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Investing in Drug Abuse Treatment

A Discussion Paper For Policy Makers



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Summary

Drug addiction produces serious, pervasive and expensive social problems. Regardless of whether substance abuse is a sin, a crime, a bad habit or an illness, society has a right to expect that an effective public policy or approach to the “drug abuse problem” will reduce drug-related crime, unemployment, family dysfunction and disproportionate use of medical care.

Science has made great progress over the past several years, but it is still not possible to account fully for the physiological and psychological processes that transform controlled, voluntary “use” of alcohol and/or other drugs into uncontrolled, involuntary “dependence” on those substances, and there is still no cure. What can be done is to treat use “effectively” and to provide an attractive return on societal investment in treatment.

Controlled clinical trials and large-scale field studies have shown statistically and clinically significant improvements in drug use and in the drug-related health and social problems of treated individuals. Further, those improvements translate into substantial reductions in social problems and costs to society. The present paper compares the effectiveness of various forms of treatment with non-treatment alternatives—such as no treatment at all—and criminal justice interventions. In each case, the research evidence suggests that treatment interventions are more effective than non-treatment.

The main phases of substance abuse treatment are detoxification/stabilization, rehabilitation and continuing care. The published scientific literature provides evidence of effective treatment components with the length of stay being the clearest predictor of beneficial effects from treatment. Treatment modalities with longer recommended duration typically have better outcomes, as do patients who remain engaged in treatment longer, regardless of the modality.

The research evidence is clear that, for those with severe forms of drug dependence, the best available treatments are:

- Ongoing, like treatments for other chronic illnesses;
- Able to address the multiple problems that are risks for relapse—such as medical and psychiatric symptoms and social instability;
- Well integrated into society to permit ready access for monitoring purposes and to forestall relapse.

Importantly, the research shows that while motivation for treatment plays an important role in maintaining treatment participation, most substance-abusing patients enter treatment with combinations of internal motivation and family, employment or legal pressure. Those pressures can be combined with treatment interventions for the benefit of the patient and society.

The evidence is compelling that, at the present state of knowledge, addiction is best considered a chronic relapsing condition. It is true that not all cases of addiction are chronic and some who meet diagnostic criteria for substance dependence recover completely without treatment. However, many of those who develop addiction disorder

An effective public policy or approach to the “drug abuse problem” will reduce drug-related crime, unemployment, family dysfunction and disproportionate use of medical care.

ders suffer multiple relapses following treatments and are thought to retain a continuing vulnerability to relapse for years or perhaps a lifetime. Like so many other illnesses, it is impossible to predict whether or when an acute care strategy is likely to achieve complete remission. For example, while change in diet, exercise and lifestyle can reduce high blood pressure in some patients without medication or continuing treatment, many others require sustained management with medications as well as regular monitoring of diet, stress and exercise. In considering addiction a chronic condition, it is no longer surprising that incarcerations or brief stabilizations are not effective.

The available research is quite clear on these points:

- Education does not correct drug dependence: it is not simply a problem of lack of knowledge.
- Consequences of drug use (e.g. hangovers, loss of job, arrest, etc.) appear to be important stimuli leading to entry into drug abuse treatment.
- Very few addicted individuals are able to profit from a corrections-oriented approach by itself. Relapse rates are over 70 per cent from all forms of criminal justice interventions.
- Addiction is not simply a matter of becoming stabilized and getting the drugs out of one's system. Relapse rates following detoxifications are approximately the same as those following incarceration.

Drug abuse is best treated by combinations of continuing outpatient therapy, medications and monitoring.

Based on these findings, drug abuse is best treated by combinations of continuing outpatient therapy, medications and monitoring, with the goal of retaining drug abusers in that treatment/monitoring regimen to maximize and maintain the full benefits of treatment.

Recent pharmaceutical research has produced effective medications for the treatment of alcohol, nicotine and opiate dependence and has identified promising candidate medications that will provide even more assistance to physicians in treating those illnesses. From this, one must conclude that drug and alcohol dependence are treatable medical illnesses.

While this paper compares addiction to other chronic illnesses, there are many differences. One of the most prominent differences is the impact of the disease on the family and society. The major focuses of most treatments for other chronic illnesses are symptom remission and return of function for the benefit of the patient. This has also been true for many addiction treatments, which has left much of society with the view that the major goal of addiction treatment is simply to make the patient feel better—not something those who have suffered from the crime, lost productivity and embarrassment of addiction are eager to do.

The perspective taken here suggests that addiction treatment providers must broaden their responsibilities and focus on such socially important goals as:

- Working with employers and social welfare agencies towards the goals of returning to—or finding—work;
- Working with criminal justice agencies and parole/probation officers towards the goals of keeping the patient from returning to drug-related crime and incarceration;
- Working with family agencies and families towards the goals of returning to, or taking on, responsible family roles, especially parenting.

These are the addiction-related conditions that most affect society and reduction or elimination of them are what society expects from any “effective” intervention.

This paper concludes that substance abuse treatments can and should be expected to improve the public health and social problems of patients and that there are methods of organizing the structure and delivery of care to achieve those outcomes.

Substance abuse treatments can and should be expected to improve the public health and social problems of patients.

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Introduction

Problems of substance dependence produce dramatic costs to all societies in terms of lost productivity, transmission of infectious diseases, family and social disorder, crime and, of course, excessive utilization of health care. These alcohol- and drug-related problems not only reduce the safety and quality of daily life, they are also a source of substantial expense. For example, it has been estimated that, in the United States of America, the total cost of alcohol abuse in 1990 was 99 billion United States dollars and drug abuse cost approximately US\$ 67 billion, while the total cost of illicit drug abuse in Australia was estimated to be 1,684 million Australian dollars (or US\$ 1,237 million) in 1992. In Canada, the total cost of alcohol abuse in 1992 was estimated to be 7,522 million Canadian dollars (US\$ 6,223 million) and the total cost of illicit drug abuse Can\$ 1,371 million (US\$ 1,134).

Understandably, such problems also produce heated debates regarding what a family, a school, an employer, a Government and/or a society should do to reduce the costs and the threats of substance abuse to the public health and safety of citizens.

There are few countries—regardless of their economic development—with a well developed public treatment system designed to address different substances of abuse and different levels or manifestations of the addiction spectrum. Why have treatment options not been more favourably considered and better developed and disseminated to address the problems of substance dependence? Perhaps the first reason for this is the relative prominence of the social problems caused by drug and alcohol abuse. Crime, family disruption, loss of economic productivity and social decay are the most observable, potentially dangerous and expensive effects of drugs on the social systems of most countries. This is a powerful factor in shaping the general view that the “drug issue” is primarily a criminal problem requiring a social-judicial remedy rather than a health problem requiring prevention and treatment.

A second reason for a diminished role of treatment in most public policies regarding drug abuse is that most societies are sceptical about the effectiveness of substance abuse treatments and most Governments question whether treatment is “worth it”. Moreover, recent surveys show that even a majority of general practice physicians and nurses feel that the currently available medical or health-care interventions are not appropriate or effective in treating addiction.

A third reason why treatment options may not have received more attention in public policies regarding drug abuse is the pervasive view that a treatment approach to substance abuse conveys an implicit message that the addiction—and the addiction-related problems—are not the fault of the addicted person; that they “can't help themselves” and that they have no responsibility for the actions that led to—or resulted from—the addiction. In that regard, the view exists that treatments are designed exclusively to help the drug user but not society. Why should a society expend resources to help an individual who may have produced social harms? These are messages that many people find offensive and unfair.

