The U.S. Department of Health and Human Services states that, “Substance abuse and its related problems are among society’s most pervasive health and social concerns.” The National Center on Addiction and Substance Abuse (CASA) estimates that Minnesota spent almost $3 billion on substance abuse and its consequences in 2005. About 98% of this amount covered the burden to public programs that resulted from the consequences of substance use, such as health problems and costs to the criminal justice system. CASA estimates that treatment accounted for about 2% of spending, and prevention activities accounted for less than 1%. In the press release that accompanied publication of this study, CASA founder and former U.S. Secretary of Health, Education, and Welfare Joseph Califano said, “Under any circumstances, spending more than 95 percent of taxpayer dollars on the crime, health care costs, child abuse, domestic violence, homelessness and other consequences of tobacco, alcohol and illegal and prescription drug abuse and addiction, and only two percent to relieve individuals and taxpayers of these burdens, is a reckless misallocation of public funds.”

It is unlikely that increased spending on treatment could eliminate the enormous economic burden of substance abuse reported by CASA, but additional spending could certainly reduce that burden. The need for additional treatment is undeniable. McAlpine et al. estimate that about 9% of adults in Minnesota met the criteria for substance abuse or dependence, but less than one in ten of them actually received treatment that year. Park reports that even higher percentages of high school students (17.6% of 12th graders) exhibited a need for treatment, and a little over one in ten of them (13%) received it. Raske notes that Minnesota has more unmet need than over half of the states in the U.S.

The logical next question concerns whether treatment works. The unfortunate part of the answer is that it does not always help all people who get it, but the fortunate part is that it helps most people quite a bit. The Minnesota Department of Human Services maintains the Drug and Alcohol Abuse Normative Evaluation System (DAANES). All providers of treatment are required to submit data at admission and discharge to DAANES for all episodes of treatment; a few providers, such as the U.S. Department of Veteran Affairs and the Minnesota Department of Corrections, are exempt from this requirement. An important measure of success is whether people complete treatment. In fact, a study of post-treatment abstinence notes that completion is the most consistent predictor of post-treatment abstinence. About three in five of those admitted to treatment in 2009 whose discharge data were submitted to DHS by November 30, 2010, successfully completed treatment.
The next question is whether people who enter treatment are actually improving while in treatment. The Substance Abuse and Mental Health Services Administration (SAMHSA) has developed six National Outcomes Measures (NOMS) to be administered at admission and discharge in order to determine functioning in six critical domains in the thirty days prior to admission and discharge. According to SAMHSA, NOMS “are designed to embody meaningful, real life outcomes for people who are striving to attain and sustain recovery; build resilience; and work, learn, live, and participate fully in their communities.”

Table 1 displays the percentage who experience problems on the different dimensions in the 30 days prior to admission and discharge, as well as the percentage improvement from admission to discharge. For example, 6.9% of people are homeless at admission and 4.1% are homeless at discharge, so 40.6% of the problem at admission is eliminated by treatment. (40.6% = 100*(6.9-4.1)/6.9.) While improvement in participation in the economy, either as a worker or a student, is modest, improvement in other realms is striking. In fact, over half of the problems with arrests, using alcohol, using drugs, and failing to participate in a self-help group are eliminated by treatment.

Table 1. Percentage who Exhibit Problems on National Outcome Measures (NOMS) at Admission and Discharge

<table>
<thead>
<tr>
<th>NOMS</th>
<th>Admission</th>
<th>Discharge</th>
<th>% Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless</td>
<td>6.9</td>
<td>4.1</td>
<td>40.6</td>
</tr>
<tr>
<td>Not employed/student</td>
<td>59.0</td>
<td>56.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Arrests</td>
<td>11.7</td>
<td>4.7</td>
<td>59.8</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>48.2</td>
<td>15.2</td>
<td>68.5</td>
</tr>
<tr>
<td>Drug use</td>
<td>38.0</td>
<td>14.7</td>
<td>61.3</td>
</tr>
<tr>
<td>No self-help group</td>
<td>58.1</td>
<td>20.7</td>
<td>64.4</td>
</tr>
</tbody>
</table>

Source: DAANES, Minnesota Department of Human Services. All measures are based on DAANES data for patients who were admitted to treatment in CY 2009 and whose discharge data were submitted to DHS by November 30, 2010.

From the above, it is clear that most people complete treatment and show considerable improvement in their level of functioning, but these data do not address whether these benefits persist. Unfortunately, NOMS are not collected after discharge from treatment. Such a follow-up would be very expensive and probably biased; it is relatively easy to follow those who lead stable lives but very difficult to follow those who continue to abuse substances and lack stable housing and employment. Two sources of data suggest that the benefits of treatment persist for most people.

First, Harrison and Asche report the results of a study that followed a sample of people who received treatment in Minnesota from 1993 to 1999. Over half of respondents (54%) reported being abstinent in the six month period following treatment. The authors also report that, “Physical and mental health, interpersonal relationships, and occupational functioning improve after treatment for adults and adolescents, while criminal behavior and arrests decline.”

The second source of data is less direct but suffers less from the possibility of bias resulting from the difficulty of following patients with unstable lives. Using administrative data, Rogers reports that 78% of those discharged from treatment in Minnesota in 2005 were able to remain out of treatment in the year following discharge. Among those who completed their last episode of treatment, 84% remained out of treatment in the following year. While it is important to remember that addiction is a chronic disease and returns to treatment should not be considered failures, the high rate of remaining out of treatment suggests that people’s lives do improve after being treated.

