

# THE FUNDAMENTALS OF METHADONE MAINTENANCE TREATMENT

An important element of counselling clients in MMT is providing information and answering questions about the treatment. Because there is widespread misunderstanding of the nature and consequences of MMT, knowledge of the treatment, including its potential benefits and disadvantages, its adverse affects and common myths, will enable the counsellor to educate the client.

## What Is Methadone Maintenance Treatment?

MMT is a comprehensive treatment program that involves the long-term prescribing of methadone as an alternative to the opioid on which the client was dependent.

Integral to MMT is the provision of counselling, case management and other medical and psychosocial services.

## The Effectiveness of MMT

The use of methadone in treating opioid dependence began with research in Canada and the United States during the early 1960s. It was shown that people dependent on opioids could be successfully engaged in treatment when prescribed methadone to relieve opioid withdrawal and reduce opioid craving.

The effectiveness of using methadone in treating opioid dependence has been demonstrated in over 30 years of research. MMT has been shown to yield the following results:

- reduction in the use of illicit drugs
- reduction in criminal activity

- improvements in social health and productivity
- improvements in general health
- retention in substance dependence treatment
- reduction in needle sharing and HIV infection (U.S. Department of Health and Human Services, 1995).

It should be noted that methadone is pharmacologically effective only in opioid dependence.

Methadone has no pharmacological effect in dependence on other substances such as nicotine, alcohol, benzodiazepines or cocaine. Nevertheless, use of other substances, as well as dependence on other substances, may be identified in people with opioid dependence during the course of MMT and can be addressed through the medical, counselling and case management services offered in the course of MMT. Research has demonstrated the effectiveness of comprehensive MMT in reducing the harmful use of other substances (Preston et al., 1996).

## **The Potential Benefits of MMT**

Many of the benefits of methadone maintenance treatment involve helping clients to avoid the harmful consequences of illicit opioid use and the lifestyle associated with illicit opioid use.

The potential benefits of MMT are the following:

- Methadone is pure. Illicit opioids may contain unsafe fillers, additives and solvents, which when administered may cause phlebitis or other harmful medical conditions.
- The exact opioid content of methadone is known. This means that a stable dose can be maintained. Because the opioid content of illicit opioids can vary from day to day, even when purchased from the same supplier, it is not uncommon for a surprisingly potent dose to lead to overdose.
- Methadone is legal. Possessing illicit opioids can lead to arrest and incarceration.
- Methadone is dispensed in pharmacies. Illicit opioids are purchased from drug dealers — whose transactions involve much more potential for violence.
- The stabilizing effect of methadone can make it easier for clients to care for family members, to attend school and to engage in a greater variety of work.
- Methadone can reduce needle sharing and help prevent the spread of infectious blood-borne diseases such as HIV infection and viral hepatitis. When methadone (taken orally) is substituted for fast-acting opioids such as heroin

(usually injected), clients are less likely to inject opioids and share needles.

Needle sharing exposes the user to disease, which may then be further spread to others through needle sharing or sexual activity. In this way, methadone helps to protect the client and the community.

- Methadone can help to normalize neuroendocrine function (e.g., by restoring normal menstrual periods in women who are dependent on opioids). Because methadone has a slow onset and is long-acting, its use as an alternative for other opioids, which have a fast onset and are short-acting, has a normalizing effect. MMT can help to normalize physical and psychological functioning through the day by alleviating the repeated cycles of intoxication and withdrawal experienced by people who use opioids. This normalization is particularly important for women who are pregnant and use opioids; opioid withdrawal can result in spontaneous abortion and premature labour, and developing babies share the stress of the ups and downs that characterize opioid use. This normalization is also important for clients suffering from other illnesses, such as acquired immunodeficiency syndrome (AIDS) and chronic hepatitis C infection.
- Methadone is affordable. As a prescription drug, the cost of methadone is usually less than \$10 a day. For those who qualify, the cost may be covered by private health insurance or, in Ontario, by the provincial drug benefit plan. The high price of illicit opioids, in combination with the urgent craving associated with opioid dependence, leads some people to resort to crime (e.g., sex trade work, theft, burglary and/or drug dealing) to get enough money to buy illicit opioids. This puts them at risk of arrest, incarceration and/or violence.
- Methadone treatment can increase client contact with health care and social service systems. This gives treatment providers regular opportunities to offer medical care, counselling and case management to marginalized people who would not otherwise seek out these services. In general, opioid use puts people at a higher than average risk of injury, infections and other diseases. Psychiatric disorders are common among people who use opioids, as are histories of physical, emotional and sexual abuse.
- Methadone can be of benefit to opioid-dependent workers in the sex trade. This is because methadone is affordable, and because integral to an MMT program are an array of associated psychosocial services. Sex trade workers often have none of the protection society provides to other workers; they may suffer physical, emotional and sexual abuse through their work. They may be arrested and incarcerated for “communicating.” If they work while intoxicated, the risk of unwanted pregnancy and exposure to sexually transmitted diseases increases. Methadone reduces the need for the high income needed to maintain an opioid dependency, which can be earned through prostitution. Once on methadone,

opioid-dependent sex trade workers are more able to choose conventional employment. For those who choose to work in the sex trade, methadone can help clients avoid working while intoxicated and have access to psychosocial services that offer support and education in harm reduction.