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*Is there a role for
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Thus, treatment interventions that admittedly cannot cure addiction and that may be seen as focused only on helping socially stigmatized addicted individuals are not popular in many segments of society. Are those perceptions correct? Is there a role for addiction treatment in public policy aimed at reducing drug-related problems? In the text that follows the issue is considered from several perspectives. The first part of the paper considers the perspective of a Government or public agency questioning the value of any intervention aimed at “drug problems”: What would an “effective” intervention do, regardless of whether the intervention were a punitive, criminal justice intervention, an educational intervention, a new social policy or a treatment intervention? Here the paper examines the characteristics of patients who enter addiction treatments—asking where they have come from, who or what agency has referred them to treatment and what goals are expected by those agencies and organizations. This examination is used to develop a set of outcome expectations that would make treatment “worth it” to a society that might be asked to support such an intervention or policy.

The second part of the paper uses these expectations and the outcome measures that derive from them as the operational definition of “effectiveness”. On the basis of that definition, some of the published research literature is reviewed examining the available evidence for the effectiveness of some of the more prominent forms of substance abuse treatment, comparing them with two common non-treatment policy alternatives for substance abuse—no treatment at all and criminal justice interventions such as jail.

Building upon the outcome expectations and empirical findings in the first two parts of the discussion paper, the third section presents an overview of how an appropriate and effective treatment system might be constructed. The attempt here is to present some of the generic issues facing the treatment of addiction, review some of the identified mechanisms of action among those forms of treatment that have been studied and, through that effort, offer suggestions for some of the “active ingredients” that are likely to be effective with a broad range of patient types.

The final part of the paper addresses an important question for the policy maker: Why does it appear that addiction treatment is not as potent or as effective as treatments for other disorders? As the basis for that discussion the paper compares addiction treatments with treatments for three well-studied, chronic medical illnesses. The examination of the issue leads to particularly important conclusions regarding how addiction treatment is viewed by the public, how it is typically provided by treatment programmes and how it has been evaluated by researchers.

1 | What would make an intervention socially worthwhile?

Society's expectations for
"effective" interventions



1. What would make an intervention socially worthwhile?

Society's expectations for "effective" interventions

What brings substance abusers to treatment?

General models of medical service utilization have been adapted to explain who will use substance abuse treatment. However, the assumptions underlying such experimental models of medical care utilization are often very different from the special circumstances affecting entry to substance abuse treatment. To an important extent, requests for general medical treatments come directly from the prospective patient and are governed by personal and structural factors such as the patient's perception of the severity of the primary medical condition, the patient's geographical and financial access to services and the patient's beliefs regarding the potential help or relief that will be received for those primary symptoms. The use of general medical services is thus typically a voluntary act and is rarely determined by any coercive relationship from a third party.

In contrast to utilization of general medical interventions, referrals to substance abuse treatments often come from an organization, institution or family member who has become aware of the substance abuse indirectly through recognition of what is attributed to be an "addiction-related" social, family, financial, employment or medical problem. During the last decade, problems of crime, workplace safety and spread of various infectious diseases and even neonatal health have come to be considered "addiction-related" problems. Thus, organizations and agencies charged with addressing those societal problems have become very important determinants of substance abuse treatment utilization, initiating referrals based upon the extent to which they believe that:

- An observed problem is attributable to substance abuse;
- Reduction of the substance abuse problem would be instrumental in producing desirable change in the observed problem;
- Substance abuse treatments can produce the desired reduction of the substance use and thereby the desired improvement in the "related" problem.

Notice that from most agencies' perspectives the desires of the prospective patient are not primary. Thus many substance abuse treatment referrals are characterized by some degree of external coercion, either through criminal justice system sentences or conditions of probation/parole, employer-mandates or social pressuring from family and community. In accordance with these societal, institutional and family pressures, substance abuse treatment has changed over time to accommodate changing levels of public concern about drug problems, as well as in political commitments to provide accessible services. These pressures are very important both to the prospective patient and to society, since they form the contract under which treatment is provided and evaluated.

From most agencies' perspectives the desires of the prospective patient are not primary. Thus many substance abuse treatment referrals are characterized by some degree of external coercion.

What outcomes are expected from substance abuse treatment?

Primary health-care sources expect an “effective” treatment to reduce the serious medical and public health risks associated with substance use such as AIDS, hepatitis and tuberculosis.

Many public and private service organizations, such as the welfare system, the criminal justice system, emergency rooms, orphanages, employee assistance programmes and family violence centres, come into contact with alcohol and drug abuse problems in the course of their responsibility for handling social, employment and health-care problems. These organizations often refer substance users from their caseloads to adjunctive substance abuse treatment as a means of dealing with these “addiction-related” problems. Such reasons for referral form many of the expectations regarding the desired goals of substance abuse treatment. For example, in many countries hospitals and other health-care agencies are major referral sources for substance abuse treatments. These primary health-care sources expect an “effective” treatment for substance dependence to reduce the serious medical and public health risks associated with substance use such as acquired immunodeficiency syndrome (AIDS), hepatitis and tuberculosis, and to reduce the disproportionate utilization of primary health-care services that is so characteristic of alcohol- and/or drug-dependent individuals.

Unemployment and welfare costs have been areas of public and policy concern in recent years. Those with alcohol and drug abuse problems among the welfare population may be referred to substance abuse treatment with the expectation that “effective” treatment will improve the vocational and employment prospects of their referrals. Indeed, these kinds of addiction-related treatment goals have been included in contracts between public service agencies and substance abuse treatment programmes that accept their referrals. Boxes 1 to 3 illustrate the social costs that substance abuse represents in different countries.

Box 1

Costs of drug abuse in the United Kingdom of Great Britain and Northern Ireland

According to results from a study released by the Home Office in February 2002, the annual economic costs of drug abuse in the United Kingdom are between £3.7 billion (or US\$ 5.6 billion) and £6.8 billion (or US\$10.3 billion). Most of these costs fall upon the criminal justice system as a result of drug-related criminality in the form of organized crime, burglaries and robberies and violence. Other social costs are borne by the health system (about £235 million (US\$338 million) in 2001 on primary care services, accident and emergency admissions and drug abuse treatment), the workplace, schools and families (total social costs were estimated at £10.9 billion (US\$16.5 billion) to £18.8 billion (US\$28.4 billion)).

It is estimated that 99 per cent of the costs are associated with problem drug abusers. As the study estimated that there are 280,000 problem drug users in the United Kingdom, each problem drug user could cost about £30,000 (US\$45,000) a year.

Source: United Kingdom of Great Britain and Northern Ireland, Home Office, “Drugs minister highlights savings in criminal justice: costs of drug treatment expenditure”, press release, 12 February 2002.

Box 2**Social costs in Australia**

A study conducted in Australia estimated the total costs of illicit drug abuse in that country. The study concluded that total tangible costs amounted to 1,248 million Australian dollars (US\$ 917 million) in 1992. The major components of these costs were net production costs (associated with mortality of morbidity of people of working age) and law enforcement.

Source: D. J. Collins and H. M. Lapsley, *The Social Costs of Drug Abuse in Australia in 1988 and 1992*, National Drug Strategy Monograph Series (Canberra, Australian Government Publishing Service, 1996).

Box 3**Social costs of drug abuse in Brazil**

In order to estimate costs resulting from drug and alcohol abuse, research in Brazil has concentrated on medical treatment, loss of productivity at work and the social loss resulting from premature deaths. According to the Ministry of Health of Brazil, costs resulting from drug-related productivity losses and premature deaths in Brazil correspond to 7.9 per cent of the gross national product, equivalent to US\$ 28 billion.^a

Between 1995 and 1997, hospitalization costs associated with psychoactive substance use added up to 601,540,115.33 reais (currently equivalent to US\$ 250 million). Hospitalization causes included traffic accidents, cardiac insufficiency, cancer and suicide attempts.^a

The number of accumulated acquired immunodeficiency syndrome (AIDS) cases in Brazil in June 2001 was 215,810. According to the Ministry of Health, 25 per cent of registered AIDS cases are injecting drug-related (intravenous drug users (IDU), their partners and children) and 14 per cent are due specifically to needle-sharing.^b In addition, 38.2 per cent of AIDS-infected women were IDUs or had IDU partners and 36 per cent of children with AIDS had an IDU mother or mother's partner.

