



Health  
Canada

Santé  
Canada

# Methadone Maintenance Treatment



# **M**ethadone Maintenance Treatment

Our mission is to help the people of Canada  
maintain and improve their health.

*Health Canada*

Publication authorized by the  
Minister of Health.

This publication can be made available in alternative formats upon request  
(computer diskette/large print/audio-cassette/braille).

This publication is also available on internet at the following address:  
[www.cds-sca.com](http://www.cds-sca.com)

For additional copies, please contact:

Publications  
Health Canada  
Ottawa, Ontario  
K1A 0K9

Tel: (613) 954-5995

Fax: (613) 941-5366

Ce document est aussi offert en français sous le titre :

*Traitement d'entretien à la méthadone*

*The opinions expressed in this publication are those of the authors and do not  
necessarily reflect the views of Health Canada.*

© Her Majesty the Queen in Right of Canada, 2002

Cat. H49-163/2002E

ISBN 0-662-66319-5

## **W**hat is Opioid Dependence?

According to the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* criteria, opioid dependence includes both physical dependence on – and uncontrolled compulsive use of opioids despite harm.<sup>1</sup> Opioids include drugs that may be injected, snorted, smoked, or taken orally, such as heroin (diacetylmorphine), morphine or hydromorphone.

## **W**hat is the Impact of Opioid Dependence?

People who are dependent on opioids often lead extremely stressful and chaotic lives, and frequently experience serious health and social problems as a result of their dependence. They are at high risk of premature death from accidental drug overdose, drug-related accidents, or violence. Sharing needles, syringes, straws, cookers or other contaminated drug-taking equipment, for example, places them at high risk of acquiring human immunodeficiency virus (HIV), hepatitis C virus (HCV) or other blood-borne pathogens.

The problem of opioid dependence may be exacerbated by multiple substance use, as well as factors such as poverty and homelessness. Mental health disorders – such as depression, antisocial personality disorder and anxiety disorders – are also common. Often, people who are dependent on opioids have experienced a long history of rejection, exclusion and incarceration, which reinforces their sense of alienation and antagonism. They may have little sense of control over their lives.

Opioid dependence is also a costly social problem. The number of people in Canada who regularly use heroin has been estimated at between 40,000-90,000.<sup>2</sup> Untreated, opioid dependence involves significant costs related to criminal activity, medical care, drug treatment, lost productivity, and an increase in the transmission of HIV, HCV and other blood-borne pathogens.<sup>3</sup> In 1996, approximately half of the estimated 4,200 new HIV infections that occurred in Canada were among injection drug users.<sup>4</sup> According to the Laboratory Centre for Disease Control<sup>5</sup>, at least 70% of prevalent

HCV infections are related to injection drug use. Some populations of individuals who are dependent on opioids are particularly vulnerable to the dual problem of injection drug use and infection with HIV, HCV or other blood-borne pathogens including women, street youth, offenders in correctional facilities, and Aboriginal people.<sup>6</sup>

Overall, illicit drug use cost an estimated \$1.37 billion in Canada in 1992, and about 70% of this (or \$48 per capita) was attributed to opiate use.<sup>7</sup> The lifetime costs of treating HIV infection in one person are estimated at \$153,000.<sup>8</sup>

## **W**hat is Methadone Maintenance Treatment?

Although other forms of treatment for opioid dependence continue to be explored, in Canada and internationally, methadone maintenance treatment remains the most widely used form of treatment for people who are dependent on opioids.

Methadone itself is a long-acting synthetic opioid agonist, which is prescribed as a treatment for opioid dependence. People who are dependent on opioids may be dependent on either oral or injectable forms of opioids. Some individuals may also snort or smoke opioids. Methadone maintenance treatment is an appropriate form of treatment for opioid dependence, regardless of the route of administration of the drug of dependence.