- Methadone can reduce the costs to the community of policing, courts, prisons, health care, social services and support for the unemployed.

## **The Potential Disadvantages of MMT**

The disadvantages of regularly taking methadone compared with abstinence from all opioids, including methadone, are as follows:

- Methadone can have side-effects. Common and persistent side-effects include sweating and constipation.
- Methadone clients may find certain practices carried out by some programs or clinics degrading and demeaning. An example is the practice of an attendant observing clients voiding urine for drug screening.
- MMT can be inconvenient. Clients must attend the clinic or pharmacy at least once a week to take an observed dose and pick up take-home doses. They may be called into the pharmacy on short notice and asked to produce their empty and full take-home dose bottles, and random urine samples must be provided on request. Clients are required to make regular visits to the physician and counsellor. Given the limited number of physicians, clinics and pharmacies participating in MMT in Ontario, clients may have to commute some distance or relocate. Should clients want to go away on vacation or travel for business, they may be limited by the need to guest dose at another pharmacy if they do not have full take-home (carries) privileges or are planning to be away for more than two weeks. In addition, MMT clients must remember to take their dose at the same time every day, and if they abruptly stop taking methadone, they will experience opioid withdrawal and craving.
- Methadone clients may be stigmatized as “still addicted.” Methadone treatment is not widely understood, and clients may face discrimination from a range of people, including former drug users in abstinence-based mutual help groups, and some health, social service and substance dependence treatment providers. MMT clients may also encounter discrimination in obtaining and retaining employment and in accessing public and private services.
- Attending the methadone clinic can put clients into regular contact with others still using opioids, alcohol and other drugs. Clients who see a family doctor for their prescription, and who pick up their dose from a community pharmacy, are less likely to be exposed to active drug users.

- Methadone is an ongoing expense. Although it is far less expensive than illicit opioids, there is still a direct cost to clients without insurance.
- Methadone clients become dependent on their prescriber. A client in MMT is physically dependent on methadone, and his or her prescriber controls the access to it. The power imbalance gives the methadone-prescribing physician a great deal of control that can be misused.
- In many jurisdictions, methadone clients who are detained by police for any reason may not be able to access their methadone because of police policy.

## Differences between Short-Acting Opioids and Methadone

In contrast to short-acting opioids such as heroin, methadone:

- is more effective orally; taken orally, methadone is slower acting than injected heroin (30 minutes for effect vs. immediate effect)
- does not cause a “high” or drowsiness (in stabilized clients)
- does not cause impairment in thinking, behaviour or functioning
- does not dull normal emotions and physical sensations
- diminishes opioid craving
- reduces the likelihood of a heroin-induced “high,” should the client use heroin
- will continue to be effective with long-term use without dose increases
- is medically safe
- is longer acting than heroin (24 to 36 hours vs. three to six hours) and is administered less often (once a day vs. three or more times a day)
- decreases drug-seeking behaviour (U.S. Department of Health and Human Services, 1995).

## Alternative Treatments for Opioid Dependence

Occasionally, people are able to recover from opioid dependence through self-help or by “maturing out” or “growing out” of it. Given the serious nature of opioid dependence and its consequences for the dependent person and for society, this approach alone cannot be relied on.

### Narcotics Anonymous and Other Mutual Help Groups

For some people who are opioid-dependent, mutual help groups, such as Narcotics Anonymous, outpatient “drug-free” counselling, and long- or short-term residential “drug-free” treatment are effective. However, for many people who are opioid-dependent, each of these approaches alone is not as effective as comprehensive MMT alone.

### **Alternative Maintenance Medications**

In other jurisdictions, other maintenance medications, such as LAAM (levo-alpha-acetylmethadol), buprenorphine and heroin, are used in the way methadone is used in Ontario. In Canada, LAAM and buprenorphine have occasionally been prescribed under the federal government's Special Access program.

### **Naltrexone**

Another alternative is long-term treatment with naltrexone, an opioid antagonist (a drug that blocks the effects of opioids without having any opioid effects). Naltrexone may be started after opioids have been discontinued for at least 10 days. Because opioids will have no effect on a client taking naltrexone regularly, the client will presumably stop self-administering opioids.

