ADDICTION TREATMENT: PROMOTING A MEDICAL APPROACH TO SUBSTANCE USE

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EXECUTIVE SUMMARY Building on decades of Academy activities related to substance use, this report emphasizes three guiding principles:

1. Drug treatment should be accessible to all drug users seeking care, including those who are incarcerated. Because turning users away when programs are operating at or above capacity represents lost opportunities for care, programs should be prepared to commence treatment at the time users request it.
2. Addiction is a complex, chronic, relapsing illness for which various inpatient, residential, and outpatient treatments are used, depending on the substances involved, the intensity and duration of the addiction, the characteristics and tolerances of the patient, and the circumstances involved. Optimal addiction treatment requires generalists in medical care who are knowledgeable and capable in the areas of diagnosis and management; specialist consultation and care; specific programs dedicated to the acute and chronic care of drug users; and the multidisciplinary participation of appropriately qualified counselors, social workers, and other professionals.
3. Steps need to be taken to reduce the health-related harms associated with injection drug use, including the transmission of human immunodeficiency virus (HIV), hepatitis B and C, and other blood-borne pathogens. Harm reduction incorporates many modalities, such as HIV prevention education, including condom use and safer sex counseling and education; referrals for drug treatment and other health care and social services; interim methadone maintenance; and syringe and needle availability and exchange programs. Each of these interventions represents important medical and public health strategies that may decrease some of the secondary medical consequences of injection drug use.

Background

The New York State Department of Health Office of Alcoholism and Substance Abuse Services (OASAS) estimates that there are 250,000 injection drug users in New York State, of which 200,000 live in New York City. An estimated 35%–50% of these users are HIV infected. To care for these individuals, New York City has approximately 35,000

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methadone treatment slots available at any given time: 26,000 methadone maintenance slots licensed and funded by OASAS and 9,000 methadone maintenance slots licensed, but not funded, by OASAS. There are 96 methadone treatment facilities—88 not-for-profit clinics and 8 for-profit clinics. One not-for-profit clinic specializes in treating pregnant users; another specializes in treating adolescents. Only five new methadone clinics have been licensed in New York State during the past 20 years. There are an additional 5,000 residential treatment slots, 94% of which adopt a drug-free, abstinence approach. OASAS recently reported that New York State drug treatment programs operated at near capacity during the period June 1992 through June 1995, with a 97% average utilization rate systemwide during the 3-year period, and a 99% average utilization rate during the 1995 budget year.

OASAS further estimates that there are 600,000 regular, noninjecting users of illegal drugs, including opiate drugs, in New York State needing some type of treatment. The majority of these people use cocaine or crack cocaine alone or in addition to heroin.

The New York State Department of Correctional Services estimates that approximately 74% of New York State's incarcerated population (over 68,000 inmates) is in need of addiction services, yet treatment in correctional facilities is limited to about 9,800 drug-free, abstinence slots at any given time. (Methadone maintenance treatment is not available in New York State correctional facilities.)

To reduce the harms related to injection drug use, the New York State Department of Health, under special state regulations, supports 26 approved sites for needle and syringe exchange through 11 AIDS Institute programs. These programs serve an estimated 30,000 to 40,000 injection drug users, representing 14% of the state's injecting drug user population. Because of federal funding restrictions, these programs cannot use federal grants to support needle exchange activities. In addition, New York State is one of nine states and the District of Columbia that bar the sale of hypodermic needles and syringes without a prescription.

Recommendations

1. We support significantly increased funding for addiction treatment, including methadone treatment, residential drug-free programs, and other modalities.
2. The level and duration of drug treatment should be a medical determination. We oppose legislative or regulatory proposals to prescribe the appropriate course of drug treatment.
3. New York State should ensure that drug treatment services for pregnant women are readily available on a voluntary, nonpunitive basis and should foster drug treatment in the context of promoting the health of the woman, her developing fetus, and the future child.
4. Medical and public health professionals should collaborate with criminal justice officials to improve health care in correctional facilities and to promote drug treatment in order to foster rehabilitation and to prevent recidivism. We support the availability of addiction services in all correctional settings for all substance users who seek treatment.
5. New York State should require health care insurers and managed-care entities, whether publicly supported or commercially sponsored, to provide coverage for drug treatment services.
6. We encourage the development of well-designed, adequately funded studies of the effectiveness of all treatment approaches and of new treatment methods, with a special focus on fostering research on effective pharmacological treatment agents for cocaine dependency. To promote such research, Congress should increase appropriations for substance abuse research at the National Institutes of Health (NIH),

- increasing the National Institute on Drug Abuse (NIDA) budget for treatment and medications development and for health services research.
7. We will help create continuing medical education and specialized training programs for generalist physicians to increase knowledge of substance abuse identification and treatment.
 8. We support efforts to amend federal, state, and local statutes and regulations to integrate methadone maintenance treatment into generalist care. We will promote the development and evaluation of innovative models of substance abuse treatment that integrate drug treatment services, including methadone maintenance, into generalist care. These approaches should be utilized for appropriate patients and be supported by specialty consultation.
 9. We encourage the development of undergraduate medical education, residency training, and continuing medical education curricula that incorporate the knowledge, skills, and attitudes needed for effective addiction care.
 10. Legal barriers to obtaining sterile needles and syringes should be removed. We support the enactment of the New York State legislative proposal to permit the sale by pharmacies of hypodermic needles and syringes without a prescription and to deregulate the distribution and possession of sterile needles and syringes as a cost-effective approach to prevent HIV transmission.
 11. We support increasing the availability of needle exchange programs to all those who seek such services; these programs should incorporate into their outreach services education on the proper disposal of needles. The New York State legislature should target and substantially increase appropriations for state-sponsored needle exchange programs to expand capacity at the state's 11 existing programs, develop new programs, and increase the availability of supplies necessary to implement needle exchange. In addition, we advocate rescinding the present ban on utilizing federal funds for needle exchange programs and research.

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This report of the New York Academy of Medicine seeks to promote a medical and public health framework for addressing substance use as a critical issue for urban health. Addressing substance use within a medical and public health perspective requires a renewed commitment to increase access to addiction treatment for all substance users seeking care and to reduce the individual and community harms associated with drug use, most importantly the transmission of human immunodeficiency virus (HIV).

PREAMBLE

Substance abuse and addiction treatments are fundamental concerns for the medical and public health communities. The New York Academy of Medicine, a leader in health policy, education, and promotion since 1847, has a long-standing commitment to contributing to rational discourse on treating substance abuse and in addressing its implications for the quality of urban life and community health. We believe that the fields of medicine and public health must seize

the opportunity to address substance abuse as a priority issue for urban health. As stated recently by Kurt L. Schmoke, Mayor of Baltimore, quoting a 1936 address by August Vollmer, President of the International Association of Chiefs of Police:

Drug addiction never has and never can be solved by policemen. It is first and last a medical problem, and if there is a solution it will be discovered not by policemen but by scientifically and competently trained medical experts.¹

Although drug abuse raises critical social, legal, and economic concerns that must be addressed if society is to address its root causes, addiction is an illness, and its treatment is a medical and public health matter. Its origins may be attributed to multigenerational poverty, governmental neglect, poor education, limited employment prospects, family dysfunction, and lack of hope. Drug abuse has been a scourge in our communities, especially in urban centers, and has resulted in family and community disintegration; transmission of HIV, hepatitis B and C, and other blood-borne diseases; the commission of violent crimes; incarceration for drug-related offenses; lost productivity for significant proportions of our population; and, most significantly, lost and broken lives. The economic consequences to society are staggering—drug-related offenses consume massive legal and public safety resources in time and effort related to community law enforcement, criminal prosecutions, incarceration, and drug interdiction. While we focus in this report on the medical and public health implications of substance use, the social, legal, and economic consequences also require attention.