There is no universal definition of what a methadone maintenance treatment “program” is – although the common thread is clearly the use of methadone. Program components and policies vary widely around the world, and within Canada. A comprehensive approach to methadone maintenance treatment, however, generally includes a number of key components – which can be delivered in a variety of ways and at varying levels of intensity – including:

- methadone dose;
- medical care;
- other substance use treatment;

- counselling and support;
- mental health services;
- health promotion, disease prevention and education;
- linkages with other community-based supports and services;  
and
- outreach and advocacy.

## **H**ow does Methadone Work?

Methadone works by alleviating the symptoms of opioid withdrawal. A stable and sufficient blood level of methadone stems the chronic craving for opioids. Since methadone is a much longer acting drug than some other opioids, such as heroin, one oral dose daily prevents the onset of opioid withdrawal symptoms – including anxiety, restlessness, runny nose, tearing, nausea and vomiting – for 24 hours or longer.

Methadone diminishes the euphoric effects of other opioids (cross tolerance), without necessarily causing euphoria, sedation or analgesia.<sup>9</sup> This means, self-administered illicit opioids will not lead to euphoria, making it less likely that clients/patients will either use illicit opioids or overdose.

People receiving methadone maintenance treatment take methadone orally – often it is mixed into an orange drink. This decreases the need to inject other opioids and reduces the health risks associated with injection drug use.

Tolerance to the effects of methadone develops very slowly, allowing many people who are dependent on opioids to be maintained on methadone safely for many years.

When appropriately prescribed and dispensed, methadone is considered a medically safe medication.

## **H**ow is Methadone Maintenance Treatment Delivered in Canada?

In Canada, as in many other countries, there is a national level regulatory framework for methadone prescription. The Office of Controlled Substances, Health Canada, works with provincial/territorial governments and medical licensing bodies, among others, to facilitate increased access to methadone maintenance treatment. To date in addition to the Health Canada guidelines<sup>10,11</sup> on the use of opioids in the management of opioid dependence, several provinces have developed – or are in the process of developing – guidelines and training for practitioners interested in providing methadone maintenance treatment.

Although provinces have become increasingly involved in delineating the conditions under which they recommend to Health Canada physicians who should be allowed to prescribe methadone, only physicians who have received an exemption under Section 56 of the *Controlled Drugs and Substances Act* are allowed to prescribe methadone.

Methadone maintenance treatment may be delivered in a variety of different settings including:

- substance use treatment services/clinics (outpatient/inpatient);
- community-based health centres/clinics;
- private medical clinics;
- individual physicians' offices & community pharmacies;
- hospital-based health clinics;
- HIV/AIDS services/clinics;
- mental health agencies/clinics; and
- correctional facilities.

Practitioners from many different disciplines and backgrounds – including medicine, substance use treatment, social work and mental health, among others – are involved in delivering methadone

maintenance treatment programs. Their roles vary, depending on factors such as qualifications, program setting, available resources and geographic location. There are also differences – across jurisdictions and among programs – in terms of program philosophy, range of services provided, client groups served, level of client involvement, program policies, and program settings.

## **W**hat are the Benefits of Methadone Maintenance Treatment?

Although there are some side effects associated with the use of methadone – as there can be with any medication – there are many good reasons to provide people who are dependent on opioids with access to methadone maintenance treatment.

Research indicates that methadone maintenance treatment is effective in reducing:

- the use of other opioids;
- the use of other substances, e.g. cocaine;
- criminal activity;
- mortality;
- injection-related risk behaviours;
- other risk behaviours for transmission of HIV and STDs; and
- transmission of HIV (and potentially the transmission of HCV and other blood-borne pathogens).

Methadone maintenance treatment has also been found to improve:

- physical and mental health;
- social functioning;
- quality of life; and
- pregnancy outcomes.

Methadone maintenance treatment is associated with increased retention in treatment.

Methadone maintenance treatment has the potential to benefit, not only people receiving treatment, but also those who are involved in delivering treatment, as well as the wider community and society as a whole.

