"From Morphine to Methadone: Maintenance Drugs in The Treatment of Opiate Addiction"

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For Harm Reduction: A Textbook
INTRODUCTION

By the end of the 19th century millions of Americans and Europeans were regularly using patent medicines, tonics, salves, potions, and commercially available beverages containing some combination of opiates, cocaine and alcohol. These substances were the “front-line” medicines of the time - almost universally prescribed by doctors and sold over the counter by pharmacists to remedy a wide range of real and imagined maladies and to treat the pain of injuries and chronic illnesses. Their psychoactive properties were also well recognized and exploited to relieve sleep disturbances, anxiety, and depression. These drugs had been known to have these beneficial effects for centuries - in some cases (such as alcohol) for millennia - and they were among the few effective tools of early medical practice.

The great 19th century advances of chemistry spawned the modern pharmaceutical industry (aspirin is discovered and marketed as the first “wonder drug” in 1897) and this industry quickly turned its attention to the old botanical products already in such wide use. These were re-processed and made more widely available in highly refined and far more potent forms - among them morphine and heroin (refined from opium poppies) and cocaine (from coca leaves). In both Europe and America these products were heavily promoted and quickly developed huge markets as little else was available and they had such a powerful effect on symptoms - especially the opiates for pain (as they still do). But with increased use of these potent drugs, both within medicine and without, came growing public awareness of their addictive qualities.

This growing awareness of the addictive potential of narcotics led governments to begin to regulate their production and sales. This was done with a view to continuing their useful role in medicine (e.g. as painkillers) but eliminating the open market in the many commercial products containing them. However while the professed goal of the new drug regulations associated with the Pure Food and Drug Act (1906) and the Harrison Narcotics Act (1914) was to retain narcotics still singular medical benefits and minimize the problem of addiction, they quickly became part of a campaign for the prohibition of all drugs.

The same period also saw a surge of popular revulsion at the problem of addiction and growing hostility towards the addict - a demonization of drugs and those who used them. These sentiments were engendered and vigorously stoked by the lurid pulp journalism of the late Victorian age, with its overheated moralistic tales of “enslavement and depravity” associated with drug use - often with racial stereotypes of drug users (e.g. the Chinese and opium). It was also a period of moral crusades aimed at extirpating all sorts of “sinful behavior from American society. And, complicating matters further, these moral campaigns are also part of a powerful (and mostly positive) historical movement of the Progressive era, promoting social betterment and public health - ideas we take for granted in developed societies, even if we often have difficulty acting upon them.

ADDICTION

While the word addiction itself does not appear in medical usage until the mid 19th century, by that time millions of Americans and Europeans were habitual users, many of whom were considered dependent on these substances. While this group represented only a minority of all who used these drugs, even of those who used them often, “addicts” (generally a pejorative term) came to occupy the most prominent place in the public debate about drugs. It was clear that dependent individuals not only used a given drug to relieve...
the symptoms of illness and for the beneficial effects they undoubtedly produced as
painkillers, stimulants, and mood alterers - they also came to require their regular use in
order to maintain a sense of well-being, to "feel themselves". And, in the absence of these
drugs, these dependent users suffered prolonged anxiety, restlessness, sleep disturbance
and other symptoms we now call withdrawal or the "abstinence syndrome". Sometimes
called "chemical dependency", drug addiction is today defined in the standard textbooks
and diagnostic manuals of both medicine and psychiatry as a disease.\[5,6\]

THE DISEASE CONCEPT OF ADDICTION

We now know that addictive phenomena are associated with certain drugs actions within
the nervous system and changes that occur in the regulation of the information that nerve
signals carry - known as neurotransmission. Biologically speaking, addiction may be
understood as a disorder of neurotransmission associated with the effects of such drugs (including alcohol and tobacco) on particular parts of the brain. These areas normally
produce chemicals, at minute levels, that are natural versions (called ligands) of most
psychoactive drugs e.g. the endorphins - a form of the opiates. Alterations of
neurotransmission involving these ligands appears to form the basis for all of the long term
and short term effects associated with externally administered psychoactive drugs. And, in
the case of addiction according to researcher Elliot Gardner, these drugs may "highjack"
our natural systems\[7\] and begin to alter the complex and subtle processes that normally
regulate neurotransmission. These changes can endure for years and the long lasting
(chronic) nature of addiction is one of its hallmarks. This can be seen in the tenaciousness
of even self-destructive drug use that the addict sincerely wishes to stop, the great
difficulty many people have in stopping, and the persistence of a felt need for the drug
even after periods of complete cessation - often leading to a return to drug use (relapse).

