Chapter 17. Why methadone maintenance works

The two major reasons for the success of methadone maintenance are surely no secret. Methadone is legal; hence the addict who enters a methadone maintenance program casts off his role of hated and hunted criminal when he downs his first methadone tablet or glass of methadone spiked orange drink. And methadone is cheap. The cost of the usual dose---100 milligrams per day---is ten cents. It is supplied the addict either free or (in some programs with ancillary services outside New York) for $10 to $14 per week.

If morphine or heroin were legally dispensed at low cost, the same two advantages would be equally well achieved. Thus in those two respects the favorable results of methadone maintenance cannot be attributed solely to the methadone.

Like morphine and heroin, methadone is a narcotic and therefore, by definition, an addicting drug. This fact is often cited as a disadvantage. Indeed, newspapers, politicians, and even some physicians have expressed the hope that a nonaddicting drug for the treatment of heroin addiction can be found.

This hope, however, is based on a misunderstanding. One main advantage of methadone is that it is addicting. For an addicting drug, it will be recalled, is one that an addict continues to take day after day and year after year.

In fact, several nonaddicting drugs for the treatment of heroin addiction have already been tried out. Among them are the narcotic antagonists; cyclazocine and nalaxone are examples. An addict who injects heroin while on one of these drugs perceives no effect. Thus the antagonists, like methadone, are "blocking agents." But they are inferior to methadone in at least two other major respects.

First, they do not assuage the postaddiction syndrome---the anxiety, depression, and craving that recur for months and perhaps years after the last shot of heroin. The contrast with methadone is readily visible. A psychiatrist who has had experience with both methadone and antagonist maintenance programs contrasts "the relaxed, jovial atmosphere of a methadone ward," where patients are free of the postaddiction syndrome, with "the tension, frustration, and anxiety that characterize a cyclazocine ward." Clearly methadone is in this respect a far more hopeful base for building social rehabilitation.
The other major difference is that since the antagonists are not addicting, a patient can stop taking them at will. * Most patients do stop taking them--- and then promptly return to black-market heroin. The greater success of methadone results in considerable part from the fact that it is an addicting drug.

* Dr. William R. Martin, chairman of the Addiction Research Center at Lexington, and the scientist who first proposed use of narcotic antagonists in the treatment of heroin addiction, reported (1971): "Patients learned that by skipping doses they could experience the euphoric action of [taking] heroin the day following the last dose of cyclazocine." ²

In 1971, despite the earlier failures of narcotic antagonists, ** interest was renewed in these drugs as a potential "cure for addiction." A massive research program was proposed for an improved antagonist, or for an improved way of administering those currently available. It was suggested, for example, that a long-term supply or "depot" of an antagonist might be implanted somewhere in the addict's body, surrounded by a membrane that would release the drug at the desired rate continuously over a period of a month or even six months. If such a long-acting material were available, it was argued, addicts could be required to take it at suitable intervals, under penalty of imprisonment. Hence, it was said, such a drug might solve the addiction problem, even if addicts didn't like the drug.

** The most recent study of cyclazocine, reported in the *International Journal of the Addiction,* ³ in 1971, indicates that of 186 addicts offered cyclazocine, 33 accepted, of whom 11 were believed to be abstinent twenty months later. The study suggests, but does not prove, that the few patients who accept cyclazocine do significantly better than similar patients who attempt abstinence without cyclazocine.

What the large-scale use of a long-acting narcotic antagonist would in fact produce, however, is a horde of men, women, and adolescents assailed by anxiety and depression, with a continuing craving for heroin and no way to assuage their distress (except, perhaps, via alcoholism). Is this the "cure" society seeks for today's narcotics addicts?

*** The civil-liberties implications of requiring the taking of a drug that not only perpetuates anxiety, depression, and craving but also blocks relief of that syndrome for prolonged periods deserves fuller consideration than was given the subject during the 1971 discussions of long-acting narcotics antagonists.

An ethical consideration is also involved in the use of long-acting narcotic antagonists: why is it wrong to provide an addict with an addicting drug such as methadone that is, one that carries a built-in
pharmacological compulsion for continued use--- but right to use legal compulsion, even imprisonment, to force continued use of a nonaddicting drug?

Despite the shortcomings of the narcotic antagonists as a "cure for addiction," further research into these drugs could prove valuable. For the central facts of addiction--- the withdrawal syndrome followed by the postaddiction syndrome--- are still little understood. The study of narcotic antagonists is quite likely to throw further light on the mystery of why some drugs merely block the heroin effect while others--- notably methadone--- both block the heroin effect and relieve the depression, anxiety, and craving for heroin.