Although there have been excellent results in highly motivated (or highly coerced) client groups, overall compliance and retention in treatment is poor. Naltrexone also has a tendency to produce or enhance depression, and it very effectively blocks the effect of opioid analgesics, thus making it more difficult to manage clients with moderate to severe pain.

### **The Safety of Methadone**

Compared with many other prescribed drugs, methadone is notable for its lack of long-term adverse effects.

Studies of the long-term administration of methadone have confirmed that it is a medically safe drug (Novick et al., 1993). Methadone, taken at a properly adjusted dose, does not impair psychomotor performance (e.g. reaction time and attention span) or intellectual capacity.

Methadone has also been used successfully in treating opioid-dependent pregnant women since the early 1970s, and there is consensus that methadone can be safely administered during pregnancy with little risk and significant potential benefits to both the mother and infant (U.S. Department of Health and Human Services, 1995).

### **Overdose**

If methadone is diverted to the illicit market and used in an attempt to get a heroin-like high, the user may accidentally overdose because of its slow and long action. For non-tolerant adults, a single 70 mg dose of methadone, or a 40 mg dose (a moderate

daily dose) taken for three days, may be fatal (Caplehorn, 1998). The lethal dose is smaller if it is taken together with other opioids, alcohol or sedatives such as benzodiazepines.

Children may overdose if they mistake the medication for a drink. In children, a 10 to 20 mg dose can be fatal (Aronow et al., 1972).

### **Safeguards**

There are a number of safeguards against accidental overdose of methadone. MMT clients are counselled on take-home security by the physician, counsellor and pharmacist, and they are requested to sign an agreement stating that they will keep their methadone secure before they may receive take-home doses.

Methadone is dispensed in bottles fitted with child-proof caps. The bottles are labelled with all the information required for opioid medications, as well as an additional warning about overdose in non-tolerant people. It is also suggested that clients store their methadone in a securely locked box.

### **Methadone — Onset and Duration of Effect**

Methadone is well and quickly absorbed from the gastrointestinal tract into the bloodstream. It begins to take effect in about 30 minutes. The half-life of methadone (the time for blood levels to drop to 50 per cent of the peak concentration) is about 12 to 18 hours for the first dose and about 13 to 47 hours for the second and third days' doses (Preston et al., 1996). The effects of methadone last about 24 to 36 hours.

### **Adverse Effects of Methadone**

In addition to its desirable effects (relieving opioid withdrawal and craving), methadone, like any other medication, may also cause a number of undesirable (adverse) effects. Some of these adverse effects (when they occur) tend to be persistent, while others tend to subside over time.

Given the length of time clients remain in MMT, concern about its adverse effects is fully justified.

The more common and more persistent adverse effects of methadone include the following:

- sweating
- constipation

- changes in sexual desire and functioning
- insomnia (U.S. Department of Health and Human Services, 1995).

Adverse effects of methadone that subside over time include the following:

- reduced appetite; weight gain
- nausea
- drowsiness
- tension, nervousness
- headaches; body aches and pains (including “bone” aches)
- chills (U.S. Department of Health and Human Services, 1995).

The adverse effects of other opioids are similar to those of methadone. When used at higher doses for severe pain or opioid dependence, therapeutic doses of opioids may also (initially) induce a sense of tranquillity and decreased apprehension.

Other adverse effects that have been associated with methadone include the following:

- flushing, blushing
- vomiting
- dizziness, lightheadedness, unsteadiness, faintness
- itching
- constriction of airways
- dry mouth
- difficulty passing urine
- reduced or absent menstrual cycle
- dysphoria
- palpitations (heart pounding)
- swelling of feet and ankles
- dental problems
- muscle and joint pain
- arms and legs feeling heavy
- sleepiness
- abdominal cramps.

Without minimizing the adverse effects of methadone, the following should be noted:

- Not all clients will experience all adverse effects.
- Many adverse effects are rare and will only be experienced by a few clients.
- Different clients experience different adverse effects.
- Most clients become tolerant to some adverse effects.

- An adverse effect may be the consequence of too high a dose (intoxication) or too low a dose (withdrawal).
- Adverse effects experienced with methadone may be more bothersome even if they are similar to or milder than adverse effects clients have experienced with other opioids.
- Some adverse effects may not be disabling and may only be minimally bothersome.
- Some adverse effects can be prevented or treated.
- It is likely that factors other than the effects of methadone contribute to some of the adverse effects associated with methadone.

## Misunderstandings about Methadone

Much speculation surrounds some of methadone's adverse effects, and counsellors are likely to need to discuss some of the following "methadone myths" with their clients.

### *Methadone rots your teeth.*

Although methadone in itself does not rot the teeth, it can inhibit the production of saliva and cause dry mouth, which contributes to the production of plaque, which causes gum disease and tooth decay. Poor diet and dental hygiene may also cause dental problems. Long-standing dental problems could also become more bothersome as clients become more stable.