The disease model of addiction includes the development of a very specific set of problems
often associated with the regular use of certain drugs - chief among them are tolerance,
withdrawal, and craving.

Tolerance: with the regular use of an addictive drug, some people need more and
more of the drug to produce the same effect or, conversely, get less of an effect from the
same dose. When opiates are used as painkillers for a long period, it is frequently
necessary to increase the dose to produce the same analgesic effect. The regular coffee
drinker may develop tolerance to caffeine and drink several cups at night without affecting
his sleep, whereas the non-tolerant coffee drinker will be up all night from a single
espresso. Likewise for the cigarette smoker who develops tolerance to nicotine and smokes
several packs a day. With illicit drugs (whose cost is high) tolerance drives the addict to
need more of the drug and to obtain more money to get enough of the drug just to feel
normal - i.e. to avoid withdrawal.\[8\]

Withdrawal: (abstinence syndrome) this is the other face of tolerance and a clear
marker of the bodies "memory" of drug effects. In withdrawal a regular user reacts
adversely to the absence of the drug to which they've become tolerant. The withdrawal
from most drugs has two phases - short term (acute) and long term (chronic). Withdrawal
symptoms differ for the specific drug. The coffee drinker will experience headaches (which
are quickly relieved by a cup or two) while the heroin addict (depending on the history of
use) can suffer painful cramps, itching, sweating, and emotional jumpiness - once again
reliably and quickly reversed by a dose of any opiate. But for most addictive drugs the
acute stage of withdrawal is characterized by a pervasive and highly distracting unease,
often accompanied by sleep disturbance, and diffuse anxiety which makes it difficult to
think about much besides obtaining the drug (and instant relief). In withdrawal the dependent user has great difficulty in resisting the drug when it's available. The power of this need is formidable - think about the cigarette smoker who will brave a winter storm to buy a pack in the middle of the night as an indication of the strength of what is often called "drug craving".

**Drug Craving:** If addiction can be understood as a complex set of biological cues in which the body (in essence) says - "I need this drug to feel normal", craving is the person's psychological experience and conscious awareness of that fact. It is perhaps the most important phenomenon of addiction because it motivates the addict so powerfully and for so long to use the drug in order to get relief. While the use of a drug to feel at ease or to create a sense of well-being is not alien to most of us (think of the morning coffee or the social use of alcohol or cigarettes to relax), in the case of dependence one does not feel normal without regular doses. And for illicit drugs, where society demands total abstinence and the drug is difficult and dangerous to obtain, this virtually dictates insufficient doses and frequent periods of prolonged craving.

**LIMITATIONS OF THE DISEASE MODEL**

But viewing addiction as a disease is a two-edged sword - useful but potentially dangerous. Its usefulness comes from the value of having a consistent physiological explanation of what are clearly powerful biological phenomena, grounded in scientific research in both pharmacology and brain functioning.

However that is not the whole story and our biological understanding of addiction (as a disorder of neurotransmission), does not mean that the social and psychological issues in drug use and addiction are unimportant. Indeed in an environment freighted with powerful moral and legal reactions to the use of drugs, the stigma attached to drugs may come to be a more important factor than the biology of addiction - and the demonization of drugs and the criminalization of the drug user (i.e. the "war on drugs") more damaging to the individual and society than drug use or addiction itself. For, despite great advances in our scientific understanding of drugs actions, the view of drug use and addiction as a primarily moral (and legal) problem still persists and shapes the public discourse on their meaning. These negative perceptions powerfully determine our social and political responses to addiction - usually at the expense of the biological or disease model and of the drug user. Thus while the disease model may be in all the medical textbooks, it is still not the basis of our overwhelmingly punitive response to the addict. Today most addicts spend more time behind bars than in treatment for their "disease".

