209]. No specific test is available for diagnosis of CRPS Type I, and no diagnostic clinical feature identifies the syndrome [Rho et al., 2002]. The syndrome can occur at any age, but is more common between the ages of 40 and 60 years [Sandroni et al., 2003a; Baron et al., 2002]. Type I is distinguished from Type II (formerly known as causalgia) in that nerve damage can be identified in the latter condition.

#### Treatment

In the third edition of *Clinical Practice Guidelines for CRPS*, Kirkpatrick [2003] notes that the key modality for treatment of CRPS is patient education. Specifically, the patient needs to understand

75. This condition was previously known as reflex sympathetic dystrophy and has been assigned other names based on its origin, or the country or specialty concerned [Rho et al., 2002; Veldman et al., 1993].

the therapeutic goals and the pain process, and use physical therapy to resume movement of the affected body part. Normal use of the affected body part is crucial and various medical interventions (e.g., drugs, nerve blocks, spinal cord stimulator) can be used to modulate the pain so that the patient benefits from physiotherapy. Concurrently, the physician needs to determine the contribution of the sympathetic nervous system to the patient's pain. Within the clinical guidelines, there is a treatment protocol designed to rehabilitate the patient in the shortest time possible. This protocol adopts a "stepped care" approach: that is, the safest, simplest, and most cost-effective therapies are offered first. If the patient fails to progress in activating the affected extremity, it is deemed "essential" to offer the patient a series of three sympathetic blocks "immediately," although there is no consensus pertaining to the number of blocks required.<sup>76</sup> It should be noted, however, that recent reviews of the clinical literature indicate that the evidence for different treatments varies considerably [Grabow et al., 2003; Forouzanfar et al., 2002]. For example, Forouzanfar et al. concluded that "there is limited to no evidence for efficacy of sympathetic blocks, radical scavenging, prednisolone administration, acupuncture and manual lymph drainage" [Forouzanfar, 2002, p. 120], based on a review of 26 randomized controlled trials with CRPS Type I patients.

## STRUCTURE OF HEALTH-CARE SERVICES

In the following section, we have grouped the literature that addresses structure issues in the care of CRPS patients according to the role of allied health professionals, interdisciplinary care and training of health-care providers. Outcome data are presented when available.

### **Role of allied health professionals**

Kirkpatrick also proposes that "psychosocial modalities must be considered in all patients with CRPS" [Kirkpatrick, 2003, p. 13]. A psychologist is needed to evaluate and perhaps treat a patient (in conjunction with other health-care providers), especially in severe, advanced cases. The psychologist assesses pain coping skills and drug abuse potential. The patient's suicide risk also needs to be determined. If the patient is a candidate for a spinal cord stimulator, a baseline psychosocial evaluation is usually required.

Physical therapists treating CRPS may use hydrotherapy, transcutaneous electrical nerve stimulation (TENS) units, and other techniques (e.g., contrasting baths, heat, massage) to assist the patient in mobilizing the affected body part. A randomized controlled trial with CRPS Type I patients was conducted in the Netherlands [Oerlemans et al., 1999] to compare two intervention groups (receiving physical therapy or occupational therapy in 30-minute sessions; 44 patients per group were enrolled) and a control group (a social worker provided attention during 45-minute visits; 47 patients).<sup>77</sup> The patients were diagnosed in the year before the study with upper extremity pain and dysfunction. Data were collected at six weeks, and three, six and 12 months. The results supported physiotherapy, and occupational therapy to a lesser extent, for the reduction of pain and improvement of mobility (although mobility differences were no longer significant between groups after one year). Importantly, in a subsequent analysis of Oerlemans and colleagues' study, cost-effectiveness was evaluated [Severens et al., 1999]. The authors state that "incremental cost-effectiveness ratios of physiotherapy versus occupational therapy and control care [again given by social workers] were moderate or even dominant" [Severens et al., 1999, p. 1038]. The authors concluded that physiotherapy was more effective and less costly for patients with CRPS than the comparison interventions (occupational therapy or social worker care).

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76. Dr. A. Boulanger, personal communication, December 4, 2004.

77. The number of intervention or control sessions varied by patient.

## Interdisciplinary care

Rho et al. purport that “successful treatment of CRPS depends on an aggressive multidisciplinary approach” [Rho et al., 2002, p. 176]; they specifically mention that co-morbid conditions such as depression, sleep disorders and physical deconditioning need to be treated. These authors provide an algorithm for the treatment of CRPS that is similar to the guidelines outlined by Kirkpatrick [2003], except that it does not include sympathectomy or a psychosocial evaluation. In the United States, a consensus report by Stanton-Hicks et al. provided a model that was clearly more interdisciplinary in nature, including concurrent psychological, medical, and physiotherapy modalities [Stanton-Hicks et al., 1998]. In fact, this report even specified time frames for psychosocial intervention: in the first two months, no psychological counselling is needed; from two to six months, when patients start to get anxious about their prognosis, intervention is indicated; and beyond six months, all CRPS patients can benefit from various types of psychosocial intervention (e.g., family counselling, group cognitive-behavioural therapy, antidepressant medications). The consensus report includes directives for including self-management techniques (e.g., home exercise) in the last stages of an algorithm for treatment. This is an important point because the patient needs to maintain treatment gains in order to minimize dependence on invasive and technical modalities. While appreciated by some [Segal, 1999], others (such as Bonicalzi and Canavero [1999]) have noted that evidence is lacking for some of the guidelines put forward by the consensus report.

In an update of the 1998 consensus report, organizational issues—such as how and when a patient with CRPS is to be diagnosed and treated—have been elaborated upon by Stanton-Hicks et al. [2002]. The expert panel points to the importance of integrated, concurrent (rather than sequential) interdisciplinary treatment that includes pain management, rehabilitation, and psychotherapy. The guidelines specify which kind of care provider needs to do what and when. For example, in the early stages of the disease, physical and occupational therapy are key; if the patient fails to respond adequately, the next step (six weeks after onset) may include a psychological intervention to motivate the patient to adhere to treatment, learn to cope better with pain, and to address co-morbid conditions such as depression. Medical interventions—increasingly more invasive in the absence of progress within a short timeframe—are used to manage pain. Interdisciplinary collaboration between all of the health-care providers involved and the patient is crucial, as this can result in a synergistic effect.

Burton et al. [2004] surveyed pain specialists from 35 American states to ascertain current practices for CRPS patients; they were especially interested to see if the Stanton-Hicks et al. [2002] guidelines were being employed. A mail-back, cross-sectional survey, based on complete responses by 100 interventional pain specialists treating an average of 14.9 CRPS patients/month (a 23% response rate) indicated that the types and timing of interventions used were consistent with the guidelines. Treatment was multidisciplinary, with the use of psychotherapy and physiotherapy adhering to the guidelines. Nearly all respondents noted that early treatment (i.e., less than three months since onset) resulted in better clinical outcomes. Finally, it was shown that referrals for treatment mostly originated from other specialists (e.g., 32% from orthopedic surgeons, 12% from neurologists; 9% from anesthesiologists), and only occasionally from general practitioners (12%). While this study may have been biased by the low response rate it nonetheless shows that such guidelines can be useful.

It cannot be over-emphasized that health services provided by different disciplines need to be integrated in CRPS care. Allen et al. [1999] reported that a cohort of patients with CRPS (n = 134) being treated in a multidisciplinary pain clinic had, on average, been prescribed 5.2 different treatments (from 2 to 8) prior to their clinic visit, including medications, physical therapy,

occupational therapy, nerve blocks, and psychological treatment. Of even greater concern, the mean duration of CRPS symptoms was 30 months (from 2 to 168 months) prior to evaluation at the clinic.