The concept of treating addiction as a medical and public health issue is not new to the Academy of Medicine. As early as 1939, the Academy Committee on Public Health recommended the establishment of a privately endowed institution for the treatment of narcotics and alcohol addicts and for research into the causes of both addictions; this was envisioned as an experimental institution with facilities for vocational training and employment services.² In 1955, the Academy Committee on Public Health issued a six-point plan that included these recommendations:

1. The addict should be considered a sick person; it is unjust to consider him a criminal only because he uses drugs.
2. All existing addicts should be in medical treatment, with vigorous efforts toward their rehabilitation.³

More recently, the Academy sponsored two major conferences related to drug use; one described the issues concerning drug testing in the workplace (1988),⁴ and one focused on research and treatment for pregnant drug users (1990).⁵ In 1991, the Academy issued policy statements addressing the links between sub-

stance abuse and the HIV/AIDS (acquired immunodeficiency syndrome) epidemic; these statements called on drug treatment programs to provide HIV education and risk reduction, testing, and treatment⁶; the statements also called on the New York State legislature to amend the Public Health Law to permit over-the-counter sales by pharmacies and possession of hypodermic needles and syringes.⁷ Finally, to promote discussion of innovative medical and public health approaches to drug treatment and harm reduction, the Academy conducted a conference in March 1995, bringing together and publishing the papers of leading international policymakers and researchers on addiction.⁸

In New York City, injection drug use is the most common mode of HIV transmission, accounting for approximately 48% of all reported adult AIDS cases (as of March 31, 1997).^{*} The primary focus of this report and its recommendations is heroin use, due largely to the desire to make an impact initially on one area of urgent, immediate concern: reducing the transmission of HIV among intravenous heroin users and to their sex partners and children.

This report is guided by three principles. First, drug treatment should be accessible to all drug users seeking care where they request it, including those who are incarcerated. Treatment based on need and on demand has been supported by leading institutions and organizations in health policy, including the Institute of Medicine (IOM),⁹ the American Medical Association,¹⁰ the National Research Council (NRC),¹¹ the National Commission on AIDS,¹² and the Citizens Commission on AIDS,¹³ as well as prominent publications such as the *New York Times*.¹⁴ Medical care should prevent illness wherever possible, reach out to populations at greatest risk, provide the necessary care and services when individuals present themselves for treatment, and diminish the potential illness-related harms to individuals, families, and communities.

Second, addiction is a complex, chronic, relapsing illness for which various inpatient, residential, and outpatient treatments are used, depending on the substances involved, the intensity and duration of the addiction, the characteristics and tolerances of the patient, and the circumstances involved. The complexity of addiction treatment requires that generalists in medical care be knowledgeable and capable in the areas of diagnosis and management. Specialist consultation and care, as well as specific programs dedicated to the acute and chronic care of drug users, are also important components of care. In addition, optimal treatment

^{*}New York City Department of Health, Office of AIDS Surveillance, AIDS New York City, April 1997. Data include transmission categories "intravenous drug user" (45%), as well as "intravenous drug user and men who have sex with men" (3%).

requires the coordinated participation of appropriately qualified counselors, social workers, and other professionals.

Third, steps must be taken to reduce the health-related harms associated with injecting drug use, including the transmission of HIV, hepatitis B and C, and other blood-borne pathogens. Harm reduction incorporates many modalities, such as HIV prevention education, including condom use and safer sex counseling and education; referrals for drug treatment and other health care and social services; interim methadone maintenance; and syringe and needle availability and exchange programs. Each of these interventions represents important medical and public health strategies that may decrease some of the secondary medical consequences of injection drug use.

ADDICTION TREATMENT

New York City's addiction treatment programs have not kept pace with needs of drug users for care. Overall, the New York State Health Department Office of Alcoholism and Substance Abuse Services (OASAS) estimates that 200,000 of New York State's 250,000 injecting narcotic drug users live in New York City. An estimated 35%–50% of these users are infected with HIV. To care for these individuals, New York City has approximately 35,000 methadone treatment slots available at any given time: 26,000 methadone maintenance slots licensed and funded by OASAS and 9,000 methadone maintenance slots licensed, but not funded, by OASAS. These patients receive services from 96 methadone treatment facilities—88 not-for-profit clinics and 8 for-profit clinics. One not-for-profit clinic specializes in treating pregnant users; another specializes in treating adolescents. Only five new methadone clinics have been licensed in New York State during the past 20 years. There are an additional 5,000 residential treatment slots, 94% of which adopt a drug-free, abstinence approach.*

Because of the significant discrepancy between numbers of drug users and treatment slots, services are not available for many users desiring treatment. OASAS recently reported that New York State drug treatment programs operated at near capacity during the period June 1992 through June 1995, with a 97% average utilization rate systemwide during the four-year period and a 99% average utilization rate during the 1995 budget year. Furthermore, OASAS surveys of state-funded treatment programs suggest an immediate need for an additional 1,200 methadone maintenance slots and 350 drug-free residential treat-

*Source for data in this paragraph is personal communication with Blanche Frank, PhD, Chief, Bureau of Applied Studies, New York State Office of Alcoholism and Substance Abuse Services, September 20, 1996.

ment slots (OASAS, Funded Substance Abuse Treatment Programs: Census/Capacities/Utilization, June 1992–June 1995, September 1996). Without adequate treatment capacity, many individuals become lost to the system and represent lost opportunities for providing care. Many additional users, in treatment, await transfer to more-appropriate levels of treatment services.

Moreover, the New York State Department of Correctional Services estimates that approximately 74% of New York State's incarcerated population (over 68,000 inmates) is in need of addiction services, yet treatment in correctional facilities is limited to about 9,800 drug-free, abstinence slots at any given time (New York State Department of Correctional Services, Identified Substance Abusers, December 1995, at 1–2; personal communication with Bill Mango, Director of Substance Abuse, New York State Department of Correctional Services, October 16, 1996). (Methadone maintenance treatment is not available in New York State correctional facilities.) OASAS further estimates that there are 600,000 regular users of illegal noninjecting drugs in New York State who need some type of treatment; the majority of these use cocaine or crack cocaine alone or in addition to heroin.

HEROIN TREATMENT: REVIEW OF THE EVIDENCE

There is a diverse range of modalities to treat heroin addiction; these incorporate initial detoxification, in conjunction with chemotherapy or residential, drug-free approaches. In New York City, the most common modality is chemotherapeutic maintenance with opiate substitutes—methadone or levo-alpha-acetyl-methadol (LAAM), a long-acting form of methadone (recently approved by OASAS for use in New York State)—that have been used to combat the symptoms of heroin withdrawal, stabilize the patient through maintenance doses, and facilitate engagement in a comprehensive program of rehabilitation.^{15,16}

The effectiveness of methadone maintenance treatment in reducing or eliminating drug abuse has been documented. In one of the most comprehensive evaluations of the effectiveness of methadone maintenance treatment, sponsored by the National Institute on Drug Abuse (NIDA), Ball and Ross selected six methadone maintenance programs in New York City, Philadelphia, and Baltimore for intensive, on-site study during the mid-1980s; the studies included interviews with over 600 patients.