Another shortcoming of the disease model is that it easily overlooks the beneficial effects of many of the same drugs that it calls pathogenic, i.e. that are seen as the cause of addiction. Some form of drug use is virtually universal and often we fail to distinguish between drug use and abuse or addiction. While there is the potential for many drugs to produce adverse outcomes (among them addiction and toxic poisoning) addiction represents the minority of outcomes associated with even the use of some of the most powerful drugs - e.g. heroin and cocaine. And while the phenomena of addiction may be understood biologically in a "disease model", this model is much less useful for understanding the full spectrum of drug use, which includes individual experimentation and recreational use, the highly structured and socialized patterns of psychoactive drug use seen in many tribal peoples, and the widespread use of alcohol in Western society. While alcohol use is generally accepted in our society today we can still recognize that alcoholism is a disease, and only a part (albeit an important part) of the normal pattern of use of this particular drug. At this time we have difficulty accepting this broad range of patterns of use for the illicit drugs (like the
opiates and marijuana) and tend to forget that alcohol was prohibited in the US for the period 1920 - 1934, a time when marijuana use was quite legal.

THE NATURAL HISTORY OF ADDICTION

Most users of most drugs do not go on to become addicted to them. In the US it is estimated that over 20 million people have tried heroin and 40-50 million cocaine, but fewer than 3% are current users. And even addiction itself can be understood in less pathological ways than the rather hopeless view implied in the (incurable) disease model.

Addiction may be conceptualized as a long-term process lasting 10–20 years with a predictable series of stages (a natural history). The good news is that the natural history of addiction tends toward reduction and often ends in cessation of use with middle age. At each of these stages of addiction there are opportunities for the affected individual to reduce or entirely cease the use of the drug - and this is what occurs in the majority of cases, even without treatment. Surprising as it may seem, even among those with prolonged use of opiates and cocaine, a favorable outcome is the norm. Accordingly many now believe that drug treatment should be oriented to take advantage of this long-term natural history of drug use and exploit the multiple opportunities it presents for effective intervention to help the addict through a long but finite period of “disease” with minimum harm to his health and social well-being.

ADDITION TREATMENT

Early in this century a wide range of treatments for the still poorly understood problem of addiction were considered and tried, but with little success - dependence on opiates appearing particularly intractable. It soon became clear that once dependency had been established, doing without these drugs was extremely difficult for many regular users. Thus began the search for medications and strategies for using them that might loosen the bonds of addiction.

At first doctors tried to deal with the most apparent symptoms of acute withdrawal by prescribing gradually reducing doses of opiates over a period of weeks or months. The goal here was to soften the most unpleasant symptoms of acute withdrawal as the individual moved towards an abstinent state. This is called short-term detoxification (or tapering) and it is still an important tool for helping addicts gain control over their levels of use and is the most common form of initial treatment. We are today accustomed to celebrities entering expensive rehab centers (like The Betty Ford Center) for a few weeks to “dry out” and “clear the drugs from their system”. Often detoxification is a prelude to attempts at drug free treatment - but, as often as not, relapse occurs and the entire cycle reoccurs. Thus while this approach can help those who have a life situation supportive of abstinence, and can lessen the size and destructive potential of a drug habit, it is often inadequate in the longer term to prevent craving and a return to regular use of illicit drugs - especially in the case of the opiates.

THE CONCEPT OF NARCOTIC MAINTENANCE

Among the very first approaches attempted for long term treatment of dependency to opiates was the provision of controlled dosages of some form of the addictive drug itself. On the face of it, giving morphine to one already addicted to its use seems a contradiction - “like giving alcohol to an alcoholic”, some might say. But this analogy doesn’t really apply to opiate addiction because, unlike alcohol (which in sufficient dosages, almost always adversely affects the individuals health and well being), the opiates are not themselves
Physiologically damaging. They cause no direct harm to any major organ system nor need they affect mental functioning if taken in the right dosages. Therefore, instead of limiting our treatment goal to abstinence, we may ask if it is possible for the opiate addict to continue to take some form of opiates on a regular basis. And, if there is a natural history of opiate addiction that tends towards reduction and eventual cessation of use after many years, what may we do to ease this passage and reduce the health and social risks associated with the dependency on illicit drugs?