### **Training of care providers**

Given that CRPS is a relatively rare and puzzling disease it is not surprising that education for health professionals is important with respect to diagnosis and treatment. Since a consensus has been reached that early detection is critical to the patient's prognosis, general practitioners need to be informed about CRPS [Pittman and Belgrade, 1997] and referrals to physiotherapists and/or specialists must be made quickly [Burton et al., 2004] to minimize damage and disability. In their retrospective chart review of CRPS patients in a multidisciplinary pain clinic, Allen et al. [1999] noted that only 7% had been referred by primary care physicians; this is consistent with findings by Burton et al. [2004], who surveyed pain specialists. Allen et al. [1999] suggested this low rate of referral could relate to poor diagnostic abilities of family doctors. Surgeons and those examining patients with physical trauma (e.g., orthopedic specialists) are apparently more likely to send the patient for appropriate treatment as they are more aware of the diagnosis and know that CRPS may arise following surgery.

## **KEY PROCESS ISSUES**

In this section, we examine two key process issues in CRPS: timing and discharge planning.

### **Timing**

In the third edition of *Clinical Practice Guidelines for CRPS* Kirkpatrick states: "If diagnosed early, physicians can use mobilization of the affected extremity (physical therapy) and sympathetic nerve blocks to cure or mitigate the disease. If untreated, CRPS can become extremely expensive due to permanent deformities and chronic pain" [Kirkpatrick, 2003, p. 2–3]. Early diagnosis requires the practitioner to recognize that certain CRPS features are more important indicators of the syndrome. The physician "must aggressively seek and document objective findings" (Kirkpatrick, 2003, p. 3] (e.g., temperature differences in opposite sides of the extremity). Kirkpatrick notes that the published literature suggests that the best response to sympathetic blocks will occur if they are given "as soon as possible" during the course of the disease (in clinical practice, this is within about two months<sup>78</sup>). This intervention is typically performed by a pain specialist trained in anesthesia in either a hospital department or pain clinic setting. The call for early diagnosis and treatment is supported indirectly by Sandroni et al. [2003a]: these authors reported an unexpected high rate of symptom resolution (55/74 patients; 74%) in their population-based study.<sup>79</sup> Particularly noteworthy is the statement that the study community was "medically savvy and it is possible that prompt and probably above average care resulted in better outcome" [Sandroni et al., 2003a, p. 205].

### **Discharge planning**

Given that most CRPS patients are not cured, a plan for maintenance management is necessary. In the United States, the State of Colorado, Department of Labor and Employment (Division of

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78. Dr. A. Boulanger, personal communication, December 4, 2004.

79. It should be further noted that there were cases that experienced "spontaneous" resolution in the absence of "specific intervention" (referring to "aggressive measures such as sympatholytic drugs, blocks and potent analgesics") [Sandroni et al., 2003b, p. 210], and according to resolution being recorded in the charts or other good evidence of no pain and no medication still being used. Sandroni et al. clarify that this occurred for four mildly affected patients (who had used only mild analgesics), but it is unclear whether any other resolutions in their sample could be considered "spontaneous" [Sandroni et al., 2003b].

Workers' Compensation) outlines a clear plan for long-term management of patients with CRPS in medical treatment guidelines.<sup>80</sup> This plan underscores the importance of a close working relationship between health-care providers and patients that includes the primary care physician. In addition to patient education (see next section), group and individual counselling to address psychosocial issues is recommended for 6 to 10 visits per year. Medications need to be monitored, and it is recommended that the patient see a designated primary physician four times per year (more often if using narcotics). Similar directives are given for other medical interventions (e.g., injections).

## PATIENT EDUCATION

Education of patients is equally important in CRPS because they need to actively engage in the treatment process. The plan described above from the Colorado Workers' Compensation division states that patients must be educated in self-management techniques; it is recommended that two to six educational sessions are provided per year. CRPS patients need to practice exercises, master self-management skills, and learn to cope with residual pain, when it exists. Nurses and psychologists typically teach patients these skills; books and Internet sources are also readily available [Lang and Moskovitz, 2003]. Ideally, patients would be provided with a list of evidence-based websites or literature specifically written for them, so they can be assisted in informing themselves about how to best maintain their health despite having CRPS.

## SUMMARY

While complex regional pain syndrome is a rare condition, it is critical to provide timely, integrated, multidisciplinary treatment to such patients at any level of health care at which they receive services. In order to ensure that this occurs, health-care professionals require education with respect to CRPS diagnostic criteria and treatment. Care pathways need to be clearly defined and pain management plans following discharge must be specified. Patient education and sometimes psychotherapy are needed to motivate patients and help them cope with residual pain. Finally, given that MPCs contain experts in CRPS (as well as other complex pain conditions not discussed in this report), adequate resources need to be provided to these tertiary centres.

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80. Division of Workers' Compensation. Medical Treatment Information. Available at: [http://www.coworkforce.com/DWC/Medical\\_Treatment.asp](http://www.coworkforce.com/DWC/Medical_Treatment.asp) (accessed on February 7, 2005).

## REFERENCES

- Agence de développement de réseaux locaux, de services de santé et de services sociaux (ADRLSSSS) de Montréal. Health and social service centres: At the heart of the new service organization. Montréal, QC: ADRLSSSS; 2004. Available at: [http://www.santemontreal.qc.ca/pdf/En/pdf\\_csss/csss\\_neworg.pdf](http://www.santemontreal.qc.ca/pdf/En/pdf_csss/csss_neworg.pdf) (accessed on May 4, 2005).
- Agence Nationale d'Accréditation et d'Évaluation en Santé (ANAES). Diagnostic, prise en charge et suivi des malades atteints de lombalgie chronique. Décembre 2000. Available at: [http://www.has-sante.fr/anaes/Publications.nsf/wEdition/RA\\_LILF-4Y9HJZ](http://www.has-sante.fr/anaes/Publications.nsf/wEdition/RA_LILF-4Y9HJZ) (accessed on January 17, 2005).
- Agence Nationale d'Accréditation et d'Évaluation en Santé (ANAES). Évaluation et suivi de la douleur chronique chez l'adulte en médecine ambulatoire. Paris, France: ANAES; 1999.
- Agence régionale de l'hospitalisation Rhône-Alpes (ARHRA). Groupe de travail préparation au SROS II. Prise en charge de la douleur. 1998. Available at: <http://www.satelnet.fr/arhra/douleur.htm> (accessed on March 19, 2004).
- Ahles TA, Seville J, Wasson J, Johnson D, Callahan E, Stukel TA. Panel-based pain management in primary care: A pilot study. *J Pain Symptom Manage* 2001;22(1):584-90.
- Alberta Health and Wellness. Proceedings from the Chronic Pain Initiatives Meeting, September 17, 2003. Edmonton, AB: Alberta Health and Wellness; 2003. Available at: <http://www.health.gov.ab.ca/resources/publications/ChronicPain.pdf> (accessed on January 17, 2005).
- Alberta Heritage Foundation for Medical Research (AHFMR). A selected inventory of abstracts for systematic reviews on chiropractic services. Interim report for expert advisory panel and the research team. Edmonton, AB: AHFMR; 2002.
- Allen G, Galer BS, Schwartz L. Epidemiology of complex regional pain syndrome: A retrospective chart review of 134 patients. *Pain* 1999;80(3):539-44.
- Anema JR, Van Der Giezen AM, Buijs PC, Van Mechelen W. Ineffective disability management by doctors is an obstacle for return-to-work: A cohort study on low back pain patients sicklisted for 3-4 months. *Occup Environ Med* 2002;59(11):729-33.
- Annequin D. Programme national de lutte contre la douleur : où en est-on ? *Panorama du médecin* 2004;(4926):35-50.
- Appel PR, Bleiberg J, Noiseux J. Self-regulation training for chronic pain: Can it be done effectively by telemedicine? *Telemed J E Health* 2002;8(4):361-8.
- Armstrong MP, McDonough S, Baxter GD. Clinical guidelines versus clinical practice in the management of low back pain. *Int J Clin Pract* 2003;57(1):9-13.
- Ashburn MA and Staats PS. Management of chronic pain. *Lancet* 1999;353(9167):1865-9.