### *Methadone wrecks your sex drive.*

Reports of changes in sexual desire and functioning are not uncommon among methadone clients and include increased as well as reduced sexual desire, "early" or "late" orgasm, and impotence.

### *Methadone makes you fat.*

Some clients do gain weight when they are on methadone, and this may be influenced by lifestyle changes related to reduction in illicit drug use, including improved nutrition, reduced physical activity and reduced stress. The caloric content of the methadone drink is unlikely to contribute much to weight gain. While some methadone clients report a craving for sweets, others say their appetite is reduced.

### *Methadone rots your bones.*

Methadone does not accumulate in bones and does not damage bones. Nevertheless, "bone" ache has been associated with methadone and methadone withdrawal.

*You don't need contraceptives when you are on methadone.*

For most female clients, methadone stabilizes menstrual irregularities caused by illicit opioid use. Some, however, may continue to miss their period when they go on methadone and mistakenly believe they cannot get pregnant.

## **Methadone and Pain Relief**

Methadone can relieve pain and is indicated for the relief of severe chronic pain requiring the prolonged use of an opioid analgesic. It is generally reserved for situations in which other opioid pain relievers (e.g., morphine) have proven to be ineffective.

Methadone dosing for pain is different from methadone dosing for opioid dependence, and clients in MMT may have developed considerable tolerance to analgesic effects of methadone. Therefore, while on methadone, clients needing pain relief should be started on usual doses of analgesics, but they should be reassessed often because they may need higher and/or more frequent doses.

## **The Legal Regulation of MMT**

In Canada, the prescribing of methadone is subject to more legal regulation than the prescribing of most other drugs. First, the prescribing of methadone is subject to the same laws governing the prescribing of other opioids such as morphine. Second, physicians are required under federal regulation to obtain a special exemption from the federal minister of health before prescribing methadone.

In Ontario, the College of Physicians and Surgeons of Ontario (CPSO) is responsible for ensuring the quality of care provided by methadone-prescribing physicians. This is accomplished by various means. First, the CPSO determines the education, training and other qualifications that Ontario physicians must have to become authorized to prescribe methadone for opioid dependence. These qualifications include structured, academically centred training. Second, the CPSO acts on complaints about methadone-prescribing physicians. Third, the CPSO carries out peer-based assessments of the practices of methadone prescribers for the purpose of quality improvement.

Adherence to the *Methadone Maintenance Guidelines* (College of Physicians and Surgeons of Ontario et al., 2001) and compliance with the college's reporting requirements are monitored during the assessment process. The CPSO also monitors methadone prescribing and identifies potential prescribing problems through its

database of Ontario methadone prescribers and recipients. The CPSO shares prescriber information with the Ontario College of Pharmacists (OCP).

Currently, Ontario pharmacists do not need a special authorization to dispense methadone. In Ontario, methadone is distributed, stored and dispensed under the same laws that govern other opioids.

## Availability of MMT

In the years leading up to 1996, heroin in Ontario became less costly, more pure and more available, and more people were using heroin and becoming dependent on it.

Although MMT had been employed as an effective and inexpensive treatment for opioid dependence for more than 30 years, its availability increased only minimally during this period. MMT treatment programs had more people on waiting lists than they had in treatment.

In 1995, user advocates successfully argued that MMT needed to be expanded across Ontario, particularly in light of the potential for an AIDS epidemic among people who inject opioids. Other jurisdictions had already experienced such epidemics. In the summer of 1996, the Ontario Ministry of Health, the College of Physicians and Surgeons of Ontario, the Addiction Research Foundation (ARF, now part of the Centre for Addiction and Mental Health) and the Ontario College of Pharmacists launched a joint effort to expand MMT while maintaining a high quality of care. New guidelines were developed for providing MMT, and the number of physicians prescribing methadone, pharmacies dispensing methadone and clients receiving methadone treatment in Ontario increased dramatically, particularly in the Greater Toronto Area (Brands et al., 2000).

Despite the dramatic increase in the number of clients in MMT across Ontario, it has been suggested that the demand for MMT in Ontario is still far in excess of the supply. A conservative estimate is that 10,000 people in Ontario would be eligible for MMT, well in excess of the number currently in treatment.

It should be noted that the expansion of MMT outside the Greater Toronto Area has been much less dramatic; there are still many medium-sized Ontario municipalities where MMT is not available, let alone small communities.

Furthermore, the increase in the number of physicians providing MMT has not kept up with the increase in the number of clients in treatment. Consequently, many

community physicians are carrying relatively high MMT client caseloads that include significant numbers of very challenging clients.

Finally, although methadone prescribing has increased dramatically overall, the availability of drug counselling, mental health care and other psychosocial services to clients in MMT has not kept up, so the full potential of MMT remains to be realized.

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