Mental disorders related to use and abuse of psychoactive substances were the second cause of psychiatric hospitalizations and were among the top 5 causes of all hospitalizations in the country. Between 1993 and 1997, almost 1 million hospital admissions were a result of alcohol- and drug-related psychosis.^a

Studies carried out by the Brazilian Centre for Information on Psychotropic Drugs (CEBRID) in several Brazilian cities in 1989 and 1993 revealed that up to 90 per cent of the children and adolescents who live on the streets use drugs. This figure was lowest in Rio de Janeiro, where rates were still above 50 per cent.^c

A study carried out by the São Paulo State Federation of Industries (FIESP) on drug abuse and alcohol dependence problems in the workplace pointed out that 10 to 15 per cent of employees present addiction problems and that such problems:^d

- Are responsible for three times more sick leaves than other diseases;
- Are responsible for 50 per cent of absenteeism;
- Increase five times the chances of accidents in the workplace;
- Are involved in 15 to 30 per cent of all work-related accidents;
- Lead to eight times the hospital costs;
- Lead families to use three times more social and medical insurance.

Costs resulting from drug-related productivity losses and premature deaths in Brazil correspond to 7.9 per cent of the gross national product.

Current statistics in the United States indicate that as many as 60 per cent of federal prisoners meet diagnostic criteria for a substance dependence disorder.

Box 3

continued

Recent research^e showed that 80 per cent of prisoners have had problematic use of legal or illegal drugs. According to the national seminar on sexually transmitted diseases and AIDS prevention and drug use in prisons, held in Brasilia on 16 and 17 December 1999, in many states throughout Brazil the sharing of injectable drugs is the main form of transmission of the human immunodeficiency virus among prisoners.

^a Brazil, Ministry of Health, mental health site:

www.saude.gov.br/Programas/mental/criar.htm#not1

^b Ministry of Health/Federal University of Minas Gerais, Brazil, AJUDE-Brasil II Project, 2002, unpublished data.

^c A. R. Noto and others, *III Levantamento sobre o uso de drogas entre meninos e meninas em situação de rua de cinco capitais brasileiras* (Centro Brasileiro de Informações sobre Drogas Psicotrópicas, 1993).

^d Magda Waismann, doctoral thesis, Federação e Centro dos Indústrias do Estado de São Paulo, 1995.

^e Departamento Geral do Sistema Penitenciário, Secretaria de Estado de Direitos Humanos e Sistema Penitenciário, Rio de Janeiro, 1999.

The costs of substance abuse in the workplace have also been emphasized during the past decade and a growing number of employers have initiated programmes run by management or employee unions designed to detect substance abusers in the workforce and to refer them to treatment programmes. These employers and unions are typically most interested in the return of affected employees to a high level of work performance following treatment and an assurance for co-workers that they will not be put in danger.

Finally, most societies are worried about crime. Current statistics in the United States indicate that as many as 60 per cent of federal prisoners meet diagnostic criteria for a substance dependence disorder. The statistics on street crime in that country suggest that as many as 50 per cent of all property crimes are committed under the influence of alcohol and/or drugs or with the intent to obtain alcohol and/or drugs with the crime proceeds. The concern for public safety and the awareness of the relationships between crime and substance abuse have pushed the criminal justice system to consider treatment alternatives to incarceration for drug-related crimes. Thus, police, probation/parole officers, judges and other agents of the criminal justice system have become major sources of referral to substance abuse treatments. For them, the “effectiveness” of substance dependence treatment is measured by reductions in crime, parole/probation violations and incarceration rates among affected individuals. Box 4 illustrates the consequences of drug abuse on the criminal justice system.

In summary, there has been a very clear expectation among most of society that “effective” substance abuse treatment should do more than simply produce abstinence: it should also address costly and socially damaging addiction-related problems.

Box 4**Drug abuse and possession in the criminal justice system in Mauritius**

As at mid-February 2002, statistical returns from the Commissioner of Prisons in Mauritius indicate the following:

- (a) Some 706 out of a total 1,264 inmates (or 56 per cent) were drug-related cases. Of those 706 drug detainees, 513 (or 73 per cent) had been convicted for drug abuse/possession and the remainder for selling, trafficking and cultivation;
- (b) The number of detainees awaiting trial in prisons for drug cases was 474 (or 51 per cent), out of a total of 921 detainees in this situation. Of the 474 detainees awaiting trial in prisons for drug cases, 352 (or 74 per cent) were there for abuse/possession.

The data above indicate that a proportionally enormous amount of resources are required to deal with drug abuse and possession at the police, judicial and prison levels. Investing in culturally appropriate treatment would help reduce such costs in addition to reducing associated human suffering.

Source: Mauritius, Ministry of Social Security and Reform Institutions.

Effective substance abuse treatment should do more than simply produce abstinence: it should also address costly and socially damaging addiction-related problems.

Outcome domains based on public expectations

Based upon the above discussion it is reasonable to consider three outcome domains that are relevant both to the rehabilitative goals of the patient and to the public health and safety goals of society:

- (a) *Elimination or reduction of alcohol and illicit drug use.* This is the foremost goal of all substance abuse treatments;
- (b) *Improved personal health and social function.* Improvements in the medical and psychiatric health, as well as the social function, of substance-abusing patients are clearly important from a societal perspective but, in addition, improvements in those areas are also related to prevention of relapse to substance abuse;
- (c) *Reduction in public health and public safety threats.* The threats to public health and safety from substance-abusing individuals come from behaviours that spread infectious diseases and from behaviours associated with personal and property crimes. Specifically, the sharing of needles and trading sex for drugs are significant threats to public health. The commission of personal and property crimes for the purpose of obtaining drugs and the dangerous use of automobiles or equipment under the influence of alcohol are examples of major threats to public safety.

In the review that follows these three outcome domains have been used to assess the effectiveness of substance abuse treatment programmes and treatment components.

In addition, the essential consideration would evidently be cost and cost-effectiveness of interventions when investing in treatment. Box 5 illustrates economic benefits of drug abuse treatment and figure I shows costs of different approaches in the United States.

Every US\$1 invested in treatment reduces the costs of drug-related crime, criminal justice costs and theft by US\$4-7.

Box 5

Social benefits of drug abuse treatment in the United States

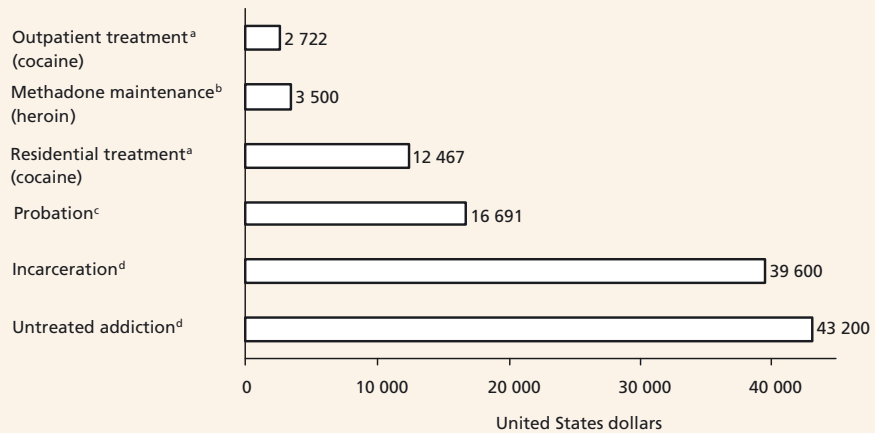
Widespread availability of and easy access to treatment has broad social benefits. Every US\$1 invested in treatment reduces the costs of drug-related crime, criminal justice costs and theft by US\$4-\$7. When health-care savings are added in, total estimated savings can exceed costs by a ratio of 12 to 1. By helping people reduce or stop injecting drugs, substance abuse treatment reduces the transmission of blood-borne diseases, such as HIV, hepatitis B and hepatitis C. Treatment can also improve the stability of family and community life and improve a person's prospects for employment.