- Assendelft WJ, Morton SC, Yu EI, Suttorp MJ, Shekelle PG. Spinal manipulative therapy for low back pain. *Cochrane Database Syst Rev* 2004;(1):CD000447.
- Astin JA, Shapiro SL, Eisenberg DM, Forsys KL. Mind-body medicine: State of the science, implications for practice. *J Am Board Fam Pract* 2003;16(2):131-47.
- Auquier L and Arthuis M. Les avancées dans le domaine des douleurs et de leur traitement chez l'adulte et chez l'enfant. *Bull Acad Natl Med* 2000;184(9):1907-41. Available at: [http://www.academie-medecine.fr/upload/base/rapports\\_65\\_fichier\\_lie.rtf](http://www.academie-medecine.fr/upload/base/rapports_65_fichier_lie.rtf) (accessed on February 20, 2005).
- Australian Pain Society (APS). Pain management programmes for chronic, persistent, or long lasting pain. 2002a. Available at: <http://www.apsoc.org.au/pdfs/APSpainProgs.pdf> (accessed on January 17, 2005).
- Australian Pain Society (APS). Position statement: The role of the psychologist in the management of persistent pain. 2002b. Available at: <http://www.apsoc.org.au/pdfs/PsychPosition.pdf> (accessed on January 17, 2005).
- Baron R, Fields HL, Janig W, Kitt C, Levine JD. National Institutes of Health Workshop: Reflex sympathetic dystrophy/complex regional pain syndromes—State-of-the-science. *Anesth Analg* 2002;95(6):1812-6.
- Becker N, Sjogren P, Bech P, Olsen AK, Eriksen J. Treatment outcome of chronic non-malignant pain patients managed in a Danish multidisciplinary pain centre compared to general practice: A randomised controlled trial. *Pain* 2000;84(2-3):203-11.
- Bellg AJ, Borrelli B, Resnick B, Hecht J, Minicucci DS, Ory M, et al. Enhancing treatment fidelity in health behavior change studies: Best practices and recommendations from the NIH Behavior Change Consortium. *Health Psychol* 2004;23(5):443-51.
- Bennett GJ and Harden RN. Questions concerning the incidence and prevalence of complex regional pain syndrome type I (RSD). *Pain* 2003;106(1-2):209-11.
- Bidaut-Russell M, Gabriel SE, Scott CG, Zinsmeister AR, Luthra HS, Yawn B. Determinants of patient satisfaction in chronic illness. *Arthritis Rheum* 2002;47(5):494-500.
- Birse TM and Lander J. Prevalence of chronic pain. *Can J Public Health* 1998;89(2):129-31.
- Blyth FM, March LM, Cousins MJ. Chronic pain-related disability and use of analgesia and health services in a Sydney community. *Med J Aust* 2003;179(2):84-7.
- Blyth FM, March LM, Brnabic AJ, Jorm LR, Williamson M, Cousins MJ. Chronic pain in Australia: A prevalence study. *Pain* 2001;89(2-3):127-34.
- Bond M and Breivik H. Why pain control matters in a world full of killer diseases. *Pain clinical updates* 2004;12(4):1-4.
- Bonicalzi V and Canavero S. CRPS: Are guidelines possible? *Clin J Pain* 1999;15(2):159-60.

- Breen A, Carr E, Mann E, Crossen-White H. Acute back pain management in primary care: A qualitative pilot study of the feasibility of a nurse-led service in general practice. *J Nurs Manag* 2004;12(3):201-9.
- Brekke M, Hjordt Dahl P, Kvien TK. Involvement and satisfaction: A Norwegian study of health care among 1,024 patients with rheumatoid arthritis and 1,509 patients with chronic noninflammatory musculoskeletal pain. *Arthritis Care Res* 2001;45(1):8-15.
- Bronfort G, Nilsson N, Haas M, Evans R, Goldsmith CH, Assendelft WJ, Bouter LM. Non-invasive physical treatments for chronic/recurrent headache. *Cochrane Database Syst Rev* 2004;(3): CD001878.
- Brooker AS, Sinclair SJ, Clarke J, Pennick V, Hogg-Johnson S. Effective disability management and return to work practices: What can we learn from low back pain? Available at: <http://www.qp.gov.bc.ca/rcwc/research/brooker-disability.pdf> (accessed on February 2, 2005).
- Brown CA. The beliefs of people with chronic pain in relation to “important” treatment components. *Eur J Pain* 2004;8(4):325-33.
- Buchbinder R, Jolley D, Wyatt M. Population based intervention to change back pain beliefs and disability: Three part evaluation. *BMJ* 2001;322(7301):1516-20.
- Burton AK, Waddell G, Tillotson KM, Summerton N. Information and advice to patients with back pain can have a positive effect: A randomized controlled trial of a novel educational booklet in primary care. *Spine* 1999;24(23):2484-91.
- Burton AW, Hassenbusch SJ, Warneke C, Racz G, Stanton-Hicks M. Complex Regional Pain Syndrome (CRPS): Survey of current practices. *Pain Practice* 2004;4(2):74-83.
- Buskila D, Abramov G, Biton A, Neumann L. The prevalence of pain complaints in a general population in Israel and its implications for utilization of health services. *J Rheumatol* 2000;27(6):1521-5.
- Carey TS, Garrett JM, Jackman AM. Beyond the good prognosis: Examination of an inception cohort of patients with chronic low back pain. *Spine* 2000;25(1):115-20.
- Carter JT and Birrell LN. Occupational health guidelines for the management of low back pain at work—Principal recommendations. London, England: Faculty of Occupational Medicine; 2000.
- Center for the Advancement of Health (CFAH). Selected evidence for behavioral approaches to chronic disease management in clinical settings: Chronic back pain. Washington, DC: CFAH; 2000. Available at: [http://www.cfah.org/pdfs/health\\_topic\\_back.pdf](http://www.cfah.org/pdfs/health_topic_back.pdf) (accessed on April 15, 2005).
- Centre National de Ressources de lutte contre la Douleur (CNRD). Recommandations relatives à l’organisation de la lutte contre la douleur (CLUD) dans les établissements publics et privés. Juin 1998. Available at: [http://www.cnr.fr/article.php3?id\\_article=357](http://www.cnr.fr/article.php3?id_article=357) (accessed on September 30, 2004).