It is unfortunate, of course, that patients must continue to take methadone year after year, just as it is unfortunate that diabetics must continue to take insulin or some other diabetes drug year after year. But the heroin addict's need for continuing medication is not the result of methadone; it arises out of his initial addiction to heroin. Methadone relieves the patient of the life-shattering effects of that need.

A patient on methadone maintenance is commonly thought to be addicted to methadone * and might therefore be called a methadone addict. The term "methadone addict" is seriously misleading, however, since as we have seen--- the patient on methadone maintenance does not resemble in the least the popular stereotype of the addict. He neither acts like an addict nor thinks of himself as an addict. To avoid confusion, the terms heroin addict and methadone patient have become standard usage, and are used throughout this Report.

* Dr. Marie Nyswander disputes this common view. She points out that a methadone maintenance patient who discontinues methadone does not develop a craving for methadone and does not go looking for methadone. Instead, his craving for heroin returns and he goes looking for heroin. Hence, he is not, in common parlance, addicted to methadone. He is an ex-heroin addict who is relieved of his heroin addiction so long as he takes his methadone. 4

If being legal and being cheap were methadone's only advantages, one would expect methadone maintenance to be neither better nor worse than morphine maintenance or heroin maintenance. But in four other significant respects, methadone is distinctly superior to either morphine or heroin as a maintenance drug. The first of these advantages is that methadone is fully effective when taken by mouth. 5 Thus the whole long, tragic list of infections spread by injection needles is eliminated at one fell swoop. Infections due to morphine and heroin injection can be minimized by dispensing them in sterile ampules with nonreusable needles, but the oral drug is obviously a further improvement.
Second, methadone is a long-acting drug. An adequate oral dose in the morning keeps the user on a relatively even keel until the next morning. ** Stabilized methadone patients do not "bounce" from "sick" (incipient withdrawal symptoms) to "nodding" (excessively tranquilized). Addicts on morphine or heroin, in contrast, must "shoot up" several times a day, and many of them bounce.

** An even longer-acting drug related to methadone--- acetyl-alpha-methadol--- is said to be effective for three days or longer and may ultimately replace methadone as a maintenance drug.

Third, some addicts, as noted above, have a tendency to escalate their doses of morphine or heroin. Once stabilized on an adequate daily dose of methadone, in contrast, patients are content to remain on that dose year after year; some even ask to have the dose reduced. Thus the main problem of morphine and heroin maintenance programs--- the dosage problem--- is readily resolved.

Methadone's fourth advantage is that it blocks the heroin effect. A patient stabilized on an adequate daily dose of methadone who shoots heroin discovers to his own amazement that it has no effect—that he has wasted his money. The higher the methadone maintenance dose, the larger a dose of heroin is thus blocked. The methadone dose can be set at whatever level is necessary to block the largest heroin dose a patient is likely to secure. There is nothing mysterious about this blocking effect; it is just a special case of cross-tolerance. Any opiate or synthetic narcotic, in a given dose, will block the effects of any other opiate or synthetic narcotic given in a substantially smaller dose. The Dole-Nyswander program merely makes use of this well-known relationship among opiate and synthetic narcotics to discourage the use of heroin while on methadone.

* In Britain, where large doses of unadulterated medicinal heroin are available, much larger doses of methadone are dispensed than in the United States--- up to 400 milligrams per day, for example, as compared with the usual 100 milligrams daily here.

No "high" or "bang" or "rush" is experienced when methadone is taken by mouth in regular daily doses. Indeed, nothing whatever is experienced except the taste of the orange drink in which methadone is dissolved. To demonstrate this, Drs. Dole and Nyswander occasionally gave patients who came in for their daily dose of methadone a placebo instead. The patients couldn't tell the difference. Not until hours later, when withdrawal symptoms began to appear, did they realize that they had not received methadone. When methadone is mainlined, however, some people get much the same reaction that some people get from heroin. This is one reason why methadone for maintenance use is dispensed in a hard-to-inject, soft-drink or tablet form in the United
States. In Britain, physicians are permitted to prescribe—and some do—injectable methadone for addicts.

Finally, methadone staves off not only the acute effects of withdrawal from heroin—a fact long known—but the postaddiction syndrome of anxiety, depression, and craving as well, year after year. On methadone the patient no longer thinks constantly about heroin, or dreams of it, or shapes his whole life to ensure a continuing supply. He no longer engages compulsively in "drug-seeking behavior." He is, quite soon after going on methadone, freed of the heroin incubus. In this sense, he is cured.

These advantages of methadone, however, should not be interpreted as criticisms of legalized heroin or morphine maintenance, as practiced in Britain today and in Kentucky earlier, for example. While the latter are no doubt inferior to methadone maintenance in the respects described above, they are still a vast improvement over the American heroin black market.

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Footnotes

Chapter 17


6. Ibid.


9. Personal communication.