Source: United States of America, Department of Health and Human Services, Centers for Disease Control, *Policy Issues and Challenges in Substance Abuse Treatment*, 2002 (see www.cdc.gov/idu/facts/Policy.htm).

Figure 1

Costs of drug abuse treatment in the USA per person, per year

(United States dollars)



^a 1992 figures. The average cost per admission is much lower than these figures because most patients are in treatment less than one year.

^b 1993 figures.

^c 1992 figures, adjusted for inflation from 1983 data.

^d 1991 figures.

Source: Institute of Medicine, *Pathways of Addiction: Opportunities in Drug Abuse Research* (Washington, D.C., National Academy Press, 1996), p. 199, figure 8.1 (adapted).

2 | Non-treatment alternatives to address substance abuse



2. Non-treatment alternatives to address substance abuse

Evidence for treatment effectiveness

In this section of the discussion paper the question is asked whether any type of addiction treatment can be effective and valuable to a society, relative to these other two public policy alternatives. In an effort to provide the most rigorous evidence for the questions facing policy makers, the paper has purposely focused on controlled, experimental research studies as its scientific standard.

Unfortunately, while evidence of this type is necessary for a strong, policy-relevant argument, very few controlled, experimental studies have been attempted on many community or traditional forms of treatment. Therefore many of these widely practised forms of treatment will not be covered in the present examination of experimental evidence. The fact that studies of these alternative forms of treatment have not yet been done cannot be considered evidence that they are not effective. Conversely, simply because some form of treatment is widely practised cannot be taken as evidence that it is indeed effective.

The distinction between “evidence that a treatment is effective”, “evidence that a treatment is not effective” and “no available evidence” is particularly important for the development of any effective public policy on the drug abuse issue. One of the points that should be mentioned here is that substance abuse treatments can be evaluated using the same scientific standards currently applied to the evaluation of other social, public health and public safety interventions. Such treatments should be evaluated as part of any responsible policy regarding drug abuse issues.

What happens if substance abuse is not treated?

While in most societies it is not ethically possible to deny available treatment to those whose condition appears to require it, the research literature shows that there are situations where treatments have not been applied to substance-dependent persons. Such situations offer some indication of what happens to substance use, personal and public health and social function of addicted individuals in the absence of treatment. Three recent studies provide information on that question.

Injecting drug users

Metzger and others¹ examined the drug use, needle-sharing practices and rates of infection with the human immunodeficiency virus (HIV) of two large samples of opiate-addicted patients in a large city in the United States. The “in-treatment” (IT)

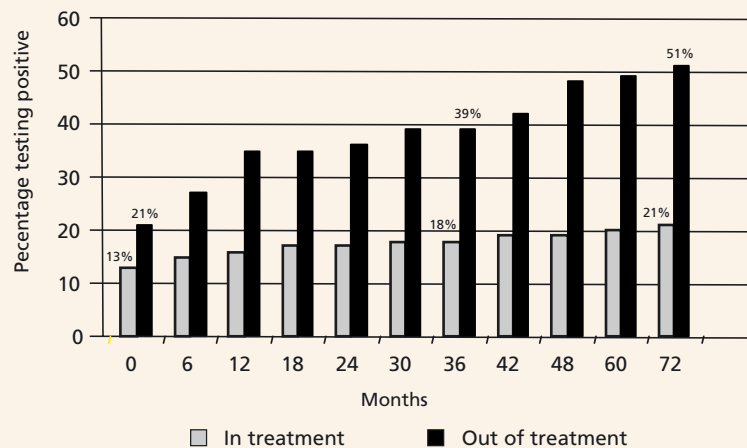
To provide the most rigorous evidence for the questions facing policy makers, the paper has purposely focused on controlled, experimental research studies as its scientific standard.

¹ D. S. Metzger and others, “HIV seroconversion among in and out of treatment intravenous drug users: an 18-month prospective follow-up”, *AIDS*, vol. 6, No. 9 (1993), pp. 1049-1056.

Methadone treatment was associated with a 60 per cent reduction in the odds of becoming HIV-infected.

group consisted of 152 patients randomly selected at admission to a large community methadone maintenance programme. The IT subjects were asked to refer their heroin-using friends from the same neighbourhoods who had been out of all substance-dependence treatments for at least one year. This recruitment resulted in 103 “out-of-treatment” (OT) heroin-dependent individuals who were matched on age, race, gender, neighbourhood and many other relevant background and social factors that are associated with drug use. Both groups of patients were interviewed and tested for HIV status every six months over the next six years (90 per cent contact rates at each interview). The rates of HIV infection at each point in time over the six-year period of study are shown in figure II.

Figure II
Rates of infection with the human immunodeficiency virus at the time of enrolment



As can be seen, 13 per cent of the IT sample and 21 per cent of the OT sample tested positive for HIV infection at the initial assessment point. By the six-year point, 51 per cent of the OT group, but only 21 per cent of the IT group tested HIV positive. Methadone treatment was thus associated with a 60 per cent reduction in the odds of becoming HIV-infected. Importantly, without the untreated comparison group, data from the methadone group might have led to a conclusion that treatment did not work since there was still drug use, needle-sharing and even new cases of HIV among the treated group. However, those risky behaviours were far less prevalent and less severe than in the untreated group.

It should be clear that, while the differences between the groups on these important measures were substantial, this does not prove that treatment was responsible for the observed differences. It is possible and even likely that the OT subjects may have lacked the motivation for treatment found among the treated subjects and that lack of desire for personal change, rather than the effects of the treatment itself, may have produced the status differences seen. For this reason, it is necessary to equate level of motivation,

at the start of treatment, in order to make any valid judgement regarding the effectiveness of drug dependence treatment.

Unmotivated individuals

One way to separate the effectiveness of drug dependence treatment from the direct effects of motivation would be to compare treated and untreated substance-dependent individuals who were explicitly not interested in treatment. Such a study was recently performed by Booth and associates² among 4,000 intravenous drug users seeking HIV testing and AIDS services as part of a multi-site AIDS initiative in 15 cities in the United States. In each city, injecting drug users were offered an opportunity to participate in drug abuse treatment as a part of AIDS risk reduction services. In all cities, subjects were randomly assigned to either a “standard” HIV counselling and testing intervention or to an “enhanced” intervention consisting of the standard intervention plus one to three sessions of motivational counselling from a health educator. At six-month follow-up, those randomly assigned to the enhanced intervention showed half the rate of drug injection (20 per cent versus 45 per cent), four times the rate of abstinence (confirmed by urinalysis) and significantly lower arrest rates (14 per cent versus 24 per cent) than those randomly assigned to receive just HIV counselling and testing.

Screening and brief advice from physicians can affect the “motivation for treatment” among patients and the longer-term course of their health.

This study is significant for several reasons. Firstly, the very modest public health efforts to reduce needle-sharing and drug use through HIV counselling and testing were associated with very significant reductions in those target behaviours, even among individuals who were not initially motivated to receive those interventions. Secondly, more extended but still modest efforts at referring patients into more formal treatment at seven of the study sites were associated with even broader and more sustained improvements, in socially significant outcomes such as needle-sharing and arrests. This finding suggests that treatment entry is not simply a matter of preconceived desire for change that would have occurred anyway or that the rates of treatment entry among the randomly assigned groups would have been approximately equal. Studies of other illnesses show that screening and brief advice from physicians can affect the “motivation for treatment” among patients and the longer-term course of their health. The data presented above suggest this is true even for seriously and chronically addicted individuals.