- Chapman SL, Jamison RN, Sanders SH, Lyman DR, Lynch NT. Perceived treatment helpfulness and cost in chronic pain rehabilitation. *Clin J Pain* 2000;16(2):169-77.
- Chelminski PR, Ives TJ, Felix KM, Prakken SD, Miller TM, Perhac JS, et al. A primary care, multi-disciplinary disease management program for opioid-treated patients with chronic non-cancer pain and a high burden of psychiatric comorbidity. *BMC Health Serv Res* 2005;5(1):3.
- Chen PP, Chen J, Gin T, Ma M, Fung KC, Woo KH, Wong PY. Out-patient chronic pain service in Hong Kong: Prospective study. *Hong Kong Med J* 2004;10(3):150-5.
- Cherkin D and Sherman KJ. Conceptualization and evaluation of an optimal healing environment for chronic low-back pain in primary care. *J Altern Complement Med* 2004;10(Suppl 1):S171-8.
- Chronic Pain Rehabilitation Program (CPRP). Chronic Pain Rehabilitation Program manual. 5th ed. James A. Haley Veterans Hospital, Tampa, FL; 2005. Available at: <http://www.vachronicpain.org/Downloads/CPRPMan2005%20for%20web.pdf> (accessed on October 22, 2005).
- Clark ME. Chronic pain primer. James A. Haley Veterans Hospital. Department of Veteran Affairs; 2004a. Available at: <http://www.vachronicpain.org/Downloads/ChronicPainPrimerrev.PDF> (accessed on March 20, 2005).
- Clark ME. Pain treatment program models. James A. Haley Veterans Hospital. Department of Veteran Affairs; 2004b. Available at: <http://www.vachronicpain.org/Downloads/Developing%20and%20Maintaining%20Pain%20Programs.PPT> (accessed on March 20, 2005).
- Clark ME, Gironde RJ, Young RW. Development and validation of the Pain Outcomes Questionnaire-VA. *J Rehabil Res Dev* 2003;40(5):381-95.
- Cleeland CS, Reyes-Gibby CC, Schall M, Nolan K, Paice J, Rosenberg JM, et al. Rapid improvement in pain management: The Veterans Health Administration and the Institute for Healthcare Improvement Collaborative. *Clin J Pain* 2003;19(5):298-305.
- Clinical Standards Advisory Group (CSAG). Services for patients with pain. London, England: Department of Health; 2000.
- Cole DC, Ibrahim SA, Shannon HS, Scott F, Eyles J. Work correlates of back problems and activity restriction due to musculoskeletal disorders in the Canadian national population health survey (NPHS) 1994-5 data. *Occup Environ Med* 2001;58(11):728-34.
- Collège des médecins du Québec (CMQ). Traitement de la douleur : le point sur l'utilisation des narcotiques. Montréal, QC: CMQ; 1998.
- Collett BJ. The current state of pain management. *Hosp Med* 2004;65(2):70-1.
- Comité avisur. Projet de développement d'un programme national d'évaluation, de traitement et de gestion de la douleur chronique : paramètres d'organisation. Québec: ministère de la Santé et des Services sociaux; 2005.

- Côté P, Cassidy JD, Carroll L. The treatment of neck and low back pain: Who seeks care? Who goes where? *Med Care* 2001;39(9):956-67.
- Coyte PC, Asche CV, Croxford R, Chan B. The economic cost of musculoskeletal disorders in Canada. *Arthritis Care Res* 1998;11(5):315-25.
- Craine M and Kerns RD. Pain management improvement strategies in the Veteran's Health Administration. *APS Bulletin* 2003;13(5). Available at: <http://www.ampainsoc.org/pub/bulletin/sep03/article1.htm> (accessed on January 24, 2005).
- Damush TM, Weinberger M, Perkins SM, Rao JK, Tierney WM, Qi R, Clark DO. Randomized trial of a self-management program for primary care patients with acute low back pain: Short-term effects. *Arthritis Rheum* 2003;49(2):179-86.
- Danish Institute for Health Technology Assessment (DIHTA). Low-back pain: Frequency, management and prevention from an HTA perspective. DIHTA; 1999. Available at: [http://www.chiro.org/LINKS/GUIDELINES/FULL/Low\\_Back\\_Pain\\_Frequency\\_Management.html](http://www.chiro.org/LINKS/GUIDELINES/FULL/Low_Back_Pain_Frequency_Management.html) (accessed on February 16, 2005).
- Département de Santé Publique – Hôpital Paul Brousse. Évaluation de la prise en charge de la douleur : point de vue des patients. Enquête 2000. Villejuif, France: Département de Santé Publique – Paul Brousse; 2001. Available at: <http://interclud.ap-hp.fr/ext/Questionnaires/pbr2000res.pdf>.
- Dewar A, White M, Posade ST, Dillon W. Using nominal group technique to assess chronic pain, patients' perceived challenges and needs in a community health region. *Health Expect* 2003;6(1):44-52.
- Dey P, Simpson CW, Collins SI, Hodgson G, Dowrick CF, Simison AJ, Rose MJ. Implementation of RCGP guidelines for acute low back pain: A cluster randomised controlled trial. *Br J Gen Pract* 2004;54(498):33-7.
- Domecq S, de Sarasqueta A-M, Michel P et le groupe projet « douleur » du CCECQA. Évaluation de la prise en charge de la douleur dans 13 établissements de santé d'Aquitaine, 2000-2001. Bordeaux, France: Comité de Coordination de l'Évaluation Clinique et de la Qualité en Aquitaine (CCECQA); 2002.
- Donabedian A. Evaluating the quality of medical care. *Milbank Mem Fund Q* 1966;44:166-206.
- Dr Foster, Long-term Medical Conditions Alliance (LMCA), UK Patients Association. Adult chronic pain management services in primary care. London, England: Dr Foster; 2004.
- Dr Foster, The Pain Society. Adult chronic pain management services in the UK. London, England: Dr Foster; 2003.
- Duplan B and Guillet J-M. Approches multidisciplinaires de la douleur lombaire : l'expérience française. Du conditionnement à l'effort à l'approche psychosomatique. *Rev Rhum* 2001;68(2):170-4.