It was found that a reduction in drug abuse commonly occurs after admission and continues for as long as patients remain in outpatient treatment. When patients leave methadone maintenance programs, however, relapse to prior drug abuse patterns is the predominant outcome.^{17(p239)}

Adherence to therapy is also high. Attendance at the clinics was “surprisingly high,” with daily attendance rates ranging from 92% to almost 100%. Heroin

and other opiate use, as documented by patient interviews, declined markedly after admission. After 6 months in treatment, 77% of the patients had ceased heroin use; 92% had ceased using heroin after 4.5 years of treatment. Further, 71% of all patients studied ceased intravenous drug use after several years of treatment, although there was a wide range of individual program factors that played a role in successful cessation, with 90% of the patients at one site and only 43% of patients at another site no longer injecting drugs.

This study highlights the necessity of long-term methadone maintenance treatment. At follow-up, 82% of the patients who left methadone treatment relapsed to intravenous drug use within one year. Some of the patients had returned to treatment. American Psychiatric Association practice guidelines on substance use disorders report that positive treatment outcomes are associated most often with the use of higher doses of methadone, as well as long-term retention in methadone maintenance programs.¹⁶

Based on his research, Novick and colleagues suggest that patients can be withdrawn cautiously from methadone maintenance after 9 to 24 years of treatment.¹⁸ Supportive treatment during detoxification from methadone, in addition to aftercare services, is necessary for patients who choose voluntary termination of methadone maintenance. In addition, all patients should be given the option of voluntary lifetime maintenance on methadone.^{16,19}

Long-term rehabilitation is a primary goal of treatment; to this end, federal regulations require that programs offer a comprehensive range of services, ideally including substance abuse counseling, psychotherapy and psychiatric care; support groups; vocational rehabilitation; HIV counseling and testing and hepatitis and tuberculosis screening; and primary care.²⁰ These services are intended to address significant patient concerns—such as mental health problems, chronic medical disorders, family dysfunction, unemployment, educational deficits, and legal difficulties—that may or may not be associated with drug use, but are not amenable to resolution through the use of methadone alone. Unfortunately, as the IOM report has noted, current practice at most programs consists of “at best, an evaluation of a newly admitted patient’s medical and psychosocial treatment problems, followed by assignment to a paraprofessional ‘counselor’ who often has a 50-patient caseload”^{9(p197)} Rarely are services provided by staff with advanced professional training, even for those patients with serious medical, social, and psychiatric problems.

Some clinicians have argued that comprehensive multidisciplinary services are not a necessary adjunct to methadone treatment for many heroin users. If fewer services could be provided to some patients, the same resources potentially

could serve a greater number of users. One model, developed by Yancovitz and his colleagues at New York's Beth Israel Medical Center, offers an interim approach to methadone treatment: dispensing methadone, but providing very limited services to heroin users on waiting lists for more-comprehensive care.²¹ Interim services are not designed to replace comprehensive methadone treatment, but to provide care to users who would otherwise be on waiting lists and therefore be receiving no services at all.

In a study comparing interim patients with waiting list patients in a no-treatment control group, the research team found that the interim group had reduced heroin use significantly (although no significant change was observed in cocaine use) and was more likely to participate in treatment at a 16-month follow-up. Although federal law was amended in 1992 and subsequent regulations now permit the provision of interim services, this approach has yet to be utilized widely, largely due to provider fears that its implementation would divert funding from comprehensive services and might lead legislators to reduce their per-slot budget allocations for maintenance patients.^{9(p144)}

Despite the stringent regulation already in effect and the evidence that long-term retention in methadone treatment is the most effective approach, some New York State legislators are calling for additional restrictions on medical care. During the 1995–1996 New York State legislative session, proposals were developed that would place greater restrictions on medical decision making for individual patients by increasing regulation of methadone maintenance programs. Contrary to the research findings that suggest the need for long-term to lifetime methadone treatment, one bill advocated limiting interim methadone treatment to 6 months, limiting methadone maintenance treatment to 18 months, and establishing new fixed eligibility criteria for involuntary termination or voluntary withdrawal from or re-entry into methadone maintenance.²² Another proposal justified limiting methadone treatment based on budgetary concerns rather than medical need:

Methadone providers have a disincentive to wean patients from methadone dependence and into detoxification programs since the state funds the providers. Under the current law, the state is replacing one addiction with another at its own expense.^{23(p1)}

Such political approaches to clinical problems present risks: failing to tailor medical care based on patient need may result in incomplete or inadequate treatment, with serious implications for individual drug users, their families, and their communities. In addition, these proposals fail to appreciate the therapeutic basis for methadone maintenance treatment.²⁴

Residential, drug-free treatment provides an alternative to methadone maintenance programs. Residential treatment programs, often referred to as "therapeutic communities," are based on the Synanon model developed by Charles Dederich in 1958. The basic goal of treatment is for drug abusers to undergo a "complete change in lifestyle: abstinence from drugs, elimination of antisocial (criminal) behavior, development of employable skills, self-reliance, and personal honesty, . . . [which requires] a total 24-hour community impact."²⁵ Therapeutic communities emphasize a self-help approach—utilizing program graduates as peer counselors, administrators, and role models. These programs provide long-term, highly structured, and intensive communal experiences, with a focus on highly confrontational group counseling sessions. Duration of treatment in therapeutic communities varies: although the traditional approach requires at least 15 months in residence, many programs offer shorter, more-flexible plans of with residency requirements of 3 to 6 months or 6 to 9 months.²⁶

For patients who desire to remain in the community, drug-free programs, which focus on professional counseling, are available on an outpatient basis. These efforts range from "adaptive," drop-in crisis centers to highly structured, "change-oriented" programs that have as their goal the complete resocialization of patients to enable them to live drug free.^{26(pp64-68)} Most participants of outpatient drug-free programs have not been regular heroin users.

Hubbard and his colleagues have contrasted the effectiveness of methadone maintenance, residential drug-free, and outpatient drug-free modalities. For those who stayed in treatment for at least 3 months, 64% of those in methadone maintenance, 31% of those in residential programs, and 9% of those in outpatient drug-free treatment were regular users of heroin (defined as using the drug weekly or daily) during the year before they entered treatment. Three to five years after leaving treatment, rates of regular heroin use declined to 18% for methadone, 12% for residential, and 5% for outpatient drug-free patients. Reductions in regular heroin use were most dramatic for those in methadone and residential treatment; length of time spent in treatment was the strongest predictor of treatment success, with at least 6 to 12 months in treatment necessary to produce positive outcomes. Moreover, about 25% of all clients were regular cocaine users (defined as using the drug once a week or more often) during the year before entering treatment, and about 60% had used the drug. Three to five years after leaving treatment, the percentage of regular cocaine users dropped to 6% to 16% across the three modalities.^{26(pp99-125)}

Based on estimates of NIDA's budget for fiscal year 1997, the agency allocated approximately \$158 million for research on treatment methodologies, \$67 million

for medication development, and \$77 million for health services research. The fiscal year 1997 budget represents a 6% increase over funding levels for fiscal year 1996. Significantly greater support for research at NIDA is needed to promote innovative research of new pharmacological and behavioral treatment modalities; outcome studies on treatment effectiveness, including continued research on the efficacy of methadone maintenance and residential drug-free programs; and related health services research.