For people who are dependent on opioids, methadone maintenance treatment provides access to a stable supply of a legal, pharmaceutical grade medication. As a result, people receiving treatment achieve respite from the stress of maintaining a constant supply of illicit opioids often involving criminal activities and high risk sexual practices. Rather than experiencing a constant cycle of highs and lows – as the result of repeated injections of heroin, for example – their mood and functional state become stabilized. Overall, research indicates that people receiving methadone maintenance treatment will:

- spend less time using narcotics daily;<sup>12</sup>
- reduce their use of illicitly obtained opioids (and continue this pattern as long as they stay in treatment);<sup>13</sup>
- reduce their use of other substances including cocaine, marijuana and alcohol;<sup>14</sup>
- spend less time dealing drugs;<sup>15</sup>
- spend less time involved in criminal activities;<sup>16</sup>
- spend less time incarcerated;<sup>17</sup>
- have much lower death rates than individuals who are dependent on opioids and not receiving treatment (the death rate for those not receiving treatment is more than three times higher than for those engaged in treatment);<sup>18</sup>
- reduce injecting<sup>19</sup>, and injection related risk behaviours;<sup>20</sup>
- reduce other risk behaviours for transmission of HIV and STDs;<sup>21</sup>
- reduce their risk of acquiring HIV infection;<sup>22</sup>
- potentially reduce their risk of acquiring HCV<sup>23</sup> or other blood-borne pathogens;
- improve their physical and mental health;<sup>24</sup>

- improve their social functioning;<sup>25</sup>
- increase their likelihood of being employed full-time;<sup>26</sup> and
- improve their quality of life.<sup>27</sup>

For pregnant women who are dependent on opioids, receiving methadone maintenance treatment, combined with adequate prenatal care, decreases obstetrical and fetal complications.<sup>28</sup> Methadone protects the fetus from erratic opioid levels and frequent opioid withdrawal symptoms, which are common among pregnant women who do not receive treatment for their opioid dependence.<sup>29</sup>

The longer people who are dependent on opioids remain in methadone maintenance treatment, the more likely they are to remain crime-free, to avoid injecting, and to reduce their use of heroin.<sup>30</sup>

For practitioners involved in treatment delivery, methadone maintenance treatment is an opportunity to:

- provide an important component of medical and public health care;
- develop partnerships and linkages with other service providers and provide clients/patients with a range of services and supports;
- establish positive, supportive therapeutic relationships with—and learn from—people who are dependent on opioids; and
- contribute to an educational and therapeutic process that can lead people who are dependent on opioids to gain a new perspective on themselves and their use of drugs, and make changes in their lives.

For the wider community, the potential benefits of methadone maintenance treatment include:

- reduced drug-related criminal activity;
- reduced prostitution; and
- reduced numbers of discarded used needles in the community.

For society as a whole, methadone maintenance treatment may result in:

- reduced crime; and
- decreased public health risks.

### **Cost benefits**

Given the costs of untreated opioid dependence, methadone maintenance treatment offers significant benefits to society, which far outweigh the costs of providing treatment. American researchers have found:

- the annual costs of methadone maintenance treatment are much lower than the annual costs of either untreated heroin use, incarceration or drug-free treatment programs;<sup>31</sup>
- criminal activities related to heroin use resulted in social costs that were four times higher than the cost of methadone maintenance treatment;<sup>32</sup>
- for every dollar spent on methadone maintenance treatment there is a savings to the community of between US\$4-\$13.<sup>33</sup>

Similar cost benefits are being identified in Canada. In Toronto, the average social cost of an untreated person who is dependent on illicit opioids has recently been estimated to be \$44,600 per year.<sup>34</sup> According to an estimate from the Centre for Addiction and Mental Health in Toronto, methadone maintenance treatment can be provided for approximately \$6,000 per year.<sup>35</sup>