- Duquesnoy B, Duplan B, Legrand E, Avouac B. Recommandations de la Section rachis de la Société française de rhumatologie sur l'approche multidisciplinaire de la douleur lombaire. *Rev Rhum* 2001;68(2):192-4.
- Ehrlich GE. Low back pain. *Bull World Health Organ* 2003a;81(9):671-6.
- Ehrlich GE. Back pain. *J Rheumatol Suppl* 2003b;67:26-31.
- Elliott AM, Smith BH, Penny KI, Smith WC, Chambers WA. The epidemiology of chronic pain in the community. *Lancet* 1999;354(9186):1248-52.
- Eriksen J, Jensen MK, Sjogren P, Ekholm O, Rasmussen NK. Epidemiology of chronic nonmalignant pain in Denmark. *Pain* 2003;106(3):221-8.
- Ernst E. Chiropractic manipulation for non-spinal pain: A systematic review. *N Z Med J* 2003;116(1179):U539.
- Evans RL, Maiers MJ, Bronfort G. What do patients think? Results of a mixed methods pilot study assessing sciatica patients' interpretations of satisfaction and improvement. *J Manipulative Physiol Ther* 2003;26(8):502-9.
- Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists. Application for specialty recognition by the Faculty of Pain Medicine to the Australian Medical Council. Melbourne, Australia: ANZCA; 2003. Available at: [http://www.fpm.anzca.edu.au/documents/amcsub/FPM\\_AMCSub.pdf](http://www.fpm.anzca.edu.au/documents/amcsub/FPM_AMCSub.pdf).
- Farley DO, Vernez G, Nicholas W, Quiter ES, Dydek GJ, Pieklik S, Cretin S. Evaluation of the low back pain practice guideline implementation in the Army Medical Department. Santa Monica, CA: Rand Corporation; 2004. Available at: [http://www.rand.org/pubs/monograph\\_reports/2005/MR1758.pdf](http://www.rand.org/pubs/monograph_reports/2005/MR1758.pdf) (accessed on February 20, 2005).
- Fautrel B, Adam V, St-Pierre Y, Joseph L, Clarke AE, Penrod JR. Use of complementary and alternative therapies by patients self-reporting arthritis or rheumatism: Results from a nationwide Canadian survey. *J Rheumatol* 2002;29(11):2435-41.
- Fisher P, van Haselen R, Hardy K, Berkovitz S, McCarney R. Effectiveness gaps: A new concept for evaluating health service and research needs applied to complementary and alternative medicine. *J Altern Complement Med* 2004;10(4):627-32.
- Flor H, Fydrich T, Turk DC. Efficacy of multidisciplinary pain treatment centers: A meta-analytic review. *Pain* 1992;49(2):221-30.
- Forouzanfar T, Koke AJ, van Kleef M, Weber WE. Treatment of complex regional pain syndrome type I. *Eur J Pain* 2002;6(2):105-22.
- French S. Multidisciplinary care for chronic low back pain. Clayton, Australia: Center for Clinical Effectiveness, Monash Institute of Health Services Research; 2003. Available at: <http://www.med.monash.edu.au/healthservices/cce/evidence/pdf/b/990ca.pdf> (accessed on January 17, 2005).

- Fricker J. Pain in Europe: A report. 2003. Available at: [www.painineurope.com](http://www.painineurope.com) (accessed on March 23, 2005).
- Genêt F, Poiraudau S, Revel M. [Effectiveness and compliance to a center-based short rehabilitation program with a home-based program for chronic low back pain]. *Ann Readapt Med Phys* 2002;45(6):265-72 (article in French whose original title is: Étude de l'efficacité et de l'observance à un an d'un programme court de rééducation assorti d'un autoprogramme dans la lombalgie chronique).
- George C. The six-month incidence of clinically significant low back pain in the Saskatchewan adult population. *Spine* 2002;27(16):1778-82.
- Giles LG, Muller R, Winter GJ. Patient satisfaction, characteristics, radiology, and complications associated with attending a specialized government-funded multidisciplinary spinal pain unit. *J Manipulative Physiol Ther* 2003;26(5):293-9.
- Glajchen M. Chronic pain: Treatment barriers and strategies for clinical practice. *J Am Board Fam Pract* 2001;14(3):211-8.
- Glasgow RE, Davidson KW, Dobkin PL, Ockene J, Spring B. Practical behavioral trials to advance evidence-based behavioral medicine. *Ann Behav Med* 2006;31(1):5-13.
- Glasgow RE. A practical model of diabetes management and education. *Diabetes Care* 1995;18(1):117-26.
- Golden BR and Martin RL. Aligning the stars: Using systems thinking to (re)design Canadian healthcare. *Healthc Q* 2004;7(4):34-42.
- Goodyear-Smith FA and Arroll B. GP management and referral of low back pain: A Delphi and evidence-based study. *NZFP* 2002;29(2):102-7.
- Grabow TS, Tella PK, Raja SN. Spinal cord stimulation for complex regional pain syndrome: An evidence-based medicine review of the literature. *Clin J Pain* 2003;19(6):371-83.
- Gross AR, Hoving JL, Haines TA, Goldsmith CH, Kay T, Aker P, Bronfort G. Manipulation and mobilisation for mechanical neck disorders. *Cochrane Database Syst Rev* 2002;(1):CD004249.
- Gureje O, Simon GE, Von Korff M. A cross-national study of the course of persistent pain in primary care. *Pain* 2001;92(1-2):195-200.
- Gureje O, Von Korff M, Simon GE, Gater R. Persistent pain and well-being: A World Health Organization study in primary care. *JAMA* 1998;280(2):147-51.
- Guzmán J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C. Multidisciplinary bio-psycho-social rehabilitation for chronic low back pain. *Cochrane Database Syst Rev* 2002;(1):CD000963.

- Guzmán J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C. Multidisciplinary rehabilitation for chronic low back pain: Systematic review. *BMJ* 2001;322(7301):1511-6.
- Harrington JT, Dopf CA, Chalgren CS. Implementing guidelines for interdisciplinary care of low back pain: A critical role for pre-appointment management of specialty referrals. *Jt Comm J Qual Improv* 2001;27 (12):651-63.
- Health and Welfare Canada. Guidelines for establishing standards for chronic-pain programs. Report of the Subcommittee on Institutional Program Guidelines. Ottawa, ON: Health Services and Promotion Branch; 1990.
- Henry JL and Canadian Consortium on Pain Mechanisms, Diagnosis and Management (CCPMDM). First annual report, 1999-2000. Montréal, QC: CCPMDM; 2000. Available at: <http://www.curepain.ca/final.pdf>.
- Hertzman-Miller RP, Morgenstern H, Hurwitz EL, Yu F, Adams AH, Harber P, Kominski GF. Comparing the satisfaction of low back pain patients randomized to receive medical or chiropractic care: Results from the UCLA low-back pain study. *Am J Public Health* 2002;92(10):1628-33.
- Hirszowski F, Diez F, Boureau F, Association Ville-hôpital de lutte contre la douleur (Paris). La douleur, le réseau et le médecin généraliste. Montrouge: John Libbey Eurotext; 2001.
- Hudak PL and Wright JG. The characteristics of patient satisfaction measures. *Spine* 2000;25(24):3167-77.
- Institut de la statistique du Québec (ISQ). Enquête sociale et de santé 1998. 2nd ed. ISQ; 2001. Available at: [http://www.stat.gouv.qc.ca/publications/sante/pdf/e\\_soc98v2-9.pdf](http://www.stat.gouv.qc.ca/publications/sante/pdf/e_soc98v2-9.pdf) (accessed on May 10, 2005).
- Institute for Clinical Systems Improvement (ICSI). Health Care Guideline: Adult low back pain. 10th ed. Bloomington, MN: ICSI; 2004.
- International Association for the Study of Pain (IASP). Physical therapy for chronic pain. *Pain Clinical Updates* 1998;6(3):1-4. Available at: <http://www.iasp-pain.org/PCU98c.html> (accessed on May 10, 2005).
- International Association for the Study of Pain (IASP). Desirable characteristics for pain treatment facilities. 1990. Available at: <http://www.iasp-pain.org/desirabl.html> (accessed on October 14, 2005).
- Iron KS, Manuel DG, Williams J. Using a linked data set to determine the factors associated with utilization and costs of family physician services in Ontario: Effects of self-reported chronic conditions. *Chronic Dis Can* 2003;24(4):124-32.
- Jackson M. Pain: The fifth vital sign. Toronto, ON: Random House, 2002.