PREGNANT SUBSTANCE USERS

Drug use during pregnancy can cause serious obstetrical complications, impair fetal and childhood growth and development, and increase maternal and fetal morbidity and mortality.^{15(pp25-26)} The IOM has analyzed the available research on opiate drug use and methadone treatment during pregnancy and reports the following:

- (1) Comprehensive methadone treatment, when combined with appropriate prenatal care, can reduce the incidence of obstetrical and fetal complications, in utero growth retardation, and neonatal morbidity and mortality.
- (2) There is no reported evidence of any significant toxic effects of methadone in the woman, fetus, or child, although such evidence has been sought.
- (3) Neonatal withdrawal syndrome may occur in methadone-exposed neonates, but treatment protocols are available to assist in appropriate management.
- (4) Methadone-exposed fetuses score well within the normal range of development in infancy.^{9(pp203-204)}

In spite of the obvious benefits of medical care for pregnant substance users, the fear of prosecution for child abuse because of drug use during pregnancy may deflect pregnant drug users from addiction treatment and from prenatal care.* These concerns are compounded by the significant barriers to drug treatment for pregnant women, such as provider refusal to treat pregnant patients and the lack of available programs and financial resources. Such concerns have led the IOM to recommend the following:

*The South Carolina Supreme Court ruled 3 to 2 that women who use illegal drugs during pregnancy can be prosecuted for child abuse, the first time a state Supreme Court upheld such criminal charges; top courts in Florida, Kentucky, Nevada, and Ohio have reached opposite conclusions.²⁷ Also see Ref. 28, which discusses that the South Carolina Supreme Court upheld the criminal prosecution of a pregnant woman whose baby was born with systemic traces of cocaine; the court found that a viable fetus is a "person" covered by the state's child abuse laws. As discussed in Ref. 29, the Florida Supreme Court ruled that a pregnant teenager who shot herself in the stomach after failing to obtain an abortion cannot be prosecuted for harming her fetus; also see Ref. 30. Reference 31 discusses an alcohol-abusing woman who, while intoxicated, gave birth to a child with signs of fetal alcohol syndrome; she was charged with attempted murder. This is the first reported instance of a woman being prosecuted for murder when the fetus had not died.

Obstacles and barriers to methadone pharmacotherapy for pregnant women with opiate addiction . . . must be removed. Pregnant opiate-addicted women need immediate access to methadone treatment services.^{9(p204)}

THE ROLE OF GENERALIST CARE

Federal and state regulations have segregated the delivery of opiate drug treatment from generalist care, creating specialized programs for addiction services. Physicians who desire to prescribe methadone must apply and have their practices approved as treatment programs under a complicated regulatory scheme involving the federal Food and Drug Administration and Drug Enforcement Agency, as well as OASAS. A recent commentary in the *Journal of the American Medical Association* notes that there are only four physicians registered in the US to provide methadone treatment in their general practices. Further,

Given the [effort] . . . necessary to obtain state and federally approved separate registration, it is rare for office-based physicians to detoxify an occasional opiate-dependent patient or provide maintenance treatment while they are simultaneously treating some concurrent psychiatric or other medical illness.³²

The legal segregation of drug treatment from primary care is promoted further by academic medicine: in the view of some, medical education at all levels has not provided generalist physicians with the knowledge, skills, or attitudes required to prescribe methadone effectively to treat heroin addiction.³³ In addition, residency training in general has not promoted such instruction. As a result, many primary care physicians "lack both the training and the desire to diagnose addictions."³⁴

Allowing generalists (here referring to physicians specializing in internal medicine, family medicine, obstetrics/gynecology, or adolescent medicine, in addition to other physicians not subspecializing in substance abuse care) to prescribe methadone maintenance for heroin addicts who have been stabilized on treatment and for whom ancillary services can be provided elsewhere would create additional slots for patients who require more-comprehensive treatment and would increase access to drug treatment overall. Moreover, many patients might regard office-based treatment as significantly less stigmatizing than clinic services and therefore respond with greater compliance and decreased risk of relapse. The effectiveness of this approach has been demonstrated in studies of medical practices in western Europe, Hong Kong, and Australia.^{35,36}

Novick and colleagues have developed an innovative treatment model, referred to as medical maintenance, that permits primary care physicians to maintain socially rehabilitated former heroin addicts on methadone outside licensed clinics.^{18(pp127-130)} Although the patient cohort in this study was selected carefully—all patients had completed five years or more in conventional methadone treat-

ment successfully; were employed; had verifiable financial support; and had no criminal involvement, use of illegal drugs, or excessive alcohol use within three or more years—the study demonstrated that former heroin users could be treated effectively in generalist physicians' offices; the patients had relatively high retention rates (the mean duration of treatment in medical maintenance was five years) and low incidence of substance abuse and lost medication. Based on this decade-long study, these researchers conclude that methadone maintenance should be made available through generalist physicians to many more patients and, with a short training program, could be provided by many physicians with or without prior experience in substance abuse treatment.

COCAINE

Treating cocaine and crack cocaine addiction presents further challenges to the medical community. "Cocaine activity—especially relating to crack—continues [since the mid-1980s] to dominate the New York City drug scene."^{37(p167)} In the first half of 1995, primary cocaine admissions accounted for 38% of all drug treatment admissions to state-funded New York City programs. The primary modes of use are smoking crack (about 72% of admissions) and inhaling or snorting cocaine (25%).^{37(pp167–168)} In addition, cocaine may be injected, alone or with heroin (known as speedballing), presenting increasing risks for HIV transmission through injection drug use. However, injecting cocaine has not grown in popularity as fast in New York as in other parts of the country.

Unlike methadone for the treatment of heroin addiction, there exists no effective pharmacologic substitute to treat cocaine addiction; most cocaine users are treated with psychosocial treatments within an abstinence approach. Patients with more-severe dependence, or those failing to respond to psychosocial treatment, may be treated additionally with dopaminergic medications, although the efficacy of these treatments has not been established, and adverse side effects are a concern.^{15(pp36–38)} Increasing support for research at NIDA for the development of innovative pharmacological and behavioral treatments to treat cocaine addiction should be a priority.

Although methadone is used as a pharmacologic substitute to treat heroin addiction, the NIDA-sponsored evaluation of methadone maintenance treatment found that cocaine abuse, as well as abuse of other nonopiate drugs, declined during methadone treatment. In this study, the sample of over 600 methadone maintenance patients had abused heroin regularly for an average of 11.2 years prior to treatment; of this group, 47% regularly abused cocaine for an average of 5.8 years. The length of time in treatment was found to correlate with decline in cocaine use: after 6 months in treatment, the prevalence of cocaine use declined

to 28%. Moreover, after 4.5 years in treatment or longer, the prevalence rate for cocaine abuse declined to 17%.¹⁷ These findings suggest that long-term methadone maintenance treatment may play an important role in reducing cocaine abuse associated with heroin addiction.

FINANCING TREATMENT

A patchwork of public and private funds supports New York State's drug treatment programs (New York State Office of Alcoholism and Substance Abuse Services, unpublished budget data, June 1995).³⁸ The primary funding source is Medicaid, accounting for over 60% of the state's \$521 million budget for substance abuse treatment during the 1995–1996 budget year. Medicaid is funded in New York as follows: federal share, 50%; state share, 25%; local share, 25%. However, federal funds do not support patients eligible for Medicaid coverage under Home Relief, the state's public assistance program, which provides financial assistance to 60% of Medicaid-enrolled methadone patients; for individuals in this state-only program, medical bills are reimbursed with 50% state and 50% local funds. Thus, modifications in eligibility for Home Relief (and therefore Medicaid coverage), such as the recent restrictions on public assistance benefits for applicants and recipients with drug and alcohol problems, will have a significant impact on access to drug treatment.³⁹

Through OASAS, the state is the payer of last resort for all not-for-profit and licensed methadone clinics, covering expenses not reimbursed by Medicaid or the small amount of self-pay and private insurance dollars.* These remaining costs were financed in the 1995–1996 budget by OASAS with approximately \$187 million in state aid and \$78 million from federal block grants from the Substance Abuse and Mental Health Services Administration. In spite of the recognized need for substance abuse services, state funds for treatment and prevention were slashed over \$28 million during budget years 1996 and 1997. In addition, it should be noted that, as health care for both Medicaid-eligible and privately insured individuals becomes increasingly delivered and financed within managed-care methodologies, including health maintenance organizations, there are