The costs of untreated addiction: an example from prenatal care

A study of drug abuse treatment within a medical hospital setting was performed by Svikis and others³ among one of the most problematic and costly subgroups of substance-dependent individuals, pregnant women. The dangers of drug use during pregnancy are extreme both for the mother and the child. Moreover, the costs associated with even the acute care of neonates born to addicted women can be extreme. Accordingly, the study was designed to test the effects of standard drug dependence

² R. E. Booth, T. J. Crowley and Y. Zhang, “Substance abuse treatment entry, retention and effectiveness: out-of-treatment opiate injection drug users”, *Drug and alcohol dependence*, vol. 42, No. 1 (1996), pp. 11-20.

³ D. S. Svikis and others, “Cost effectiveness of treatment for drug abusing pregnant women”, *Drug and alcohol dependence*, vol. 45, Nos. 1-2 (1997), pp. 105-113.

The cost of care provided for the mother and the baby in the treated group was dramatically lower than the average for the mothers and babies receiving prenatal care but no treatment for drug dependence.

treatment combined with a standard programme of prenatal and perinatal care on the health status and costs of the mothers and their children. As in the study by Booth, Crowley and Zhang,² the effects of drug abuse treatment were assessed among individuals who did not originally apply for treatment. All pregnant women in the study had simply applied for prenatal care services and were found to be cocaine-positive during a routine drug screening. Two groups were compared, the first 100 pregnant women admitted to the combined programme of drug dependence treatment plus prenatal care and 46 comparison women drawn from the same screening process, who were matched for race, mental status, insurance coverage and parity with the treated women, but who had been identified during the year prior to the opening of the experimental treatment programme. Drug dependence treatment consisted of one week of non-hospital, residential care, plus outpatient follow-up through the pregnancy. The inpatient treatment was delivered in the context of prenatal care and focused on stabilizing the women and engendering commitment for continued post-inpatient care. The one week of inpatient treatment was followed by twice-weekly, outpatient addiction counselling, also coordinated with the scheduled prenatal visits.

The treated women kept twice the number of prenatal appointments (eight versus four), and, at the time of delivery, 37 per cent of the treated patients had evidence of drug use (urinalysis) as compared with 63 per cent of the untreated women.

Three of the main findings are shown for both groups in table 1. As can be seen, the treated group had babies whose average weight was higher (2,934 versus 2,539 grams) and whose gestational age was over one month older at delivery (39 versus 34 weeks) than the comparison group. Following the deliveries, 10 per cent of the babies in the treated group required treatment in the neonatal intensive care unit (average length of stay of 7 days), as compared with 26 per cent of the babies in the untreated group (average length of stay of 39 days).

Table 1 Weight, gestational age and costs

<i>46 control women</i>	<i>100 treated women</i>
2,534 grams	2,939 grams
34 weeks	39 weeks
US\$46,700	US\$14,500

The care provided for the mother and the baby in the treated group averaged approximately US\$ 14,500, including the costs for the drug abuse treatment. This was dramatically lower than the average of US\$ 46,700 for the mothers and babies in the group that received prenatal care but no treatment for drug dependence. The authors point out that these calculations are quite conservative since they did not include costs of criminal and family court, child and family services or continued health care for mother and child. Nonetheless, the data present striking evidence that drug dependence treatment can be cost-effective in this severely affected population. The data also suggest that drug dependence treatment can be combined effectively with traditional perinatal medical care, with mutual benefit.

Non-treatment interventions for substance abuse

Incarceration

Perhaps the most regularly suggested alternatives to substance abuse treatment have involved the criminal justice system, with jail, probation, parole and more recently boot camp being the major choices. In this regard, there are two important points to remember regarding the relative value of addressing substance abuse problems with jail.

Firstly, at least in most countries, jail cells are expensive to build and quite expensive to operate. Some examples of the cost estimates of maintaining a cell per inmate are presented in table 2. The 1997 figures from the United States suggest that federal, minimum security prison cells cost approximately US\$ 35,000 per cell to build and approximately US\$ 27,000 per year to maintain per inmate. Thus imprisonment alone, even if effective in reducing alcohol and drug use, is not necessarily a cost-efficient alternative as compared with treatments that may cost as little as nothing for years of care (e.g. Alcoholics Anonymous, Narcotics Anonymous and Cocaine Anonymous), or as much as US\$ 19,000 for 28 days of private inpatient treatment. Box 6 presents an example of the costs of treatment and incarceration in a developing country.

Imprisonment alone, even if effective in reducing alcohol and drug use, is not necessarily a cost-efficient alternative as compared with treatment.

Table 2 Cost of maintaining a cell per inmate per year

Country	Cost
Australia	\$A 64,486 (currently equivalent to US\$ 33,184)
Canada	Can\$ 51,202 (currently equivalent to US\$ 31,778)
Ireland	£59,570 (currently equivalent to US\$ 84,738)
United Kingdom of Great Britain and Northern Ireland	£24,000 (currently equivalent to US\$ 34,139)
United States of America	US\$ 27,000

Sources: "Abolish six-month terms to ease jail pressure, say MPs", *Sydney Morning Herald*, 14 November 2001; "Industry Canada: prison population and costs 1997/98", *M2 Presswire*, 6 April 1999; "Record levels of foreign inmates in British jails", *The Independent* (London), 20 October 1999; "More staff than inmates in prisons", *Irish Times* (Dublin), 7 July 2001.

Box 6

Treatment and prison costs in Thailand

In 1999, Thailand estimated that the cost of institutionally based drug treatment services was close to US\$ 7 million (based on 38,044 admissions with a cost per admission of approximately US\$ 185.10).

Additional social costs of drug abuse in the same country can be attributed to correctional (penal) services, which continue to constitute a preferred form of intervention. In 2000, the national corrections budget of Thailand was the equivalent of approximately US\$ 156 million. A significant portion of the inmates were classified as narcotics offenders (102,505 among 156,126 inmates in March 2002).

Source: Thailand, Office of the Prime Minister, Office of the Narcotics Control Board.

The second point is that in the United States alone there have been more than 100 post-incarceration evaluations of inmates who have been jailed for drug-related crimes. Despite different types of crime, different types of sentence and different sites and years where those evaluations have taken place, the results are striking in the similarity of their

Between 70 and 98 per cent of those who have been imprisoned for drug-related crimes—and not treated during the course of their incarceration—relapsed within the year following release.

Table 3 Recidivism among substance abusers

<i>Study</i>	<i>Substance abusers</i>	<i>Proportion of group under study (percentage)</i>
<i>A. Re-addiction following prison</i>		
Vaillant	447 opiate addicts	91
Maddux and Desmond	594 opiate addicts	98
Nurco and Hanlon	355 opiate addicts	88
Hanlon and Nurco	237 mixed addicts	70
<i>B. Re-incarceration following prison</i>		
Nurco and Hanlon	355 opiate addicts	58
Beck and Shipley	100,000 addicts, 11 states	51

outcomes. A listing of several of the larger and better controlled studies is shown in the upper section of table 3 and, as can be seen, between 70 and 98 per cent of those who have been imprisoned for drug-related crimes and not treated during the course of their incarceration relapsed within the year following release. In addition, as seen in the lower half of table 3, more than half of drug-dependent inmates were re-incarcerated for drug-related offences within a year of release. While the public may correctly feel protected from the effects of drug-related crime while these individuals are incarcerated, almost all will eventually get out of jail and there is little indication that prison is effective in "teaching them a lesson". Additionally, studies in different parts of the world have indicated that overcrowded conditions, drug abuse and limited availability of adequate services in prisons may adversely affect the health of inmates, including through exposure to blood-borne diseases such as HIV/AIDS. Such adverse health effects have the potential to spread to the wider community.