- Jensen TS, Wilson PR, Rice ASC, ed. Chronic Pain. In: Rice ASC, Warfield CA, Justins D, Eccleston C, ed. *Clinical Pain Management*. London, England: Arnold; 2003.
- Johansen B, Mainz J, Sabroe S, Manniche C, Leboeuf-Yde C. Quality improvement in an outpatient department for subacute low back pain patients: Prospective surveillance by outcome and performance measures in a health technology assessment perspective. *Spine* 2004;29(8):925-31.
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and National Pharmaceutical Council (NPC). Improving the quality of pain management through measurement and action. Oakbrook Terrace, IL: JCAHO-NPC; 2003. Available at: <http://www.npcnow.org/resources/PDFs/PainMonograph2.pdf> (accessed on May 26, 2005).
- Jovey RM, Ennis J, Gardner-Nix J, Goldman B, Hays H, Lynch M, Moulin D. Use of opioid analgesics for the treatment of chronic noncancer pain—A consensus statement and guidelines from the Canadian Pain Society, 2002. *Pain Res Manag* 2003;8(Suppl A):3A-14A.
- Karjalainen K, Malmivaara A, van Tulder M, Roine R, Jauhiainen M, Hurri H, Koes B. Multidisciplinary biopsychosocial rehabilitation for subacute low back pain among working age adults. *Cochrane Database Syst Rev* 2003;(2):CD002193.
- Katon W, Von Korff M, Lin E, Simon G. Rethinking practitioner roles in chronic illness: The specialist, primary care physician, and the practice nurse. *Gen Hosp Psychiatry* 2001;23(3):138-44.
- Kerns RD. Clinical research as a foundation for Veterans Health Administration Pain Management Strategy. *J Rehabil Res Dev* 2003;40(5):ix-xi.
- Kirkpatrick AF, ed. *Clinical practice guidelines: Reflex sympathetic dystrophy / Complex regional pain syndrome*. 3rd ed. International Research Foundation for RSD/CRPS; 2003. Available at: [http://www.rsdfoundation.org/en/en\\_clinical\\_practice\\_guidelines\\_pf.html](http://www.rsdfoundation.org/en/en_clinical_practice_guidelines_pf.html) (accessed on March 23, 2005).
- Koes BW, van Tulder MW, Ostelo R, Kim Burton A, Waddell G. Clinical guidelines for the management of low back pain in primary care: An international comparison. *Spine* 2001;26(22):2504-14.
- Kopec JA, Sayre EC, Esdaile JM. Predictors of back pain in a general population cohort. *Spine* 2004;29(1):70-8.
- Lang E, Liebig K, Kastner S, Neundorfer B, Heuschmann P. Multidisciplinary rehabilitation versus usual care for chronic low back pain in the community: Effects on quality of life. *Spine J* 2003;3(4):270-6.
- Lang L and Moskovitz P. *Living with RSDS*. Oakland, CA: New Harbringer Publications; 2003.
- Laurent B. Les centres antidouleur « de référence » en question. In: *Organisation de la prise en charge de la douleur : repères pour les décideurs*. France: Ministère de la santé, de la famille et des personnes handicapées. 2002.

- Linton SJ. A review of psychological risk factors in back and neck pain. *Spine* 2000;25(9):1148-56.
- Linton SJ. The socioeconomic impact of chronic back pain: Is anyone benefiting? *Pain* 1998;75(2-3): 163-8.
- Little P, Roberts L, Blowers H, Garwood J, Cantrell T, Langridge J, Chapman J. Should we give detailed advice and information booklets to patients with back pain? A randomized controlled factorial trial of a self-management booklet and doctor advice to take exercise for back pain. *Spine* 2001;26(19):2065-72.
- Loisel P, Durand MJ, Diallo B, Vachon B, Charpentier N, Labelle J. From evidence to community practice in work rehabilitation: The Québec experience. *Clin J Pain* 2003a;19(2):105-13.
- Loisel P, Durand MJ, Vachon B, Lemaire J, Poitras S, Stock S. Exploitation de la base de données recueillies dans le projet Sherbrooke sur la prise en charge des dorso-lombalgies reliées avec un suivi de 6,4 ans. Montréal, Québec: Institut de recherche Robert-Sauvé en santé et en sécurité de travail; 2003b. Available at : [http://www.irsst.qc.ca/fr/\\_publicationirsst\\_100009.html](http://www.irsst.qc.ca/fr/_publicationirsst_100009.html) (accessed on April 4, 2006).
- Loisel P, Lemaire J, Poitras S, Durand MJ, Champagne F, Stock S, et al. Cost-benefit and costeffectiveness analysis of a disability prevention model for back pain management: A six year follow up study. *Occup Environ Med* 2002;59(12):807-15.
- Loisel P, Abenhaim L, Durand P, Esdaile JM, Suissa S, Gosselin L, et al. A population-based, randomized clinical trial on back pain management. *Spine* 1997;22(24):2911-8.
- Loisel P, Durand P, Gosselin L, Simard R, Turcotte J. La clinique des maux de dos – Un modèle de prise en charge, en prévention de la chronicité. Montréal, Québec: Institut de recherche Robert-Sauvé en santé et en sécurité de travail; 1996. Available at : [http://www.irsst.qc.ca/fr/\\_publicationirsst\\_437.html](http://www.irsst.qc.ca/fr/_publicationirsst_437.html) (accessed on April 4, 2006).
- Lorig KR, Laurent DD, Deyo RA, Marnell ME, Minor MA, Ritter PL. Can a back pain e-mail discussion group improve health status and lower health care costs? A randomized study. *Arch Intern Med* 2002;162(7):792-6.
- Lothon-Demerliac C, Laurent-Beq A, Marec P. Évaluation du plan triennal de lutte contre la douleur – Résultats principaux. Vandoeuvre-lès-Nancy, France: Société française de santé publique; 2001. Available at: <http://interclud.ap-hp.fr/ext/Juridic/evalplan1.pdf> (accessed on February 25, 2005).
- Maddison P, Jones J, Breslin A, Barton C, Fleur J, Lewis R, et al. Improved access and targeting of musculoskeletal services in northwest Wales: Targeted early access to musculoskeletal services (TEAMS) programme. *BMJ* 2004;329(7478):1325-7.
- Maetzel A and Li L. The economic burden of low back pain: A review of studies published between 1996 and 2001. *Best Pract Res Clin Rheumatol* 2002;16(1):23-30.

- Main CJ and Williams AC. ABC of psychological medicine: Musculoskeletal pain. *BMJ* 2002;325(7363):534-7.
- Manchikanti L, Rivera JJ, Pampati V, Beyer C, Damron K, Barnhill RC. Effectiveness of clinical guidelines in interventional pain management. *Pain Physician* 2002;5(2):127-32.
- Maniadakis N and Gray A. The economic burden of back pain in the UK. *Pain* 2000;84(1):95-103.
- Mantyselka P, Kumpusalo E, Ahonen R, Kumpusalo A, Kauhanen J, Viinamaki H, et al. Pain as a reason to visit the doctor: A study in Finnish primary health care. *Pain* 2001;89(2-3):175-80.
- Marcus DA. Tips for managing chronic pain. Implementing the latest guidelines. *Postgrad Med* 2003;113(4):49-60.
- Masters S. Back pain: The Australian experience. *Aust Fam Physician* 2004;33(6):389.
- May S. Patient satisfaction with management of back pain. Part 2: An explorative, qualitative study into patients' satisfaction with physiotherapy. *Physiotherapy* 2000;87(1):10-20.
- McCracken LM, Evon D, Karapas ET. Satisfaction with treatment for chronic pain in a specialty service: Preliminary prospective results. *Eur J Pain* 2002;6(5):387-93.
- McGuirk B, King W, Govind J, Lowry J, Bogduk N. Safety, efficacy, and cost effectiveness of evidence based guidelines for the management of acute low back pain in primary care. *Spine* 2001;26(23):2615-22.
- McWilliams LA, Cox BJ, Enns MW. Mood and anxiety disorders associated with chronic pain: An examination in a nationally representative sample. *Pain* 2003;106(1-2):127-33.
- Millar WJ. Chronic pain. *Health Rep* 1996;7(4):47-53.
- Ministère de la santé, de la famille et des personnes handicapées (MSFPH). Guide pour la mise en place d'un programme de lutte contre la douleur dans les établissements de santé. Paris, France: MSFPH; 2002.
- Ministère de la santé, de la famille et des personnes handicapées (MSFPH). Le programme de lutte contre la douleur 2002-2005. 2001. Available at: <http://www.sante.gouv.fr/htm/actu/douleur/prog.htm> (accessed on September 30, 2004).
- Mootz RD, Hansen DT, Souza TA, Triano JJ, Wiese BC. Application of incremental change strategies in chiropractic and multidisciplinary clinical settings for quality improvement. *Qual Manag Health Care* 2000;8(3):42-64.
- Moulin DE, Clark AJ, Speechley M, Morley-Forster PK. Chronic pain in Canada—Prevalence, treatment, impact and the role of opioid analgesia. *Pain Res Manag* 2002;7(4):179-84.
- National Institute of Clinical Studies (NICS). Institutional approaches to pain assessment and management. Adelaide, South Australia: University of Adelaide, Department of Public Health; 2003.