Despite much posturing about addiction as a “moral weakness” (whose sole remedy is abstinence), one alternate solution has been to reorient drug treatment towards better managing the natural course of addiction by the use of safer maintenance drugs. Rather than attempting to stop drug use altogether. In this approach, the goal of addiction treatment is primarily interrupting or reversing the pathological physical and social processes that go along with heavy use of an illicit substance and eliminating the damaging consequences of withdrawal and drug craving.

**FIGURE - DRUG TREATMENT POSTER FROM LIVERPOOL**

Maintenance treatment attempts to replace more dangerous illegal drugs with safer legal ones that are medically prescribed. Maintenance can interrupt the progressively worsening processes of addiction by permitting the drug dependent individual to end his or her reliance on illicit drug markets (with all their dangers), and can effectively neutralize the most negative physiological aspects of addiction - the endless cycles of craving and avoidance of withdrawal. Maintenance can permit addicts to get on with their lives even though their addiction has not been “cured”.

Long-term maintenance treatment using medications similar to the substances to which the individual is addicted (opioids) is aimed at achieving permanent abstinence from illicit opiates by transferring the dependency to a more readily controlled dosage and safer forms of legal opiates. In addition to reduced reliance on more dangerous illicit drugs, effective drug maintenance also reduces the individuals exposure to the legal risks associated with obtaining them and the health risks from illicit use of drugs of unknown purity and potency (with the dangers of overdose) and use of unsterile injecting equipment. Most heroin addicts in the US and Europe inject the drug - and sharing needles spreads infectious diseases like AIDS and Hepatitis.

**NARCOTIC MAINTENANCE IN PRACTICE**

In Great Britain and the US some doctors recognized the value of this approach and instituted narcotic maintenance treatment early in the century. The British medical profession, under the leadership of Sir Humphrey Rolleston, President of the Royal College of Physicians, took pains to articulate a set of principles for the medical provision of opiates as a “humane” approach to “incurable” addiction. In 1926, they set up a Royal Commission which established the right of British practitioners to prescribe any and all drugs (including Heroin and its injectable forms) to their patients who were addicted. This “British System” served them well for over 40 years, until changes in the drug scene of the 1960s led to its revision and the institution of greater controls. However in the face of the AIDS epidemic even the Conservative government of Margaret Thatcher saw the wisdom in maintenance programs, and loosened the reigns on medical prescribing - leading to a three fold increase in narcotic prescribing in Great Britain. This and other public health measures (such as needle exchange) may account for the low rate of HIV infection in Britain for the last 10 years.
In the U.S., by contrast, the drug maintenance approach has a troubled past, and the role of the American medical profession was less laudatory. In part this was because American doctors at the time were members of a much lower prestige profession than we know today. Further the medical profession was in large part held responsible for the problem of addiction in this country. No less a personage than Supreme Court Justice Oliver Wendell Holmes (writing in 1856) blamed the drug problem on the “constant prescription of opiates by certain doctors” - often referred to as “dope doctors” and regularly vilified in the press. And while many American practitioners (out of a humane motive) quietly provided these drugs to their patients as needed, others exploited these same patients dependency, reaped substantial profits, and discredited the approach. Nonetheless, in the period 1914–1924, some Morphine maintenance programs were established in the US - in Shreveport LA, Jacksonville FL, and in NYC, where over 7000 patients were dispensed narcotic drugs under the auspices of the City’s prestigious Department of Health.

But the general public reaction to this approach was negative - and soon American medicine sought to distance the profession from narcotic maintenance and from the problem of addiction altogether. In 1910 the AMA (still in its infancy) described the provision of drugs to the addict as “immoral” and declared the condition outside of their responsibility. Accordingly the US. Harrison Act (passed to regulate the manufacture and sale of narcotics) was soon interpreted as banning the medical prescription of opiates as addiction treatment. And this view, when challenged by concerned practitioners, was upheld in the US Supreme Court throughout the 1920s. The effect was to outlaw this form of medical practice and to shut down the still young and inexperienced drug maintenance treatment programs that had begun to emerge in this country.