### **Cost-effectiveness**

There is some evidence that, compared to other forms of treatment for opioid dependence, methadone maintenance treatment's high retention rates and lower delivery costs make it a more cost-effective form of treatment.<sup>36</sup> One study found the cost effectiveness of methadone maintenance, compared to other treatment modalities, yielded a benefit/cost ratio of 4.4:1.<sup>37</sup>

## Endnotes

1. *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition. Washington, DC, American Psychiatric Association, 1994.
2. Fischer, B., and Rehm, J. The case for a heroin substitution treatment trial in Canada. *Canadian Journal of Public Health*, 88(6), 367, 1997.
3. Wall, R., Rehm, J., Fischer, B., Brands, B., Gliksman, L., Stewart, J., Melved, W., Blake, J. Social costs of untreated opioid dependence. *Journal of Urban Health*, 77 (4), 688-722, 2000.
4. Health Canada. HIV/AIDS among injection drug users in Canada. *HIV/AIDS Epi Update*, [On-line] May 1999. Bureau of HIV/AIDS, STD and TB Update Series. Laboratory Centre for Disease Control, 1, 1999.
5. As cited in Health Canada. Profile of Hepatitis C & Injection Drug Use in Canada: A Discussion Paper. Prepared for Hepatitis C Prevention, Support & Research Program, Population & Public Health Branch, Health Canada, 2000.
6. For further information refer to: Canadian HIV-AIDS Legal Network. *Injection drug use and HIV/AIDS: Legal and ethical issues*. Montreal: Author, 11, 1999. Health Canada. Profile of Hepatitis C & Injection Drug Use in Canada: A Discussion Paper. Prepared for Hepatitis C Prevention, Support & Research Program, Population & Public Health Branch, Health Canada, 15-20, 2000.
7. Single, E. et al., as cited in Fischer, B., and Rehm, J. The case for a heroin substitution treatment trial in Canada. *Canadian Journal of Public Health*, 88(6), 368, 1997.

8. Albert, T., Williams, G., Legowski, B., & Remis, R. *The economic burden of HIV/AIDS in Canada*. Ottawa: Canadian Policy Research Networks (CPRN), 38, 1998.
9. Lowinson, J.H., Payte, J.T., Salsitz, E., Joseph, H., Marion, I.J., & Dole, V.P. Methadone maintenance. In J.H. Lowinson, J.T. Payte, E. Salsitz, H. Joseph, I.J. Marion, & V.P. Dole (Eds.), *Substance Abuse: a comprehensive text* (3rd ed., pp. 405-415). Baltimore: Williams and Wilkins, 407, 1997.
10. Health Canada, *Dispensing Methadone for the Treatment of Opioid Dependence: Guidelines for Pharmacists*. Minister of National Health and Welfare, 1994.
11. Health and Welfare Canada, *The Use of Opioids in the Management of Opioid Dependence*. Minister of National Health and Welfare, 1992.
12. McGlothlin and Anglin, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-8, 1995.
13. Simpson and Sells; Hubbard et al.; Simpson and Sells; Ball and Ross, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-10, 4-12, 4-14, 1995.
14. Hubbard et al., as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-15, 1995.
15. McGlothlin and Anglin, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-8, 1995.
16. McGlothlin and Anglin, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-8, 4-16, 4-17, 1995.

17. McGlothlin and Anglin, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-8, 1995.
18. National Consensus Development Panel on Effective Medical Treatment of Opiate Addiction. Effective medical treatment of opiate addiction. *JAMA*, 280(22), 1938, 1998.
19. Ball and Ross, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-22, 1995.
20. Studies reviewed by Ward J., Mattick R.P. & Hall W. The effectiveness of methadone maintenance treatment 2: HIV and infectious hepatitis. In J. Ward, R.P. Mattick, & W. Hall (Eds.), *Methadone maintenance treatment and other opioid replacement therapies* (pp. 59-73). Amsterdam: Overseas Publishers Association, Harwood Academic Publishers, 67-68, 1998.
21. For further information refer to: Wells, E., Calsyn, D.A., & Clark, L.L. Retention in methadone maintenance is associated with reductions in different HIV risk behaviours for women and men. *American Journal of Drug and Alcohol Abuse*, 22 (4), 519, 1996. Longshore, D., Hsieh, S., & Anglin, M.D. Reducing HIV risk behavior among injection drug users: Effect of methadone maintenance treatment on number of sex partners. *The International Journal of the Addictions*, 29 (6), 754, 1996, 1994.
22. Metzger et al., as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-19, 4-20, 1995.
23. Novick, D.M. The Impact of Hepatitis C Virus Infection on Methadone Maintenance Treatment. *The Mount Sinai Journal of Medicine*, 67 (5 & 6), 440, 2000.