Combining treatment and non-treatment interventions for substance abuse

An important and policy-relevant line of research has examined the joint effects of combining incarceration and/or other legal system interventions such as probation and parole with treatment interventions to determine if the two approaches are compatible and if there is any evidence of a synergistic effect between them. A recent illustration of the effects of combining treatment with a probation/parole intervention is provided by a study that evaluated the efficacy of adding the pharmacological treatment naltrexone⁴ to standard probation/parole for federal offenders with opiate-related crimes.

⁴Naltrexone is a widely used, orally administered opiate antagonist that has been shown to block the effects of opiates completely for up to 72 hours following ingestion. There have been few side effects reported among those who have taken the drug and the medication has been combined with standard counselling to aid opiate addicts in their attempts to combat pressures to relapse following the attainment of drug-free status. In fact, the drug has had limited success in the general opiate-abusing population but has been useful with those patients with higher socioeconomic status (e.g. addicted doctors, lawyers) who have been under some externally imposed pressure to take the medication regularly (e.g. loss of licence or loss of an important job). It has been assumed that the external pressure for behavioural change was a major factor in accounting for patient compliance with the naltrexone regimen and, thereby, in producing and sustaining reductions in opiate abuse and related problems among so-called "white-collar" opiate abusers. There is also substantial external pressure for behavioural change associated with the threat of incarceration or re-incarceration among those opiate abusers who have been incarcerated for opiate-related crimes. Thus, it was reasoned that the threat of incarceration associated with return to opiate use in such subjects might provide the incentive necessary for the naltrexone to be an effective adjunct to standard probation/parole.

In the study, probationers and parolees with a history of recent and chronic opiate abuse were offered an opportunity to be randomly assigned to receive either naltrexone accompanied by standard health-care services or to an enhanced probation condition. The two conditions were approximately equal with regard to the total amount of time required for participation and the total amount of contact with a counsellor or probation/parole officer.

Approximately 65 per cent of the first 50 federal probation/parole subjects remained on naltrexone for the entire six-month study period. Further, while on naltrexone, subjects provided significantly fewer opiate-positive urine tests than subjects in the enhanced probation control group. Furthermore, 32 per cent of naltrexone subjects were re-arrested and re-incarcerated during their first 12 months. While this is still much too high to be considered satisfactory, 60 per cent of those randomly assigned to the placebo condition were re-incarcerated. Virtually all incarcerations, in both groups, were due to drug-related arrests.

This study and many others not described here illustrate three important points. Firstly, it is possible to combine a treatment and a correctional approach to the problem of substance abuse. They are not necessarily mutually exclusive types of intervention. A second and related point is that the addition of substance abuse treatment to a correctional intervention can result in better outcomes than with the criminal justice system intervention alone. In the case under consideration not only did the naltrexone treatment appear to enhance the effects of the probation/parole intervention, the external pressure applied by the criminal justice system appears to have enhanced the medication compliance and thereby the efficacy of the naltrexone. Thirdly, while the study was focused on a pharmacological intervention used in the treatment of opiate addiction, there is no reason why this paradigm could not be used to evaluate other forms of psychosocial or behavioural treatments, or other pharmacological interventions for substance abuse combined with criminal justice interventions.

It is possible to combine a treatment and a correctional approach to the problem of substance abuse.

3 | **What comprises contemporary addiction treatment?**



3. What comprises contemporary addiction treatment?

What components contribute to treatment effectiveness?

The present section briefly reviews the substance abuse treatment research literature to identify patient and treatment process variables that have been shown to be important in determining outcome from addiction rehabilitation efforts and attempts in this way to contribute to the discussion of what aspects of treatment are “worth it” to society.

For a more complete and detailed review of the literature on the subject, the reader is referred to the companion publication “Contemporary drug abuse treatment: a review of the evidence base”.

Phases of treatment

The following factors have been studied as having influence on the outcome of different stages of treatment:

- Patients and treatment settings
- Treatment elements and methods
- Medications in detoxification and maintenance
- Duration of treatment, length of stay and criteria for completion
- Setting of care

A comprehensive review of these factors is presented in the above-mentioned companion publication.

The detoxification-stabilization phase of treatment

Medical detoxification has been the initial and acute stage of virtually all forms of addiction treatment. However, the term “detoxification” has been used to describe both treatments of a true withdrawal syndrome (i.e. neuroadaptation) as well as simply the stabilization of acute physiological and emotional symptoms associated with the cessation of drug use that might not produce a bona fide withdrawal syndrome. “True detoxification” is required only for certain types of drug dependence, most notably nicotine, alcohol, opiate, barbiturate and benzodiazepines. While the withdrawal syndromes and the detoxification protocols for each of these drugs are different, in each of these cases (in particular barbiturate use) persistent use of a substance at gradually escalating doses and for escalating time periods produces neuro-adaptation or “tolerance” to the drug—to the point where greater amounts of the drug are typically required to produce euphoria—

“True detoxification” is required only for certain types of drug dependence, most notably nicotine, alcohol, opiate, barbiturate and benzodiazepines.

The acute, detoxification/ stabilization stage cannot be considered complete treatment, only preparation for continued treatment.

and importantly—to eliminate withdrawal symptoms. Withdrawal symptoms reflect the “rebound” of a physiological system that has been perturbed by drug use for a substantial period of time. Again, while the withdrawal syndromes for these different drugs have unique symptoms, in general withdrawal symptoms can include headaches, bone pain, fever, chills, seizures in extreme cases, watery eyes, runny nose, diarrhoea and profound emotional upset. Opiate drugs in particular can produce these symptoms and, while they are profoundly uncomfortable, they are rarely life-threatening. Importantly, alcohol, barbiturates and benzodiazepines will also produce many of the previously described symptoms—but also seizures and cardiac irregularities—that can be life-threatening depending upon the history and general health of the user.

It is also true that virtually all drug use—including caffeine, amphetamine, cocaine and hallucinogens—will produce acute periods (one to three days typically for caffeine and hallucinogens—up to two weeks for amphetamine or cocaine) of physiological and emotional instability following abrupt discontinuation of regular use. While uncomfortable, this instability will almost always subside without formal medical attention. Thus in many countries few patients are admitted to a hospital or even to residential care for the acute treatment of the instability produced by these drugs.

Indicators of effectiveness in the detoxification-stabilization phase

The therapeutic goals of detoxification and stabilization are focused primarily on the amelioration and stabilization of the acute medical, psychiatric or substance use symptoms that were out of control and thus responsible for preventing the patient from entering directly into rehabilitation. However, the acute, detoxification/stabilization stage cannot be considered complete treatment, only preparation for continued treatment. Thus, detoxification can be said to have succeeded if shortly after discharge (i.e. within 2-3 weeks) the patient has:

- Shown significant reductions in physiological and emotional instability (at least to levels appropriate for outpatient rehabilitation admission);
- Not had serious medical or psychiatric complications;
- Been integrated into and engaged in an appropriate ongoing rehabilitation programme.

The rehabilitation-relapse prevention phase of treatment

Rehabilitation is appropriate for patients who are no longer suffering from the acute physiological or emotional effects of recent substance use and who need behavioural change strategies to regain control of their urges to use substances. A practical goal of this stage of treatment is to prevent a return to active substance use that would require re-detoxification/stabilization; to assist the patient in developing control over urges to use alcohol or drugs, or both, either through sustaining total abstinence from all drugs and alcohol or through substitution treatment; and to assist the patient in regaining or attaining improved personal health and social function, both as a secondary part of the rehabilitation function and because these improvements in lifestyle are important for maintaining sustained control over substance use.