And just as medicine became the sole legitimate source of narcotic drugs (and their previous wide public availability began to contract dramatically from the early years of the 20th century), doctors began to shy away from their prescribing outside a very narrow range of uses as painkillers. And even there, often at inadequate doses - a problem that perseveres in the medical use of opiates to this day and is one of the most troubling legacies of the old negative association of medicine with these important drugs.

**METHADONE**

It was not until 40 years later that we would see a reemergence of these old ideas of drug maintenance treatment within US medical practice and the rediscovery and legitimation of maintenance treatment. In part this change was due to renewed alarm about the heroin “epidemic” of the 1960s where, for the first time in modern memory, heroin use moved out of the sequestered ethnic groups and the artistic urban Bohemian subculture and jazz scenes that had for decades characterized drug use in American society. Working in New York’s Harlem, Dr Marie Nyswander (a young psychiatrist and jazz fan) was trying to help her addict patients - often prescribing (unorthodoxly) various opiate compounds to help them gain control of their use of illicit heroin. She was soon joined by Dr Vincent Dole, a well respected metabolic researcher at the prestigious Rockefeller University and New York Hospital. Together, they pioneered the use of a particular form of synthetic opiate, Levoacyetal- methadol (Methadone), for narcotic maintenance.

Methadone, is a synthetic drug having the same basic molecular structure as heroin and all naturally occurring opiates. As a long term maintenance drug however, Methadone has two important advantages over heroin - qualities which make it well suited for maintenance prescribing: It can be given orally and it is long lasting - 24 to 36 hours for a single dose, compared to 2-3 hours for heroin.
A series of careful studies of Methadone maintenance soon demonstrated that it did not lead to escalating tolerance and could therefore be used to achieve a stable daily dose without the ups and downs of shorter acting opiates like heroin or morphine - especially when these are taken in uncertain doses and unpredictable schedules. This meant that a single daily oral dose of an inexpensive medication could eliminate withdrawal, narcotic craving, and the destructive need for illegal heroin. Importantly, in the proper dose for an already-tolerant user, Methadone did not produce intoxication (a high). This permitted relatively normal functioning, despite the fact that the user was taking large daily doses of a narcotic doses that would affect a non-tolerant individual profoundly, perhaps even lethally.

Given the American medical professions long antagonism to maintenance prescribing, the initial demonstration of the clinical efficacy of Methadone, had to convince the most skeptical of audiences. Accordingly the first clinical trials of Methadone selected “the worst cases” i.e. several hundred heroin addicts who had tried every other option and failed repeatedly to become drug free. Most had 10 years or more of addiction, 5 or more previous treatment failures, and a multitude of problems linked to the criminalization of their addiction i.e. long prison records, failed work histories, and shattered families. If Methadone could help these “hard core” addicts, it was reasoned, it would be taken seriously in America.

The initial results were spectacular - over 90% “retention” in treatment and the virtual cessation of heroin use. The first was critical because staying in the program is the necessary prerequisite to a positive outcome in any form of chronic treatment. Secondly these patients maintenance on Methadone made the use of illicit opiates unnecessary and the use of street heroin quickly dropped to virtually zero. At the levels of Methadone dosage used in maintenance (60-120 mgs per day in tablets), the corresponding level of tolerance meant that street doses of heroin (generally smaller in dose) had little effect and would be a waste of money. After a few attempts to use heroin, Methadone patients quickly came to realize that because their narcotic tolerance had been reined to the often higher dosages and regular administration of Methadone that a “narcotic blockade” had been created and they stopped buying and using heroin - the average addict of the time needed to produce $100 day. Arrest rates dropped precipitously as there was no longer a need to engage in acquisitive crime to get money for illicit drugs. More critically, as they began to relocate their source of drugs from the street drug scene to the clinic, and shift their dependency from illegal to prescribed drugs, addicts began to reorient their lives away from drug seeking and back to the worlds of family, work, and the community - i.e. “to get a life”.