- National VA Pain Outcomes Working Group and Pain Management Coordinating Committee. VHA Pain Outcomes Toolkit. Washington, DC: Department of Veterans Affairs; 2003. Available at: <http://www.vachronicpain.org/Downloads/TOOL%20KIT%20OUTCOMES%20FINAL2.PDF> (accessed on October 22, 2005).
- Negrini S, Politano E, Carabalona R, Mambrini A. General practitioners' management of low back pain: Impact of clinical guidelines in a non-English-speaking country. *Spine* 2001;26(24):2727-34.
- Nicholas M, Molloy A, Tonkin L, Beeston L. *Manage your pain. Practical and positive ways of adapting to chronic pain.* Sydney, Australia: ABC Books; 2000.
- Nicholas MK. When to refer to a pain clinic. *Best Pract Res Clin Rheumatol* 2004;18(4):613-29.
- NSW Telehealth. Bridging the distance for people with chronic pain. Telehealth, July 2002. Available at: <http://www.health.nsw.gov.au/pmd/telehealth/002serv/docs/IAHS.pdf> (accessed on October 20, 2005).
- Nyiendo J, Haas M, Goodwin P. Patient characteristics, practice activities, and one-month outcomes for chronic, recurrent low-back pain treated by chiropractors and family medicine physicians: A practice-based feasibility study. *J Manipulative Physiol Ther* 2000;23(4):239-45.
- Oerlemans HM, Oostendorp RA, de Boo T, Goris RJ. Pain and reduced mobility in complex regional pain syndrome I: Outcome of a prospective randomised controlled clinical trial of adjuvant physical therapy versus occupational therapy. *Pain* 1999;83(1):77-83.
- Ohayon MM and Schatzberg AF. Using chronic pain to predict depressive morbidity in the general population. *Arch Gen Psychiatry* 2003;60 (1):39-47.
- Ospina M and Harstall C. *Multidisciplinary pain programs for chronic pain: Evidence from systematic reviews [HTA 30].* Edmonton, AB: Alberta Heritage Foundation for Medical Research (AHFMR); 2003.
- Ospina M and Harstall C. *Prevalence of chronic pain: An overview [HTA 29].* Edmonton, AB: Alberta Heritage Foundation for Medical Research (AHFMR); 2002.
- Ostelo RW, Tulder MW, Vlaeyen JW, Linton SJ, Morley SJ, Assendelft WJ. Behavioural treatment for chronic low-back pain. *Cochrane Database Syst Rev* 2005;(1):CD002014.
- The Pain Society. *Recommendations for nursing practice in pain management.* London, England: The Pain Society; 2002.
- Peat GM, Moores L, Goldingay S, Hunter M. Pain management program follow-ups: A national survey of current practice in the United Kingdom. *J Pain Symptom Manage* 2001;21(3):218-26.
- Perez CE. Chronic back problems among workers. *Health Rep* 2000;12(1):41-55.

- Phillips CJ. [Pain management: health economics and quality of life considerations]. *Drugs* 2003;63 Spec No 2:47-50 (article in French whose original title is: Prise en charge de la douleur : réflexions sur l'économie de la santé et la qualité de vie).
- Phillips DM. JCAHO pain management standards are unveiled. Joint Commission on Accreditation of Healthcare Organizations. *JAMA* 2000;284(4):428-9.
- Pinnington MA, Miller J, Stanley I. An evaluation of prompt access to physiotherapy in the management of low back pain in primary care. *Fam Pract* 2004;21(4):372-80.
- Pittman DM and Belgrade MJ. Complex regional pain syndrome. *Am Fam Physician* 1997;56(9):2265-70, 2275-6.
- Rapoport J, Jacobs P, Bell NR, Klarenbach S. Refining the measurement of the economic burden of chronic diseases in Canada. *Chronic Dis Can* 2004;25(1):13-21.
- Régie régionale de la santé et des services sociaux de Montréal-Centre (RRSSS Montréal-Centre). Action for access: Montréal organisation plan for general medical services and medical staffing. Montréal, QC: RRSSS Montréal-Centre; 2003.
- Registered Nurses Association of Ontario (RNAO). Assessment and management of pain. Toronto, ON: RNAO; 2002.
- Rho RH, Brewer RP, Lamer TJ, Wilson PR. Complex regional pain syndrome. *Mayo Clin Proc* 2002;77(2):174-80.
- Richard A. Les centres anti douleur – organisation : principes de prise en charge des patients. Cours des CSD St-Étienne. 2002. Available at: <http://www.univ-st-etienne.fr/stephado/du/courdu/arcad.htm> (accessed on March 31, 2004).
- Roland M, Waddell G, Klaber-Mofett J, Burton AK, Main CJ, Cantrell T. *The back book*. Norwick, UK: Stationary Office; 1996.
- Rossignol M, Abenham L, Seguin P, Neveu A, Collet JP, Ducruet T, Shapiro S. Coordination of primary health care for back pain. A randomized controlled trial. *Spine* 2000;25(2):251-9.
- Sandroni P, Benrud-Larson LM, McClelland RL, Low PA. Complex regional pain syndrome type I: Incidence and prevalence in Olmsted county, a population-based study. *Pain* 2003a;103(1-2):199-207.
- Sandroni P, Benrud-Larson LM, McClelland RL, Low PA. Letter to the Editor [Authors' reply]. *Pain* 2003b;103(1-2):210-1.
- Schopfloch DP. Chronic pain in Alberta: A portrait from the 1996 National Population Health Survey and the 2001 Canadian Community Health Survey. Edmonton, AB: Health Surveillance, Alberta Health and Wellness; 2003. Available at: <http://www.health.gov.ab.ca/public/diseases/pdf/ChronicPainReport.pdf> (accessed on January 17, 2005).
- Segal R. Consensus report therapy guidelines for CRPS. *Clin J Pain* 1999;15(2):154-5.