*Private insurance has assumed only a very small role in reimbursing the costs related to methadone treatment, considered negligible by New York State health administrators (see Ref. 9, p. 172). However, based on its survey of hospital admissions from 1982 to 1992, Empire Blue Cross and Blue Shield, the New York City region's largest private health insurer, estimates that as of June 30, 1992, it "was insuring approximately 85,000 injection drug users or approximately 1% of its total subscriber population and 2% of its adult males. . . . Further, since there are other insurers operating in the same area, the number of privately insured injection drug users in the New York City region is presumably even larger than the [Empire] estimate."⁴⁰

many uncertainties regarding the future scope of coverage for drug treatment and related services.*

Regardless of the funding streams used to finance treatment for heroin addiction or the modality used, treatment is cost effective to society whether measured by the prevention of HIV and family and community disintegration, the commission of violent crimes, incarceration for drug-related offenses, or lost productivity. In its 1995 report, the IOM recommends that three objectives should guide drug policy and financing: reducing the severity of addiction to allow the addict to "maintain an acceptable level of medical and social functioning"²⁰; reducing crime and enhancing public safety; and safeguarding public health with the goal of reducing the transmission of HIV, hepatitis,²⁰⁻²¹ and tuberculosis.²⁰⁻²¹ Further,

While methadone maintenance can be seen as a service to or even a privilege for the affected individual because it reduces his/her withdrawal symptoms and cravings for opiates, to the extent that it is effective in reducing the social harm caused by these associated problems, methadone maintenance treatment may be seen as a public health benefit to society, similar to education and vaccination programs.^{9(p196)}

Similarly, in its analysis of the costs related to substance abuse in New York City, the National Center on Addiction and Substance Abuse at Columbia University advised:

The public health benefits from reducing abuse and addiction would ripple through every facet of the city. It could mean fewer deaths of babies and teenagers, fewer crimes, fewer prison cells, fewer battered children and spouses, fewer drunk drivers, better conditions in existing housing stock, cleaner, safer parks, and an improved public education system.⁴¹

Because 35%–50% of New York's substance users are infected with HIV, the potential economic benefits of heroin treatment related to decreasing HIV transmission demand attention. The lifetime Medicaid costs for each injecting drug user with AIDS, not including the costs for nonmedical services and the known increases consistent with longer life expectancy and expensive new treatments, is estimated to be \$109,000; the state and local shares for the 75% of drug users who are Medicaid eligible is more than \$54,000 per patient.⁴² In contrast, one year of treatment in a methadone maintenance or outpatient drug-free program costs \$5,000 per patient, and residential drug treatment costs \$15,000 to \$20,000 per year, with costs multiplied by the number of years the patient continues in treatment.^{26(p166)}

*For a discussion of consumer difficulties in obtaining coverage for addiction treatment under managed-care policies, see Legal Action Center, *The impact of managed care and utilization review practices on consumer access to alcoholism and substance abuse services in New York State*, New York, 1996 this unpublished report can be obtained from the Legal Action Center, 153 Waverly Place, 8th Floor, New York, NY 10014.

Furthermore, methadone maintenance treatment has been found to be effective to society in terms of reducing crime. In the NIDA-sponsored evaluation of methadone maintenance programs, researchers found a significant reduction in crime after addicts entered methadone treatment. For those in treatment for six months or longer, there was a 79% decrease in the number of offenses committed from the number committed during their last addiction period—a decline from over 242,000 offenses to about 50,000 offenses. These declines in criminal activity were correlated with length of stay in treatment: although 37% of patients reported criminal behavior on admission to treatment, such activity decreased involvement of 22% of patients after one year in treatment and to 11% after six years of treatment. This reduction in crime was reported among patients at each of the programs studied.^{17(p241)}

In its evaluation of drug and alcohol treatment programs (known as the CALDATA study), the California Department of Alcohol and Drug Programs quantified the costs of reduced crime and found that drug treatment was cost effective to “taxpaying citizens.”⁴³ Although the costs of treating approximately 150,000 patients in 1992 was \$209 million, the benefits to taxpayers during treatment and the following year were worth about \$1.5 billion in savings, mostly due to reductions in crime—by two-thirds from before to after treatment. “Each day of treatment paid for itself, . . . primarily through an avoidance of crime.”^{43(piv)} One-third reductions in hospitalizations from before to after treatment were also reported, with corresponding significant improvements in other health indicators. Although the cost-benefit ratio was highest for patients discharged from methadone treatment, the ratio for participants in residential programs was “still clearly economically favorable.”^{43(pv)}

HARM REDUCTION: DECREASING THE HEALTH CONSEQUENCES OF DRUG USE

If it is inevitable that some people, in spite of elaborate societal constraints, will use illegal drugs and misuse legal ones, can medical intervention lessen the consequences of drug use? The concept of harm reduction, as used in this context, is that public health policies and programs should not be based on the ideal of a “drug-free society” or a society in which all persons always use drugs safely.⁴⁴ Rather, public policy must attempt to lessen the health and other societal consequences of drug use, particularly the transmission of HIV. The incidence of HIV infection derived from drug use is increasing steadily, especially in our cities, and adds immensely to the costs imposed by substance abuse. The New York State AIDS Advisory Council has focused attention on:

the urgency of reducing HIV infection rates among substance users who are not ready for drug treatment, who relapse after treatment, whose multi-drug use is not comprehensively addressed by treatment programs, or for whom there is no available drug treatment program. Harm reduction services are designed to help injecting drug users along an individually paced developmental path toward greater and greater risk reduction.^{42(pp3-4)}

As in methadone treatment, in which many patients progress along a trajectory to become gradually less dependent on substances, harm-reduction services advance patients along a series of steps that gradually decrease the negative consequences of their drug use and can act as a bridge to treatment services.

Efforts to reduce HIV transmission among substance users incorporate many modalities, such as HIV prevention education, including condom use and safer sex counseling and education; referrals for drug treatment and other health care and social services; interim methadone maintenance; bleach kits; and needle exchange and availability programs to reduce infection from shared needles.

NEEDLE EXCHANGE PROGRAMS

The New York State Public Health Law prohibits the selling, possession, or giving to another person of a hypodermic syringe or needle without a prescription or authorization from the Commissioner of Health.⁴⁵ (The state general business law and insurance law contain comparable restrictions on related matters within their respective jurisdictions.) However, since 1992, New York State health regulations have permitted the operation of needle exchange programs under individual waivers from state law. This provision states:

Community-based not-for-profit organizations and government entities engaged in clean hypodermic syringe and needle exchange programs designed to reduce the transmission of human immunodeficiency virus may obtain, possess and furnish hypodermic needles and syringes, without prescription, when authorized by the commissioner. . . . The authorization will be granted only in accordance with a plan . . . approved by the commissioner . . . meeting the requirements of the regulation.⁴⁶

There are 11 syringe exchange programs that operate under state waiver, each administering from one to five of the AIDS Institute Comprehensive Harm Reduction Syringe Exchange Initiative's 26 approved sites.^{42(pp3-4)} These programs serve an estimated 30,000 to 40,000 injection drug users, who represent approximately 14% of New York State's injecting drug user population. This initiative is funded by \$1.5 million from New York State, \$540,000 in grants from the federal Centers for Disease Control and Prevention, and \$800,000 in grants from New York City's allocation under the federal Ryan White Comprehensive AIDS Resources Emergency Act-Title I program. Other program applications for needle exchange programs are under consideration, but approval has not been granted because of insufficient resources. In addition, because of federal funding restric-

tions, harm-reduction programs cannot use federal grants to support needle exchange activities and related research.