The landmark clinical trial of Methadone maintenance (first published in the Journal of the American Medical Association in 1964) captured wide public attention. This lead both to its rapid acceptance and a certain amount of oversell - i.e. Methadone as “a miracle cure”. But the results of Nyswander and Dolle’s first series of clinical studies firmly established Methadone maintenance as safe, effective, and feasible of large scale implementation - indeed this success was recognized by the award of the prestigious Lasker prize. The US saw a rapid expansion of MMTPs in the late 1960s with clinics opening in dozens of cities and over 75,000 patients in treatment in the US by 1975 and 115,000 by 1992. Today Methadone is the preeminent and (still) most successful treatment for heroin addiction-ending 40 years of therapeutic “nihilism” about addiction treatment in this country.
metabolism of methadone (which is highly variable from individual to individual anyway) and patients taking one TB drug (Rifampin) may need their Methadone dosage doubled.

Ending Methadone Treatment

At the present time we have no medical "cure" for addiction - in the narrow biological sense. So, for many addicts, Methadone is a vastly preferable way to take a class of drugs they have become dependent upon - allowing them to live normal lives and to stop using heroin. From this perspective, getting off methadone is not a goal of methadone treatment, anymore than getting a successfully managed diabetic off a regime of insulin is the correct treatment goal for that condition. Studies following even the most successful Methadone patients (i.e. those who have readjusted to community life, job and family) have determined that many of these patients relapse to use of heroin - experiencing debilitating craving despite years of successful maintenance and very gradual tapering off. This is a testament to the long and tenacious grip of opiate addiction. On the other hand fully 25% of admissions to methadone treatment are re-entrants - individuals who have been in Methadone treatment in the past - often several times. In New York State, which has over 40,000 patients in an MMTP system established in the 1960s, more than 120,000 different patients have used Methadone at some point in their long struggle with addiction to opiates. This suggests that, over time, many Methadone patients do in fact become drug free, using Methadone as a tool for achieving total abstinence from opiates - powerful evidence of the eventual assertion of the natural history of addiction and its trend towards reduction of dependency with age.

SNATCHING DEFEAT FROM THE JAWS OF VICTORY

While the US was the pioneer in establishing methadone treatment, old attitudes hostile to maintenance approaches were never totally abandoned in America and soon began to reassert themselves with Methadone as the target. It is important to realize that, in addition to creating Methadone treatment, the US was also birthplace and is still the spiritual center and home of the worldwide movement of drug free therapeutic communities (TCs). Programs such as Synanon,Phoenix and other "self help" approaches draw on the peer group and "twelve-step" methods of Alcoholics Anonymous - programs which sprang up in America in the face of the vacuum in medical services for addiction. The total abstinence from the use of all mind altering drugs was the principal goal of treatment and the only acceptable terms for drug users participation. A sharp division between this philosophy and Methadone maintenance increasingly took its toll on the conception and practice of drug treatment in this country. And, due to the inordinate US influence in international narcotics matters, this polarization was also replicated in treatment services abroad.

The dominance of this "drug free" abstinence orientation grew further under the auspices of the US war on drugs. This moral crusade soon found a natural ally in the TCs and among recovering addicts -who often became the most articulate and persuasive spokesmen for the "Just Say No" approach. Its foundation principal was the "evil of drugs" and the demonization of drug users and this view soon undermined the credibility of Methadone in this country. And while the successful Methadone patient generally kept it a secret, the worst cases were all too evident around their overlarge and often conspicuous clinics in the midst of some of our nations most embattled communities. Methadone treatment was commonly and publicly held in contempt, and an urban folklore of Methadones evil qualities soon became the conventional wisdom in the drug treatment world. Subsequent cutbacks in the funding of addiction treatment in the urban health centers which had originally sponsored many of the first methadone treatment clinics, and its continued marginalization within medicine all contributed to Methadone's problems in the US.
Predictably the quality of Methadone treatment began to suffer. This could be seen in the steady lowering of dosages, below therapeutically recommended levels, and in the increasingly punitive and controlling character of many MMTPs - often large clinics of the inner city which became associated with concentrations of unemployed and (often) still-active users of other illicit drugs - especially of the cheap and ubiquitous crack cocaine. When the crack epidemic arrived, in the mid to late 1980s, it amplified the role of sex and drugs in the AIDS epidemic, and produced a whole new group of drug users with particularly difficult to treat patterns of compulsive cocaine use. Crack also served to reinforce the strong attitudes already antagonistic to the use of Methadone, and further distracted attention from the treatment needs of the much older cohort of heroin addicts. The once rapid expansion of Ms in the US ground to a halt and stagnation set in - there has been little growth or innovation of Methadone treatment in the US since the 1980s.