- Severens JL, Oerlemans HM, Weegels AJ, van't Hof MA, Oostendorp RA, Goris RJ. Costeffectiveness analysis of adjuvant physical or occupational therapy for patients with reflex sympathetic dystrophy. *Arch Phys Med Rehabil* 1999;80(9):1038-43.
- Sitzia J and Wood N. Patient satisfaction: A review of issues and concepts. *Soc Sci Med* 1997;45(12): 1829-43.
- Stannard C and Johnson M. Chronic pain management—Can we do better? An interview-based survey in primary care. *Curr Med Res Opin* 2003;19(8):703-6.
- Stanton-Hicks MD, Burton AW, Bruehl SP, Carr DB, Harden RN, Hassenbusch SJ, et al. An updated interdisciplinary clinical pathway for CRPS: Report of an expert panel. *Pain Practice* 2002; 2(1):1-16.
- Stanton-Hicks M, Baron R, Boas R, Gordh T, Harden N, Hendler N, et al. Complex Regional Pain Syndromes: Guidelines for therapy. *Clin J Pain* 1998;14(2):155-66.
- Swedish Council on Technology Assessment in Health Care (SBU). Back pain, neck pain: An evidence based review. Stockholm, Sweden: SBU; 2000.
- Taenzer P, Wiebe V, Braun, T. The Calgary model: Challenges and solutions. *Pain Res Manag* 2005;10(2):81 (abstract).
- Teasell RW and Merskey H. Chronic pain disability in the workplace. *Pain Res Manag* 1997; 2(4):197-205. Available at: [http://www.pulsus.com/Pain/02\\_04/teas\\_ed.htm](http://www.pulsus.com/Pain/02_04/teas_ed.htm) (accessed on January 17, 2005).
- Thomsen AB, Sorensen J, Sjogren P, Eriksen J. Economic evaluation of multidisciplinary pain management in chronic pain patients: A qualitative systematic review. *J Pain Symptom Manage* 2001;22(2):688-98.
- Tornkvist L, Gardulf A, Strender LE. Effects of “pain-advisers”: District nurses’ opinions regarding their own knowledge, management and documentation of patients in chronic pain. *Scand J Caring Sci* 2003;17(4):332-8.
- Tunks E, Crook J, Crook M. The natural history and efficacy of treatment of chronic pain arising from musculoskeletal injury. Victoria, BC: Royal Commission on Workers’ Compensation in British Columbia; 1999. Available at: <http://www.qp.gov.bc.ca/rcwc/research/tunks-treatment.pdf> (accessed on February 5, 2005).
- Turk DC. Chronic non-malignant pain patients and health economic consequences. *Eur J Pain* 2002; 6(5):353-5.
- Turk DC and Dworkin RH. What should be the core outcomes in chronic pain clinical trials? *Arthritis Res Ther* 2004;6(4):151-4
- Turk DC, Dworkin RH, Allen RR, Bellamy N, Brandenburg N, Carr DB, et al. Core outcome domains for chronic pain clinical trials: IMMPACT recommendations. *Pain* 2003;106(3):337-45.

- Turk DC, Okifuji A, Kalauokalani D. Clinical outcome and economic evaluation of multidisciplinary pain centers. In: Block AR, Kremer EF, Fernandez E, ed. Handbook of pain syndromes: Biopsychosocial perspectives. Mahwah, NJ: Erlbaum Associates; 1999: 77-98.
- Udermann BE, Spratt KF, Donelson RG, Mayer J, Graves JE, Tillotson J. Can a patient educational book change behavior and reduce pain in chronic low back pain patients? *Spine J* 2004;4(4): 425-35.
- UK Department of Health (NHS). PRODIGY guidance for lower back pain. NHS; 2002. Available at: <http://www.prodigy.nhs.uk/guidance.asp?gt=back%20pain%20-%20lower> (accessed on February 16, 2005).
- UK Government Statistical Service. The prevalence of back pain in Great Britain in 1998. London, England: GSS; 1999.
- University of Michigan Health System (UMHS). Acute low back pain. Ann Arbor, MI: UMHS; 2003.
- Van Den Kerkhof EG, Hopman WM, Towheed TE, Anastassiades TP, Goldstein DH. The impact of sampling and measurement on the prevalence of self-reported pain in Canada. *Pain Res Manag* 2003;8(3):157-63.
- van Tulder M and Koes B. Low back pain (chronic). *Clin Evid* 2004;(12):1657-82.
- van Tulder MW, Esmail R, Bombardier C, Koes BW. Back schools for non-specific low back pain. *Cochrane Database Syst Rev* 2000a;(2):CD000261.
- van Tulder MW, Ostelo RW, Vlaeyen JW, Linton SJ, Morley SJ, Assendelft WJ. Behavioural treatment for chronic low back pain. *Cochrane Database Syst Rev* 2000b;(2):CD002014.
- Veillette Y. L'interdisciplinarité dans la gestion de la douleur chronique. Congrès annuel de la Société québécoise de la douleur, Montréal, October 22, 2004. Montréal, QC: OPPQ; 2004.
- Veillette Y, Dion D, Altier N, Choinière M. The treatment of chronic pain in Québec. A study of hospital-based services offered within anaesthesia departments. *Can J Anaesth* 2005;52(6):600-6.
- Veldman PH, Reynen HM, Arntz IE, Goris RJ. Signs and symptoms of reflex sympathetic dystrophy: Prospective study of 829 patients. *Lancet* 1993;342(8878):1012-6.
- Veterans Health Administration (VHA). Pain Management. VHA National Pain Management Strategy. 1998. Available at: [http://www1.va.gov/Pain\\_Management/page.cfm?pg=11](http://www1.va.gov/Pain_Management/page.cfm?pg=11) (accessed on October 14, 2005).
- Von Korff M and Moore JC. Stepped care for back pain: Activating approaches for primary care. *Ann Intern Med* 2001;134(9 Pt 2):911-7.
- Von Korff M and Tiemens B. Individualized stepped care of chronic illness. *West J Med* 2000;172(2): 133-7.

- Von Korff M, Glasgow RE, Sharpe M. ABC of psychological medicine: Organising care for chronic illness. *BMJ* 2002;325(7355):92-4.
- Von Korff M, Gruman J, Schaefer J, Curry SJ, Wagner EH. Collaborative management of chronic illness. *Ann Intern Med* 1997;127(12):1097-102.
- Wickizer TM, Franklin G, Fulton-Kehoe D, Turner JA, Mootz R, Smith-Weller T. Patient satisfaction, treatment experience, and disability outcomes in a population-based cohort of injured workers in Washington State: Implications for quality improvement. *Health Serv Res* 2004;39(4 Pt 1):727-48.
- Wiecha J and Pollard T. The interdisciplinary eHealth team: Chronic care for the future. *J Med Internet Res* 2004;6(3):e22.
- Wilder-Smith OH, Mohrle JJ, Dolin PJ, Martin NC. The management of chronic pain in Switzerland: A comparative survey of Swiss medical specialists treating chronic pain. *Eur J Pain* 2001; 5:285-98.
- Wilkes LM, Castro M, Mohan S, Sundaraj SR, Noore F. Health status of patients with chronic pain attending a pain center. *Pain Manag Nurs* 2003;4(2):70-6.
- Wilson KG, Eriksson MY, D'Eon JL, Mikail SF, Emery PC. Major depression and insomnia in chronic pain. *Clin J Pain* 2002;18(2):77-83.
- Wisconsin Medical Society Task Force on Pain Management. Guidelines for the assessment and management of chronic pain. *WMJ* 2004;103(3):13-42.
- Wolsko PM, Eisenberg DM, Davis RB, Phillips RS. Use of mind-body medical therapies. *J Gen Intern Med* 2004;19(1):43-50.

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