There is a wide range of treatment strategies and treatments that can be used at the rehabilitation-relapse prevention phase to correct or ameliorate underlying problems of patients and to provide continuing support for the targeted patient changes. Strategies have included such diverse elements as psychotropic medications to relieve "underlying psychiatric problems"; medications to relieve alcohol and drug cravings, including substitution therapies; acupuncture to correct acquired metabolic imbalances; education seminars, films and group sessions to correct false impressions about alcohol and drug use; group and individual counselling and therapy sessions to provide insight, guidance and support for behavioural changes; and peer help groups (e.g. Alcoholics Anonymous and Narcotics Anonymous) to provide continued support for the behavioural changes thought to be important for sustaining improvement. Although the majority of rehabilitation treatment programmes are abstinence-oriented, a significant number of rehabilitation programmes in Australia, Western Europe and North America, and increasingly in other parts of the world, maintain patients on a medication that is designated to block the effects of the abused drugs, thus preventing the re-emergence of drug use.

Indicators of effectiveness in the rehabilitation-relapse prevention phase

All forms of rehabilitation-oriented treatments for addiction have the same four goals, regardless of the specific setting, modality, philosophy or methods of rehabilitation. These are:

- To maintain the physiological and emotional improvements initiated during detoxification-stabilization, preventing need for re-detoxification;
- To enhance and sustain reductions in alcohol and drug use (most rehabilitation programmes have complete abstinence as their goal);
- To teach, model and support behaviours that lead to improved personal health, improved social function and reduced threats to public health (e.g. HIV/AIDS) and public safety;
- To teach and motivate behavioural and lifestyle changes that are incompatible with substance abuse.

It is important to note the broad perspective on measuring effectiveness, as was discussed in part 1. Specifically, for any form of substance abuse rehabilitation intervention to be worthwhile to society, there must be lasting improvements as regards those problems which led to the treatment admission and which are important to the patient and to society.

Patient and treatment factors shown to be important in determining outcome

A review of the substance abuse treatment research literature suggests the major patient characteristics associated with better outcome from rehabilitation, including:

- Low severity of dependence;
- Few psychiatric symptoms at admission;
- Motivation beyond the pre-contemplation stage of change;

There must be lasting improvements as regards those problems which led to the treatment admission and which are important to the patient and to society.

Effective treatment:

Longer treatment

Individual care

Specialized services

Medications

Reinforcement

Self-help groups

Table 4 Components of effective treatment

<i>Treatment variables</i>
<ul style="list-style-type: none"> • Staying longer in treatment • Reinforcement (financial incentives or vouchers for attendance and abstinence) • Having an individual counsellor or therapist • Specialized services for psychiatric, employment and family problems • Medications: <ul style="list-style-type: none"> • To block drug craving and the effects of drugs • To reduce psychiatric symptoms • Participating in self-help groups (Alcoholics Anonymous, Narcotics Anonymous) following rehabilitation

- Being employed or self supporting;
- Having family and social supports for sobriety.

The major treatment variables or components associated with better outcome following rehabilitation-oriented treatments are summarized in table 4.

In the light of these findings, it is surprising that some of the treatment elements that are most widely provided in substance abuse treatment have not been associated with better outcome. For example, the above-mentioned review of the literature has shown little indication that any of the following lead to better or longer-lasting outcomes following treatment:

- Alcohol/drug education sessions;
- General group therapy sessions, especially “confrontation” sessions;
- Acupuncture sessions;
- Patient relaxation techniques.

However, as noted previously, “the absence of evidence” does not prove that a treatment is ineffective. Some of the treatments, practices or conventions cited may actually have benefits for some patients or under some circumstances, but there are no controlled studies of these aspects of care in the existing literature that prove their effectiveness.

4 | Why are addiction treatments not as effective as treatments for other illnesses?



4. Why are addiction treatments not as effective as treatments for other illnesses?

Implications for the delivery and evaluation of addiction treatment

The previous sections of this paper have examined the addiction treatment field from the perspective of its value to society. It would seem that this review would provide a relatively simple answer to what appears to be a direct question of cost and value. Yet it is not a direct question at all. This paper has tried to show that the reasonable expectations of a society regarding any form of intervention designed to “take care of the drug problem” must address many different issues, all typically related to the “addiction-related” problems that are so frightening and costly to society. Multiple perspectives on outcome are not typical in evaluations of medical illnesses. In the treatment of most chronic illnesses “effective” treatments are expected to reduce symptoms, increase function and prevent relapse, especially costly relapse. Thus, as a final perspective on the issue of the effectiveness and worth of addiction treatments, this section now considers an evaluation of the effectiveness of addiction treatments using the criteria typical for evaluations of other chronic illnesses.

Compliance, symptom remission and relapse in addiction treatment

It is important to note that addiction does not need to be considered chronic. Many who meet diagnostic criteria for substance dependence recover completely even without treatment. Others have long remissions following treatment. However, many of those who develop addiction disorders suffer multiple relapses following treatments and are thought to retain a continuing vulnerability to relapse for years or perhaps a lifetime. It is possible to argue that as yet there is no reliable “cure” for drug dependence. For the reasons outlined above, those dependent upon alcohol and/or other drugs who attempt to continue but reduce their use are likely to have problems in maintaining “controlled use”. Among those who become addicted, patients who comply with the recommended regimen of education, counselling and medication have favourable outcomes during and for at least 6-12 months following treatment. However, most of those who start any type of treatment drop out prior to completion or they ignore their physician's advice to remain on medication and to continue participation in aftercare or self-help groups. It is also well known that problems of low socio-economic status, co-morbid psychiatric conditions and lack of family or social supports are among the most important variables associated with lack of compliance in addiction treatment and with relapse following treatment. Because of multiple co-morbid medical and social conditions and because of

In the treatment of most chronic illnesses “effective” treatments are expected to reduce symptoms, increase function and prevent relapse, especially costly relapse.

Hypertension, diabetes and asthma are not necessarily unremitting or unalterably lethal, as long as the treatment regimen of medication, diet and behavioural change are followed...

poor compliance with the medical and behavioural components of the treatment regimen, one-year follow-up studies have typically shown that only about 40-60 per cent of treated patients are abstinent, although an additional 15-30 per cent have not resumed dependent use during that period.

It is quite discouraging to many in the addiction treatment field that so many drug- and alcohol-dependent patients fail to comply with the recommended course of treatment and that so many subsequently resume substance use. As indicated above, there are now several medications that have demonstrated effectiveness in the treatment of alcohol and opiate dependence. However, for those medications to be effective, they must be taken on a regular basis and lack of patient compliance has severely limited their impact. Ongoing clinical research in this area is focused upon the development of longer-acting or “depot” forms of these medications, as well as behavioural strategies to increase patient compliance.

Compliance, symptom remission and relapse in the treatment of chronic illnesses

Hypertension, diabetes and asthma are well-studied, chronic disorders, requiring continuing care for most if not all of a patient's life. At the same time, these disorders are not necessarily unremitting or unalterably lethal, as long as the treatment regimen of medication, diet and behavioural change are followed. This last point requires elaboration. Treatments for these medical disorders are heavily dependent upon behavioural change and medication compliance to achieve their potential effectiveness. In a recently published review of treatment outcome studies of these disorders, patient compliance with the recommended medical regimen was the most significant determinant of treatment outcome. However, studies have shown that less than 60 per cent of type-1, insulin-dependent, adult diabetics fully comply with their medication schedule and less than 40 per cent of hypertensive or asthmatic patients comply fully with their medication regimens. The problem is even worse for the behavioural and diet changes that are so important for the maintenance of short-term gains in these chronic illnesses. Again, a review of recent studies in the fields of adult-onset diabetes, hypertension and asthma indicates that less than 30 per cent of patients in treatment for these disorders comply with prescribed diet and/or behavioural changes that are designed to increase functional status and to reduce risk factors for reoccurrence of the disorders. Across all three of these chronic medical illnesses, compliance, and ultimately outcome, is poorest among patients with low socio-economic status, low family and social supports or significant psychiatric co-morbidity, as summarized in table 5.