Unfortunately all the old prejudices and antagonisms towards drug maintenance are still evident in the regulation of MM in the US. Methadone treatment is subject to many influences beyond the purely clinical responsibilities of getting the patient the right daily dose. Thus a law enforcement agency (the ED) rather than a health care one, controls many important aspects of the treatment program - and a set of government regulations, some of which are inordinately punitive, still govern Methadone treatment in the US. In response to this domination of Methadone treatment by nonmedical forces, the National Association of Methadone Advocates (NAMA) was formed in 1980. It has been long in coming but there is now an active consumers group of Methadone patients and their advocates who are fighting to normalize methadone treatment in the US.

FIG 2 METHADONE PATIENT BOOKLET

HARM REDUCTION : AIDS AND THE "RE-INVENTION" OF METHADONE

In the early 1980s the AIDS epidemic appeared in the US, Europe, Asia, and the Pacific - immediately changing the significance of drug use and addiction. While it had always been true that drug addiction and public health were linked, the appearance of AIDS set the stage for a reconsideration of injecting drug use and addiction, now seen as an engine of AIDS spread, and a reconsideration of drug treatment as a tool of AIDS prevention. This lead to the birth of Harm Reduction - the modern public health model for dealing with addiction as a global public health problem. In Harm Reduction the goal is the prevention of collateral health and social damage associated with drug use and limitation of the other medical conditions that rampant and poorly treated addictions foster - especially AIDS and other infectious diseases (e.g. Hepatitis) associated with sharing injection equipment and other sexually transmitted diseases via prostitution by addicts.

In the case of AIDS, it soon became clear that drug addiction was the ignition point of a worldwide chain of transmission from addict to sex partner to newborn - a cycle that has already demonstrated the capability for explosive spread of HIV in many areas around the world - especially the cities of the US and Europe and throughout Asia - where this pattern was occurring in new populations for whom IV drug use had never been an issue. Faced with a burgeoning global heroin trade of huge proportions and despite decades of massive expenditures on interdiction (Supply reduction), the support of corrupt regimes (narcodictatorships) and the wholesale incarceration of drug users (up 400% in the US since 1980), many governments and their public health and medical officials have realized
the risk and adopted harm reduction as their national AIDS prevention strategy - with the notable exception of the US.

And while the US had embraced Methadone maintenance early, in other countries Methadone was slower in gaining acceptance and often faced similar prejudices as morphine maintenance had faced in the USA during the 1920s. But in Great Britain, methadone maintenance was widely adopted in addiction treatment, and even provided in injectable forms in some instances. Hong Kong, which had no history of addiction treatment other than the residuals of the old Communist regimes approach which had brutally suppressed the drug trade and its addicts, and several other former British Commonwealth states (e.g. Australia, Canada, and New Zealand), also instituted modest Methadone programs under state health dept. auspices. But continental Europe, with a few exceptions, had resisted the use of Methadone, often at the insistence of their Psychiatric associations - in Germany its use was barred by law.

NEW DIRECTIONS IN MAINTENANCE TREATMENT

The experience of the AIDS epidemic among injection drug users in the US (which was fully documented in thousands of studies) served to alert health authorities around the world to the link of drugs to AIDS. Soon they began to massively expand treatment programs for the addictive disorders - which differed greatly from place to place. However most European and many Asian countries already had developed substantial heroin using populations and their health ministries and public health authorities “rediscovered” methadone - still the most effective and well proven treatment available for heroin addiction.