The federal ban on funding for needle exchange has been a formidable obstacle to implementation of these programs. The restriction prohibits federal support for needle exchange programs "unless the Surgeon General of the United States determines that such programs are effective in preventing the spread of HIV and do not encourage the use of illegal drugs."⁴⁷ Although the Department of Health and Human Services is still

restricted from using certain [federal] funds to support the funding of needle-exchange programs directly, [the U.S. General Accounting Office states that] it [DHHS] does have the authority to conduct demonstration and research projects that involve the provision of needles.⁴⁸(p11-12)

Furthermore, in a report submitted to Congress in February 1997, Health and Human Services Secretary Donna E. Shalala favorably reviewed needle exchange research and concluded:

Overall these studies indicate that needle-exchange programs can have an impact on bringing difficult to reach populations into systems of care that offer drug dependency services, mental health, medical and support services. These studies also indicate that needle exchange programs can be an effective component of a comprehensive strategy to prevent HIV and other blood borne infectious diseases in communities that choose to include them.⁴⁹

In spite of these official positions, the ban on federal support for needle-exchange programs remains in effect.*

Critical to consideration of the appropriateness of support for needle exchange programs are the answers to the following questions:

1. Can needle exchange programs decrease HIV transmission?
2. Is there evidence that drug use among those who might not use drugs increases if the availability of needles is increased?
3. Does the availability of needles represent tacit approval of drug use?

Exchange programs have been recommended as a cost-effective means of reaching drug users. Many public health leaders and professional associations—including the NRC/IOM, the American Medical Association, the American Public Health Association,⁵¹ the Association of State and Territorial Health Officials, and the National Commission on AIDS—as well as prominent publications such as the *New York Times*⁵² and the *Lancet*,⁵³ have endorsed revising state laws to allow greater access to sterile needles and syringes, including access through needle exchange programs.

In its 1995 report, which extensively reviewed the scientific evidence on needle

*For an analysis of the politics of needle exchange, see Ref. 50.

exchange, the NRC/IOM concluded that "needle exchange programs should be regarded as an effective component of a comprehensive strategy to prevent infectious disease."^{54(p4)} Specifically, the IOM found that the increased "availability of sterile injection equipment . . . lower[s] the risk of new HIV infections, . . . [yet does] not increase the frequency of injection among program participants and [does] not increase the number of new initiates to injection drug use."^{54(p4)}

The IOM report was based on a rigorous examination of needle exchange research, including surveys sponsored by the federal government. In a 1993 report requested by the House Select Committee on Narcotics Abuse and Control, the US General Accounting Office reviewed peer-reviewed research on needle exchange, as well as the experiences of programs located in Tacoma, Washington, and New Haven, Connecticut. Based on this analysis, the General Accounting Office found that needle exchange programs had neither led to increased frequency nor increased prevalence of drug use, had decreased needle sharing (in two of three studies), and had provided drug users an important link to drug treatment and other health services.^{48(pp205-208)}

In a second literature review, conducted by the University of California for the federal Centers for Disease Control and Prevention (published in 1993), researchers concluded that although the data "do not . . . provide clear evidence that needle-exchange programs decrease HIV infection rates,"^{55(pp216-217)} there was no evidence that drug use among program participants increased or evidence that these programs had an impact on the rate of drug use in the community.⁵⁵ Finally, in a third examination of needle exchange programs (published in 1995), Des Jarlais and colleagues confirmed the prior reports: "All studies thus far have shown no increase in illicit drug injection associated with syringe exchanges."^{44(p1651)} In addition, no studies had reported an increase in the number of drug injectors in a given population; the absence of relatively young participants in needle exchange programs provides evidence that exchange programs had not encouraged large numbers of new injectors.^{44(p1651)}

In an evaluation of New York City's needle exchange programs presented at the 1994 American Public Health Association conference, Des Jarlais and his colleagues demonstrated that exchange programs have not led to an increase in already high-frequency levels of drug injections and have significantly reduced HIV risk behaviors as follows:⁵⁶

- Mean number of injections: 97.8 injections 30 days prior to using the exchange versus 89.7 in the last 30 days (-8.3% change)
- Rented or bought used syringes: 463 incidents (16% of participants) 30 days prior versus 114 (3.9%) in the last 30 days (-75.4% change)

- Borrowed or used previously used syringes: 651 incidents (22.5% of participants) 30 days prior versus 248 (8.6%) in the last 30 days (–61.9% change)
- Gave, lent, rented, or sold used syringes: 498 incidents (17.3% of participants) 30 days prior versus 247 (8.6%) in the last 30 days (–50.4% change).

The New York data also strongly suggest that needle exchanges have not encouraged people to begin injecting drugs: the mean age of participants in New York's needle exchange programs was 36.6 years, although the mean age of first injection for participants was 19.4 years; only 13% of the participants began injecting within the prior five-year period, during which the exchange programs began their operations.⁵⁶ Finally, HIV tests of participants have found a 1.6% rate of HIV seroconversion per year among exchange participants, compared to rates of 4% to 8% in injection drug users not in exchange programs.⁵⁷ Based on the reported reductions in risk behavior and the relatively low HIV seroconversion rate among exchange participants, coupled with the rates of seroconversion among New York's injection drug users generally, it is estimated that regular participation in exchange programs would reduce the risk of new HIV infection by approximately half.^{56,58}

Lurie and Drucker, based on a mathematical model using estimates of disease prevention rates from the literature, recently suggested that needle exchange programs could have prevented 8,400 to 19,700 HIV infections in the US between 1987 and 1995 among injection drug users, their sex partners, and their children. Further, if needle exchange programs were in place in 1996, an additional 9,700 to 22,800 HIV infections could have been prevented by the year 2000.^{59,60}

DEREGULATING STERILE NEEDLES

Experience from Connecticut demonstrates that allowing pharmacies to sell needles and syringes offers a strategy for reducing the spread of HIV among drug users at no cost to the state. In 1992, the Connecticut legislature deregulated the purchase and possession of needles, allowing pharmacies to sell and individuals to possess up to 10 needles without a prescription. A 1995 study of the impact of this legal shift found that

- Syringe sharing decreased after enactment of the new law (52% before vs. 31% after).
- Fewer drug users reported purchasing syringes on the street after the new law (74% before vs. 28% after).
- More drug users reported purchasing syringes from a pharmacy after the new laws (19% before vs. 78% after).
- Over two-thirds (91 of 134) of active drug users interviewed 8 to 11 months after the law's enactment were aware of the legal change.⁶¹

The authors, public health officers from the Centers for Disease Control and Prevention and the Connecticut Department of Public Health and Addiction Services, conclude that:

The proportional decrease in reported syringe-sharing of 39% . . . would be expected to translate into cases of HIV infection prevented—the goal of increasing access to sterile syringes. . . . When legal restrictions on both the purchase and possession of syringes are removed, intravenous drug users will change their syringe-purchasing practices and their syringe-sharing behaviors in ways that can reduce HIV transmission.^{61(pp88–89)}

These findings were confirmed recently by the Centers for Disease Control and Prevention, which examined the needle- and syringe-sharing practices among HIV-infected injecting drug users from 12 states and localities between 1990 and 1995. The researchers found that the proportion of injection drug users from Connecticut who shared needles during the past year decreased from 71% in 1992 to 29% in 1995. It was speculated that this trend resulted from the state's new law that allowed the purchase and possession of sterile injecting equipment without a prescription.⁶²

The sale of hypodermic needles and syringes without a physician's prescription is permitted in 42 states (and 5 states allow both sale and possession); New York is one of 9 states and territories that bars the sale of needles and syringes without a prescription.⁶³ (Syringe prescription laws exist in California, Delaware, Illinois, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and the Virgin Islands.) To amend these state laws, proposals have been introduced during past legislative sessions to revise the public health, general business, and insurance laws to

- Allow pharmacies, state-funded diagnostic and treatment facilities, and needle exchange programs to sell or furnish hypodermic needles and syringes to persons 18 years of age and older without a prescription.
- Deregulate possession of sterile needles and syringes if they were obtained through legal sale or distribution or through a needle exchange program.
- Permit secondary distribution of legally obtained needles to other individuals 18 years or older.
- Require the New York State Health Department to conduct an annual study of the law's impact on the spread of HIV and drug abuse.*

On May 1, 1996, this bill was endorsed by the New York State AIDS Advisory Council. However, the state legislature has yet to enact this proposal.