McLellan, Lewis, and O’Brien present convincing evidence that dependence on alcohol and other drugs is a chronic disease. They show that genetic heritability, the roles of personal choice and environmental factors, adherence to medication, and relapse rates are similar for alcohol and drug dependence, type 2 diabetes mellitus, hypertension, and asthma. All of these are chronic diseases and treating them as chronic, rather than acute, will “produce lasting benefits.” In other
words, addiction is a chronic disease much like other diseases and has similar rates of remission and relapse.

The sources above document the benefits of treatment to individuals with substance use disorders. Quite a few other studies report on the societal benefits of treatment. Several of them summarize the results of other studies.

The prestigious Institute of Medicine report on treatment includes a chapter by McLellan and McKay who state, “...this research has shown that the benefits obtained from addiction treatments typically extend beyond the reduction of substance use, to areas that are important to society such as reduced crime, reduced risk of infectious diseases, and improved social function....[R]eforfindings indicate that the costs associated with the provision of substance abuse treatment provide 3- to 7-fold returns to the employer, the health insurer, and to society within approximately three years following treatment.”

Other reviews lead to similar conclusions. Holder focuses on studies that examine changes in utilization and costs of medical services and reports that costs increase substantially in the year prior to treatment and then decline after treatment, “reaching a level that is lower than pre-treatment initiation costs after a two- to four-year period.” Cartwright reviews studies that consider a wider range of benefits and concludes, “In 18 cost–benefit studies, a persistent finding is that benefits exceed costs, even when not all benefits are accounted for in the analysis.” The benefit:cost ratios vary from 0.92 to 26.3, and almost all of the ratios that he reports are well above 1.0, indicating that benefits exceed costs. Similarly, Harwood et al. review 58 studies and find, “... strong evidence that substance abuse treatment does pay for itself.” Belenko and colleagues review studies done after the review by Harwood et al. and find benefit: cost ratios between 1.33 and 39.0. They conclude that, “Economic studies across settings, populations, methods, and time periods consistently find positive net economic benefits of alcohol and other drug treatment that are relatively robust. The primary economic benefits result from reduced crime (including incarceration and victimization costs) and post-treatment reduction in health care costs.”

The rather wide variation in benefit:cost ratios cited in the above paragraph might be seen as an indication of weakness in the studies. However, the variation in the populations being studied, the modalities of treatment, and the outcomes considered probably explain the variation in benefit:cost ratios. For example, a population of people who are addicted to heroin and dependent on criminal activity to support themselves will provide a much larger potential reduction in expenses to the criminal justice system than will a population of people addicted to alcohol who are employed full-time. Similarly, the short-term reduction in health care costs is likely to be considerably greater among a population of dependent adults who have abused substances over many years than among adolescents who have abused for only a few years.

Two states, California and Washington, have done such extensive and widely cited research that it merits additional attention. The study in California is widely cited as showing that every dollar spent for treatment returns seven dollars in benefits. Ettner et al. relied on survey and administrative data to study the effect of treatment on medical hospitalizations, emergency room visits, earnings, transfer payments, use of mental health services, and criminal activity. They report that treatment cost an average of $1,583 and returned a “monetary benefit to society” of $11,487 in the nine month follow-up period (compared to the nine months prior to treatment). The benefits derived primarily from reduced crime and increased earnings.

Shaw and colleagues compare various outcomes of low-income adults who received treatment in Washington’s Alcoholism and Drug Addiction Treatment and Support Act (ADATSA) program with a comparison group of those who received detoxification services or were enrolled in ADATSA but did not receive treatment. After controlling for differences at baseline, they find that those who received treatment earned about $1,500 more in the first year and $2,100 more in the fifth year after treatment. Among those who had Medicaid coverage, those who received treatment had medical costs that were $2,300 lower in the first year and $1,800 lower in the fifth year, although the latter benefit was not statistically significant. Those who received treatment had arrest rates that were lower by 21% in the first year and by 19% in the fifth year. Finally, those who received treatment had a 48% lower risk of dying in the first year and 24% in the fifth year. The authors conclude, “the value of providing chemical dependency treatment to low-income adults persists even five years after treatment.”

Although work in Iowa is less widely cited, it may be relevant because Iowa borders Minnesota and is more likely to have a similar distribution of problems. Iowa conducts six-month follow-up interviews with a sample
of people who receive treatment in publicly funded facilities. Hedden, Guard, and Arndt report a number of outcomes for 387 clients who completed the follow-up interview (about 60% of those eligible to do so). Abstinence increased from 0% at admission to 56% at follow-up, being free of arrests increased from 34% to 80%, being employed full time increased from 24% to 39%, attendance at self-help meetings increased from 21% to 56%, and having perfect attendance at work or school increased from 78% to 91%.

In summary, substance abuse and its consequences cost Minnesota about $3 billion per year. About one in ten Minnesotans meet the criteria for substance use disorders, but only about one in ten of those who need treatment receive it in a given year. Data from Minnesota show that most of those who enter treatment complete it and show considerable improvement in housing, employment, use of substances, criminal behavior, and participation in self-help groups. Studies in Minnesota that follow people after treatment show that abstinence and other benefits tend to persist and that most people remain out of treatment in the year following discharge.

Studies from other states confirm that treatment is an effective use of resources and returns more in financial benefits than it costs. Treatment reduces medical costs, reduces criminal justice costs, increases earnings, and even reduces mortality. (SAMHSA provides a fact sheet that graphically summarizes these benefits.) Data from Washington suggest that these benefits persist five years after treatment with only slight attenuation. Since those data only cover five years, studies of longer periods might well show that benefits persist over even longer periods.

Endnotes