24. For further information refer to: Lowinson, J.H., Payte, J.T., Salsitz, E., Joseph, H., Marion, I.J., & Dole, V.P. Methadone maintenance. In J.H. Lowinson, J.T. Payte, E. Salsitz, H. Joseph, I.J. Marion, & V.P. Dole (Eds.), *Substance Abuse: a comprehensive text* (3rd ed., pp. 405-415). Baltimore: Williams and Wilkins, 409, 1997. Dole, Nyswander and Kreek, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-9, 1995.
25. Gearing and Schweitzer, as cited in Brands, B., & Brands, J. (Eds.) *Methadone Maintenance: A Physician's Guide to Treatment*. Toronto: Addiction Research Foundation, Centre for Addiction and Mental Health, 2, 1998.
26. Simpson and Sells, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-18, 1995.
27. Dazord, A., Mino, A., Page, D., & Broers, B. Patients on methadone maintenance treatment in Geneva. *Eur Psychiatry*, 13, 235, 1998.
28. National Consensus Development Panel on Effective Medical Treatment of Opiate Addiction. Effective medical treatment of opiate addiction. *JAMA*, 280(22), 1939, 1998.
29. Kaltenbach et al., as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 1-32,1-33, 1995.
30. Simpson and Sells; Ball and Ross, as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 4-11,4-14, 1995.

31. Studies by the National Institute on Drug Abuse, as cited in Health Canada. *Best practices - substance abuse treatment and rehabilitation*. Ottawa: Minister of Public Works and Government Services Canada, 12-13, 1999.
32. Harwood et al., as cited in National Institute on Drug Abuse. *Methadone maintenance treatment: Translating research into policy*. Bethesda, MD: Author, 1-47, 1995.
33. Results of CALDATA study, as cited in Stoller, B.B., and Bigelow, G.E. Regulatory, cost, and policy issues. In E.C. Strain & M.L. Stitzer (Eds.), *Methadone treatment for opioid dependence* (pp. 15-37). Baltimore: The Johns Hopkins University Press, 24, 1999.
34. Wall, R., Rehm, J., Fischer, B., Brands, B., Gliksman, L., Stewart, J., Melved, W., Blake, J. Social costs of untreated opioid dependence. *Journal of Urban Health* 77 (4), 688-722, 2000.
35. Dr. David Marsh, Centre for Addiction and Mental Health. Personal communication (November, 2000).
36. Ward, P., & Sutton, M. The effectiveness of methadone maintenance treatment 4: Cost-effectiveness. In J. Ward, R.P. Mattick & W. Hall (Eds.), *Methadone maintenance treatment and other opioid replacement therapies* (pp. 91-121). Amsterdam: Overseas Publishers Association, Harwood Academic Publishers, 117, 1998.
37. Rufener et al., as cited in Lowinson, J.H., Payte, J.T., Salsitz, E., Joseph, H., Marion, I.J., & Dole, V.P. Methadone maintenance. In J.H. Lowinson, J.T. Payte, E. Salsitz, H. Joseph, I.J. Marion, & V.P. Dole (Eds.) *Substance abuse: a comprehensive text* (3<sup>rd</sup> ed., pp. 405-415). Baltimore: Williams and Wilkins, 410, 1997.