Whether increasing the availability of sterile needles and syringes represents tacit approval of drug use is a philosophical question about which reasonable people may disagree. If the availability of sterile needles can decrease HIV transmission among addicts and their contacts and children, and if there is no

*See, e.g., A. 1454, sponsored by Assemblymember Richard Gottfried, introduced in legislative session 1997–1998; also see S. 4347, sponsored by Senator James Lack.

evidence that this practice encourages the use of illegal drugs, then the social benefits and health care goals might well be viewed as outweighing the possibility that needle exchange and needle availability programs may be perceived as condoning drug use. The obligation of the medical profession to treat these patients, decrease their burden of illness, and address the consequences of their addiction to third parties—most significantly, the transmission of HIV—is the critical concern. Current antidrug sentiment ought not preclude careful efforts to reduce the medical consequences of substance use.⁶⁴

RECOMMENDATIONS

Addiction is an illness and its treatment is primarily a medical and public health matter. Because addiction treatment represents a cost-effective means of reducing HIV transmission, community violence, and family disintegration, the New York Academy of Medicine recommends the following:

1. We support significantly increased funding for addiction treatment, including methadone treatment, residential drug-free programs, and other modalities.
2. The level and duration of drug treatment should be a medical determination. We oppose legislative or regulatory proposals to prescribe the appropriate course of drug treatment.
3. New York State should ensure that drug treatment services for pregnant women are readily available on a voluntary, nonpunitive basis and should foster drug treatment in the context of promoting the health of the woman, her developing fetus, and the future child.
4. Medical and public health professionals should collaborate with criminal justice officials to improve health care in correctional facilities and to promote drug treatment in order to foster rehabilitation and to prevent recidivism. We support the availability of addiction services in all correctional settings for all substance users who seek treatment.
5. New York State should require health care insurers and managed-care entities, whether publicly supported or commercially sponsored, to provide coverage for drug treatment services.
6. We encourage the development of well-designed, adequately funded studies of the effectiveness of all treatment approaches and of new treatment methods, with a special focus on fostering research on effective pharmacological treatment agents for cocaine dependency. To promote such research, Congress should increase appropriations for substance abuse research at the National Institutes of Health (NIH), increasing the National

Institute on Drug Abuse (NIDA) budget for treatment and medications development and for health services research.

7. We will help create continuing medical education and specialized training programs for generalist physicians to increase knowledge of substance abuse identification and treatment.
8. We support efforts to amend federal, state, and local statutes and regulations to integrate methadone maintenance treatment into generalist care. We will promote the development and evaluation of innovative models of substance abuse treatment that integrate drug treatment services, including methadone maintenance, into generalist care. These approaches should be utilized for appropriate patients and be supported by specialty consultation.
9. We encourage the development of undergraduate medical education, residency training, and continuing medical education curricula that incorporate the knowledge, skills, and attitudes needed for effective addiction care.
10. Legal barriers to obtaining sterile needles and syringes should be removed. We support the enactment of the New York State legislative proposal to permit the sale by pharmacies of hypodermic needles and syringes without a prescription and to deregulate the distribution and possession of sterile needles and syringes as a cost-effective approach to prevent HIV transmission.
11. We support increasing the availability of needle exchange programs to all those who seek such services; these programs should incorporate into their outreach services education on the proper disposal of needles. The New York State legislature should target and substantially increase appropriations for state-sponsored needle exchange programs to expand capacity at the state's 11 existing programs, develop new programs, and increase the availability of supplies necessary to implement needle exchange. In addition, we advocate rescinding the present ban on utilizing federal funds for needle exchange programs and research.

January 29, 1997

REFERENCES

1. Schmoke KL. Medicalizing the war on drugs. *Acad Med.* 1995;70:356.
2. Committee on Public Health Relations, The New York Academy of Medicine. *Thirty Years in Community Service: 1911-1941.* New York: The New York Academy of Medicine; 1941: 69-71.
3. Committee on Public Health, The New York Academy of Medicine. *Pioneering in Public Health for 50 Years.* New York: The New York Academy of Medicine; 1961:92.

4. Proceedings: Symposium on Drug Testing in the Workplace. *Bull NY Acad Med.* 1989; 65(2).
5. Proceedings: Pregnancy and Substance Abuse: Perspectives and Directions. *Bull NY Acad Med.* 1991;67(3).
6. Committee on Public Health, The New York Academy of Medicine. Statement on AIDS initiatives in drug treatment services in New York City. *Bull NY Acad Med.* 1991;67:403.
7. The New York Academy of Medicine. *A Statement on Allowing Non-prescription Possession and Sale of Hypodermic Needles and Syringes.* New York: The New York Academy of Medicine; March 1991.
8. The New York Academy of Medicine. Harm reduction policies and practice: international developments and domestic initiatives. *Bull NY Acad Med.* 1995;72:321-412.
9. Institute of Medicine. *Federal Regulation of Methadone Treatment.* Washington, DC: National Academy Press; 1995:5-6.
10. Kent C. Experts fear "get tough" view of drug treatment may backfire. *Am Med News.* September 16, 1996:29.
11. National Research Council. *AIDS: Sexual Behavior and Intravenous Drug Use.* Washington, DC: National Academy Press; 1989:211.
12. National Commission on AIDS. *America Living with AIDS: Report of the National Commission on Acquired Immune Deficiency Syndrome.* Washington, DC: US Government Printing Office; 1991:9.
13. Citizens Commission on AIDS for New York City and Northern New Jersey. *AIDS and Drug Use: Breaking the Link.* 1988:1-2.
14. New Hope for Addicts? [editorial]. *New York Times.* September 13, 1996:A34.
15. American Psychiatric Association. Practice guideline for the treatment of patients with substance use disorders: alcohol, cocaine, opioids. *Am J Psychiatry.* 1995;152:39-43.
16. Foderaro LW. An alternative to methadone is approved: New York clinics see new hope for addicts. *New York Times.* September 6, 1996:B1.
17. Ball JC, Ross A. *The Effectiveness of Methadone Maintenance Treatment: Patients, Programs, Services, and Outcome.* New York: Springer-Verlag; 1991:239-240.
18. Novick DM, Joseph H, Salsitz EA, et al. Outcomes of treatment of socially rehabilitated methadone maintenance patients in physicians' offices (medical maintenance). *J Gen Int Med.* 1994;9:130.
19. Wren CS. One of medicine's best-kept secrets: methadone works. *New York Times.* June 3, 1997:C-3.
20. 37 *Federal Register* 26790.
21. Yancovitz SR, Des Jarlais JC, Peyser NP, et al. A randomized trial of an interim methadone maintenance clinic. *Am J Public Health.* 1995;81:1185.
22. New York State Assembly. *An Act to amend the public health law, in relation to methadone treatment.* Bill A-9278. Introduced by Assemblymember Tocci of Westchester County. March 5, 1996.
23. New York State Assembly. *Memorandum in Support of Legislation.* Bill A-8937. Introduced by Assemblymember Tocci of Westchester County and six cosponsors. February 26, 1996.
24. Nadelmann E, McNeely J. Doing methadone right. *Public Interest.* 1996;123:83.
25. DeLeon G, Rosenthal M. Therapeutic communities. In: DuPont RL, Goldstein A, O'Donnell J, eds. *Handbook on Drug Abuse.* Washington, DC: US Government Printing Office; 1979:40.
26. Hubbard RL, Marsden ME, Rachal JV, Harwood HJ, Cavanaugh ER, Ginzberg HM. *Drug Abuse Treatment: a National Study of Effectiveness.* Chapel Hill, NC: University of North Carolina Press; 1989:55-64.
27. Reuters. Use of drugs while pregnant is ruled abuse. *New York Times.* July 17, 1996: A10.
28. Lewin T. Abuse laws cover fetus, a high court rules. *New York Times.* October 30, 1997: A22.