The period 1985-1995 was the first decade of the AIDS epidemic among drug users in these parts of the world - whereas in the US, HIV had entered the population in the mid 1970s. In response to this threat to public health many countries instituted the rapid expansion of Methadone treatment. Australia increased its availability of Methadone tenfold and, in the Netherlands, Methadone treatment services today reach over 70% of Dutch addicts (compared to <15% in the US). In addition to increases in treatment capacity, the international public health community developed new ways to improve the reach and efficacy of Methadone treatment by breaking with the narrow one size fits all Methadone “clinic” as the sole way of utilizing this medication. A key step was the inclusion of methadone treatment as a part of the care rendered by primary care doctors within routine practices or medical clinics. In Europe and Australia today the majority of methadone is prescribed by an ordinary doctor and dispensed by an ordinary pharmacy. In addition, new ways were devised to reach those who did not want to come to clinics, but did want to use Methadone to help control their addiction. “Low threshold” approaches such as The Methadone Bus in Amsterdam extended treatment to new groups of addicts.

A recent study in Leicester, England suggests the direction that addiction treatment using maintenance drugs may take in the future - combining the pharmacological supports of maintenance drugs with the environment and psychological rehabilitation aspects of many drug free programs. In this case a therapeutic community, where no maintenance drugs were used, introduced methadone within the framework of the residential program. Whereas it previously had a dropout rate of over 60% (much of it in the first few months of the stay, when drug craving would be at its peak), when maintenance doses of Methadone were introduced retention jumped to over 80% . This example demonstrates that maintenance approaches can be used to support a range of treatment goals - including the more comprehensive life changes and rehabilitation that so many stigmatized and
criminalized addicts now need - as much from our punitive and cruel response to their addiction as to any properties of heroin or of their biological dependency.

Further, new forms of maintenance treatment for the opiates (and some other drugs) are emerging from the growing clinical experience with addiction treatment outside the US, fueling renewed confidence in medicines ability to help control the worst aspects of addiction with the help of a range of medications - most of which are already available. Thus in Germany (which a decade ago imprisoned physicians for prescribing methadone), Methadone clinics now serve 5000 patients. And over 200 physicians maintain another 25,000 addicts on oral codeine syrup - a shorter acting opiate than Methadone - i.e. one that is easier for the user to "titrate"(control) the dosage according to his or her perceived need, as with any mood altering medications. In France, which had only 50 patients on Methadone in 1990, there are today 5000 thousand in care and another 5000 coming in the next 2 years. Further many French physicians are now learning how to prescribe Buprenorphine - a complex oral opiate that has both maintenance (agonist) and blocking (antagonist) actions that some doctors and their patients are finding helpful.

And in Switzerland (which has the highest AIDS rate in Europe) a bold experiment of injectable heroin maintenance is now in its second year, with over 1000 patients being seen in 20 clinics operated by the national Health Ministry. The programs careful evaluation already tells us that these patients are doing as well as Nyswander and Doles first Methadone patients in NYC - to whom they compare in terms of their long addiction histories and multiple treatment failures. But in this case these are patients who had also tried Methadone and still continued to use heroin. The preliminary studies of these patients indicates a high success rate as measured by retention in treatment (over 80%) and a sharp reduction in their use of illicit drugs - with associated improvements in their re integration into normal life i.e. work, home, and family - all while injecting an average of 400 mg. of pharmaceutical heroin, up to three times a day within a clinic setting.

CONCLUSIONS

Today, our scientific knowledge places us on the threshold of a comprehensive understanding of the neurophysiology of all drugs action in the brain and the biological basis of addiction. We are also beginning to understand potential genetic differences in susceptibility to addiction - why only a small minority of those who try these drugs become dependent upon them. These developments and important advances in pharmacology prefigure the development of a multitude of new and exquisitely specific psychoactive agents (Prozac is one of the first of these new drugs), which will someday help us to better treat and (perhaps even to "cure") addiction. But as long as we continue to view drug addiction primarily as a moral or psychological failing, rather than as a disorder of neurotransmission, we will continue to be handicapped in our ability to appreciate its biological reality and to fully employ the new tools of medicine and public health that are at our disposal to minimize opiates potential harms and take full advantage of their many real benefits. Until then maintenance treatment offers a powerful tool for reducing the harms of opiate addiction and the array of public health and social problems that accompany it.
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