Table 5 Factors associated with relapse in hypertension, diabetes and asthma

- Lack of adherence to prescribed medication, diet or behavioural change regimens
- Low socio-economic status
- Low family supports
- Psychiatric co-morbidity

This review of medication and behavioural compliance in the treatment of other chronic medical illnesses suggests important parallels with the treatment of drug dependence. In all these disorders, lack of patient compliance with the treatment regimen is a major contributor to the reoccurrence of symptoms; and in all these disorders compliance is poorest among those with co-morbid medical, psychiatric, family and social problems. Perhaps because of these similarities in treatment compliance there is also similarity in relapse or reoccurrence rates across all these disorders. In fact, outcome studies indicate that 30-50 per cent of insulin-dependent adult diabetic patients and approximately 50-70 per cent of adult hypertensive and asthmatic patients suffer reoccurrences of their symptoms each year to the point that they require, at least, re-stabilization of their medication and/or additional medical care to re-establish symptom remission. Many of these reoccurrences result in serious health complications. For example, limb amputations and blindness are common results of treatment non-compliance among diabetics. Stroke and cardiac disease are common problems associated with exacerbation of hypertension.

The treatment of other chronic medical illnesses suggests important parallels with the treatment of drug dependence.

A chronic illness perspective on treatment and evaluation designs

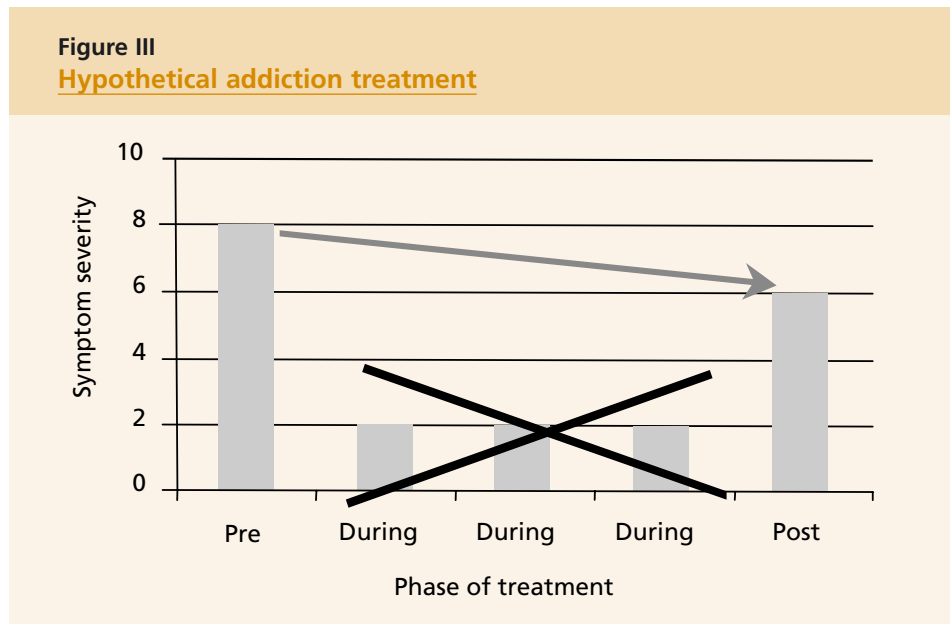
This section focuses on the question of whether the assumptions underlying interventions for acute conditions or those for chronic conditions are more appropriate for the treatment of addiction.

There are no definitive “cures” for any of the chronic medical illnesses reviewed here. Yet it is interesting that despite rather comparable rates of compliance and relapse across all of the disorders examined, there is no serious argument as to whether the treatments for diabetes, hypertension or asthma are “effective” or whether they should be supported by contemporary health insurance. However, this issue is very much in question with regard to treatments for drug dependence. In this regard, it is interesting that the relatively high relapse rates among diabetic, hypertensive and asthmatic patients following cessation of their medications have been considered evidence of the effectiveness of those medications and of the need for compliance enhancement strategies. In contrast, relapses to drug and alcohol use following cessation of addiction treatments has often been considered evidence of treatment failure.

Drug dependence treatments are not provided and especially are not evaluated under the same assumptions that pertain to other chronic illnesses. Particularly important in this regard is that drug dependence treatments are rarely delivered under a continuing care model that would be appropriate for a chronic illness. Indeed, with the exception of methadone maintenance and self-help groups most contemporary treatments for drug dependence are acute-care episodes. For example, it is common for a drug-dependent individual to be admitted to an outpatient rehabilitation programme lasting 30-90 days, rarely accompanied by medical monitoring or medication. This period of treatment is typically followed by discharge with referral to “community sources”. While addiction treatment might be conceptualized as ongoing by those in the treatment field, from an operational perspective addiction treatments are delivered in much the same way as one might treat a surgical patient following a joint replacement. Outcome eval-

uations are typically conducted 6-12 months following treatment discharge, because addiction treatments have been expected to produce lasting reduction in symptoms following termination of treatment. Unlike the treatments for other chronic conditions, the reduction of symptoms during treatment has not been considered adequate to the expectations underlying addiction treatment (see figure III).

Drug dependence treatments are not evaluated under the same assumptions that pertain to other chronic illnesses...

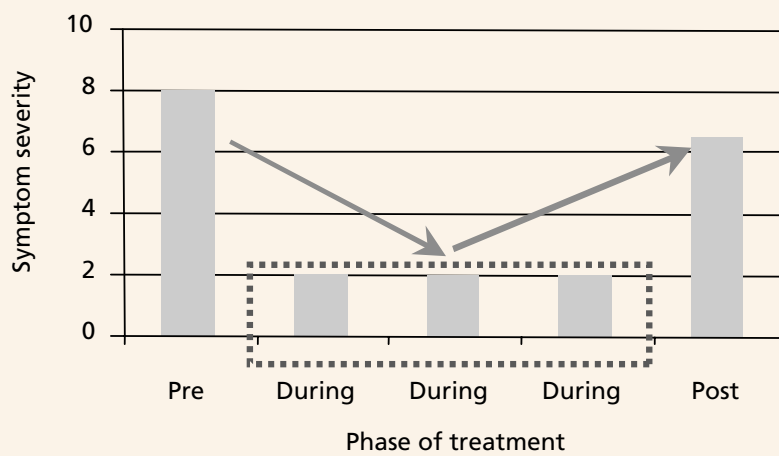


This argument has nothing to do with whether addiction is fundamentally a disease, a bad habit, a social problem or all of the above. Moreover, it does not matter whether the essence of the intervention is the correction of some biological abnormality, the resolution of a psychological process, the teaching of some new behaviour or the development of some improved social support system. The expectations have been that some finite combination of medications, counselling and therapy, social services and/or social support systems should effect essential change in the root causes of addiction, remove those causal factors and result in lasting benefits.

A more realistic expectation is that the interventions currently available will not permanently correct the essence of the problem, only reduce the number and severity of the symptoms and improve personal function, as long as the patient participates in the intervention. This is precisely the same expectation that currently prevails in the treatment of chronic illnesses (see figure IV). Further, an “acute-care” expectation placed upon those types of treatment produces some perverse and even absurd results. For example, consider contemporary goals and the prevailing evaluation strategy for addiction treatments—applied to a hypertension treatment regimen. Patients who meet diagnostic criteria for hypertension would be admitted to an outpatient “hypertension rehabilitation” programme lasting 30-90 days in which they might receive medication, behavioural change therapy, dietary education and an exercise regimen. At the end of that period, the medication would be tapered during the last days of the treatment and the patients would be referred to community sources. The evaluation team would re-

contact the patient six months later and determine whether the patient had been continuously normotensive throughout that post-treatment period. Only those patients who met that criterion would be considered “successfully treated”. Obviously, this hypothetical treatment management strategy and its associated evaluation approach are absurd for any chronic illness, including drug dependence.

Figure IV
Hypothetical hypertension treatment



A more realistic expectation is that the treatment currently available will not permanently correct the essence of the problem, only reduce the number and severity of the symptoms.

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