29. Lewin T. Court rules out woman's trial in fetus death. *New York Times*. October 31, 1997:A16.
30. Murphy PT. Protect the innocent. *New York Times*. July 30, 1996:A17.
31. Terry D. In Wisconsin, a rarity of a fetal-harm case: attempted-murder charges for alcoholic. *New York Times*. August 17, 1996:A6.
32. Cooper JR. Including narcotic addiction treatment in an office-based practice. *JAMA*. 1995;273:1619.
33. Sirica C (ed.). *Training About Alcohol and Substance Abuse for All Primary Care Physicians: a Conference Sponsored by the Josiah Macy, Jr., Foundation*. New York: Josiah Macy, Jr., Foundation; 1995.
34. Gilbert S. Doctors found to fail in diagnosing addictions. *New York Times*. March 14, 1996.
35. Van Brussel G. Methadone treatment by general practitioners in Amsterdam. *Bull NY Acad Med*. 1995;72:348.
36. Newman RG. Drug policy reform: societal and clinical perspectives. *Bull NY Acad Med*. 1995;72:321.
37. Frank B, Galea J. Current drug use trends in New York City. In: National Institute on Drug Abuse. *Epidemiological Trends in Drug Abuse*, Vol. 2. December 1995:167-168.
38. New York State Office of Alcoholism and Substance Abuse Services. 1992-1993 OASAS data. Cited by: Institute of Medicine. *Federal Regulation of Methadone Treatment*. Washington, DC: National Academy Press; 1995:170-173.
39. Dao J. Pataki renews call to limit home relief: says US welfare law will strain state budget. *New York Times*. September 29, 1996:39.
40. Eisenhandler J, Drucker E. Opiate dependency among the subscribers of a New York area private insurance plan. *JAMA*. June 9, 1993;269(22):2891.
41. Richardson H, Califano J, Jr, Tapper D, Demers J. Substance abuse and public health in urban America: analysis of costs in New York City. *Curr Issues Public Health*. 1996; 2:98.
42. New York State AIDS Advisory Council, Subcommittee on Harm Reduction. *Report on Needle Exchange Programs and Deregulation of Needles and Syringes*. New York: New York State AIDS Advisory Council; April 1996:8.
43. Gerstein DR, Johnson RA, Harwood HJ, Fountain D, Suter N, Malloy K. *Evaluating Recovery Services: the California Drug and Alcohol Treatment Assessment (CALDATA)—General Report*. Sacramento, Calif: California Department of Alcohol and Drug Programs; April 1994.
44. Paone D, Des Jarlais DC, Gangloff R, Milliken J, Friedman SR. Syringe exchange: HIV prevention, key findings, and future directions. *Int J Addict*. 1995;30:1651.
45. New York State Public Health Law, §3381.
46. 10 *Official Compilation of Codes, Rules, and Regulations of the State of New York*, Part 80.135.
47. Public Law 102-394, 106 Stat 1827, §514 (October 6, 1993) (Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act).
48. US General Accounting Office. *Needle Exchange Programs: Research Suggests Promise as an AIDS Prevention Strategy*. Report Number GAO/HRD-93-60. Washington, DC: US Government Printing Office; 1993. Cited by: National Research Council/Institute of Medicine. *Preventing HIV Transmission: the Role of Sterile Needles and Bleach*. Washington, DC: National Academy Press; 1995:11-12.
49. Shalala, DE. *Needle Exchange Programs in America: Review of Published Studies and Ongoing Research—Report to the Committee on Appropriations for the Departments of Labor, Health and Human Services, Education, and Related Agencies*. Washington, DC: US Department of Health and Human Services; February 18, 1997:11.
50. Lurie P. When science and politics collide: the federal response to needle-exchange programs. *Bull NY Acad Med*. 1995;72:380.
51. Seelye KQ. AMA calls for needle exchanges. *New York Times*. June 27, 1997.
52. Clean needles slow AIDS [editorial]. *New York Times*. December 6, 1994.

53. Coming clean about needle exchange. *Lancet* 1995;346:1377.
54. National Research Council/Institute of Medicine. *Preventing HIV Transmission: the Role of Sterile Needles and Bleach*. Washington, DC: National Academy Press; 1995:4.
55. Lurie P, Reingold AL, Bowser B, et al. *The Public Health Impact of Needle Exchange Programs in the United States and Abroad*. Vol. 1. San Francisco, Calif: University of California; 1993. Cited by: National Research Council/Institute of Medicine. *Preventing HIV Transmission: the Role of Sterile Needles and Bleach*. Washington, DC: National Academy Press; 1995:216–217.
56. Des Jarlais DC, Paone D, Marmor M, Titus S, Sotheran JL, Friedman SR. The New York City syringe exchange program: evaluation of a public health intervention. Paper presented at: American Public Health Association Conference; November 1994; Washington, DC; Tables 1 and 2.
57. Des Jarlais DC, Paone D. Presentation to the New York State AIDS Advisory Council Subcommittee on Harm Reduction, March 22, 1996. Cited by: New York State AIDS Advisory Council, Subcommittee on Harm Reduction. *Report on Needle Exchange Programs and Deregulation of Needles and Syringes*. New York: New York State AIDS Advisory Council; April 1996:6.
58. Des Jarlais DC, Marmor M, Paone D, et al. HIV incidence among injecting drug users in New York City syringe-exchange programmes. *Lancet*. 1996;348:987.
59. Lurie P, Drucker E. An opportunity lost: estimating the number of preventable HIV infections and cost of US failure to implement syringe exchange programs. Paper presented at: 11th International Conference on AIDS; July 1996; Vancouver, Canada (Doc. ID: Tu.C.324).
60. Lurie P, Drucker E. An opportunity lost: HIV infections associated with lack of a national needle-exchange programme in the USA. *Lancet*. 1997;349:604.
61. Groseclose SL, Weinstein B, Jones TS, Valleroy LA, Fehrs LJ, Kassler WJ. Impact of increased legal access to needles and syringes on practices of injecting-drug users and police officers—Connecticut, 1992–1993. *J Acquir Immune Defic Syndr Hum Retrovirol*. 1995;10:82–89.
62. Diaz T, Chu SY, Weinstein B, et al. Factors associated with syringe sharing among HIV-infected drug injectors: influence of knowledge of HIV status and change in prescription laws. *J Acquir Immune Defic Syndr Hum Retrovirol*. 1998;18(suppl. 1):576–581.
63. Gostin LO, Lazzarini Z, Jones TS, Flaherty K. Prevention of HIV/AIDS and other blood-borne diseases among injection drug users: a national survey on the regulation of syringes and needles. *JAMA*. 1997;277:56–57.
64. Hantman JA. Research on needle exchange: redefining the agenda. *Bull NY Acad Med*. 1995;72:410.