

# **The Baltimore Buprenorphine Initiative**

## Interim Progress Report

Baltimore City Health Department  
Baltimore Healthcare Access, Inc.  
Baltimore Substance Abuse Systems, Inc.

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## I. EXECUTIVE SUMMARY

Heroin addiction remains a substantial challenge for the city of Baltimore. Despite a major expansion in access to effective substance abuse treatment for uninsured persons over the last decade, available services still fall far short of the demand. Buprenorphine is a recently approved therapy for heroin addiction that can be prescribed by doctors in their own offices. It offers the potential of tapping into Baltimore's world-class medical system to achieve a major reduction in heroin use.

Building on early efforts led by area foundations, medical professional associations, and hospitals, Baltimore launched a citywide effort to expand access to buprenorphine treatment in October 2006. This effort is known as the Baltimore Buprenorphine Initiative. This report provides an interim update on this effort. An independent evaluation is planned for 2008.

There are three principal components of the Baltimore Buprenorphine Initiative (Figure).

- **Step 1: Patient starts buprenorphine in a substance abuse treatment program.** The program provides the patient with buprenorphine as well as other therapeutic services including group therapy and individual counseling.
- **Step 2: Patient transitions to the medical system.** While the patient is receiving treatment in a substance abuse treatment program, a social worker from Baltimore Healthcare Access, Inc. assists with locating appropriate health insurance and other social services. The social worker then helps the patient find a buprenorphine-certified doctor in the medical system and assists in the transfer of care to care there.
- **Step 3: Patient continues to receive buprenorphine from his or her own doctor.** The patient can also receive at least another 3 months of counseling at the original treatment site and will continue to receive another 3 months of case management services from the social worker. Meanwhile, the spot for buprenorphine treatment in the substance abuse treatment program is now available for someone else.

Three agencies are working together to implement the Baltimore Buprenorphine Initiative. **Baltimore Substance Abuse Systems, Inc.** is overseeing contracts with and providing guidance to the substance abuse treatment programs. **Baltimore Healthcare Access, Inc.** is providing

social workers to manage transfers to physicians' offices and is leading outreach to insurers and managed care plans. The **Baltimore City Health Department** is recruiting city physicians to prescribe buprenorphine, providing free-online training, and overseeing efforts to find new ways to finance buprenorphine treatment.

This report finds:

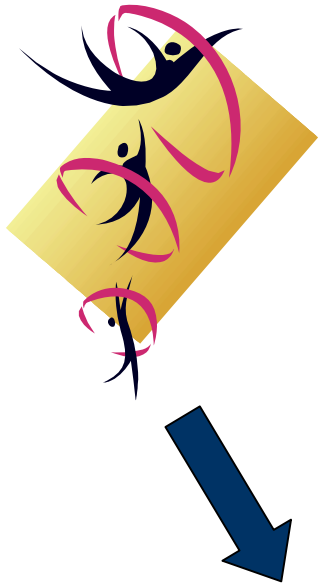
- **Through June 30, 2007, 388 patients entered the Baltimore Buprenorphine Initiative.** 65% have remained in treatment for at least 90 days, nearly meeting the initial benchmark of 67% retention at 90 days.
- **At least 79% of patients are able to qualify for health insurance for transfer to the medical system.** This exceeds the initial benchmark of 75%. Moreover, it appears that all but a few patients will eventually obtain the coverage they need to receive buprenorphine from their own doctor.
- **Through June 30, 2007, 62 patients have transferred care to the medical system, and only two have dropped out in 124 total months of medical care.** The average length of time until transfer to the medical system has been greater than anticipated, in part because of delays in obtaining insurance coverage. Patients are having other medical problems addressed in primary care, including HIV, high blood pressure, and depression.
- **About two in three patients are continuing to participate in counseling or other supportive treatment after transfer to the medical system.** Because the patients who do not participate in counseling may be at higher risk of relapse, social workers will monitor these patients and encourage ongoing supportive care.
- **93 doctors have signed up for buprenorphine training in Baltimore, and 50 have completed the training.** While this is less than the initial benchmark, it represents a surge in capacity for the city.
- **The HIV treatment system is providing a new source of funding for buprenorphine.** Maryland added buprenorphine to its AIDS Drug Assistance Program, and the Baltimore Ryan White Planning Council has made primary care funding contingent on the ability to provide buprenorphine to patients.

- **Evidence is emerging that expanding access to buprenorphine treatment could be cost-effective or cost-saving for the medical system.** Several studies by the University of Maryland Baltimore County demonstrate the huge cost associated with untreated heroin addiction and the potential role of buprenorphine therapy to save money as well as lives.

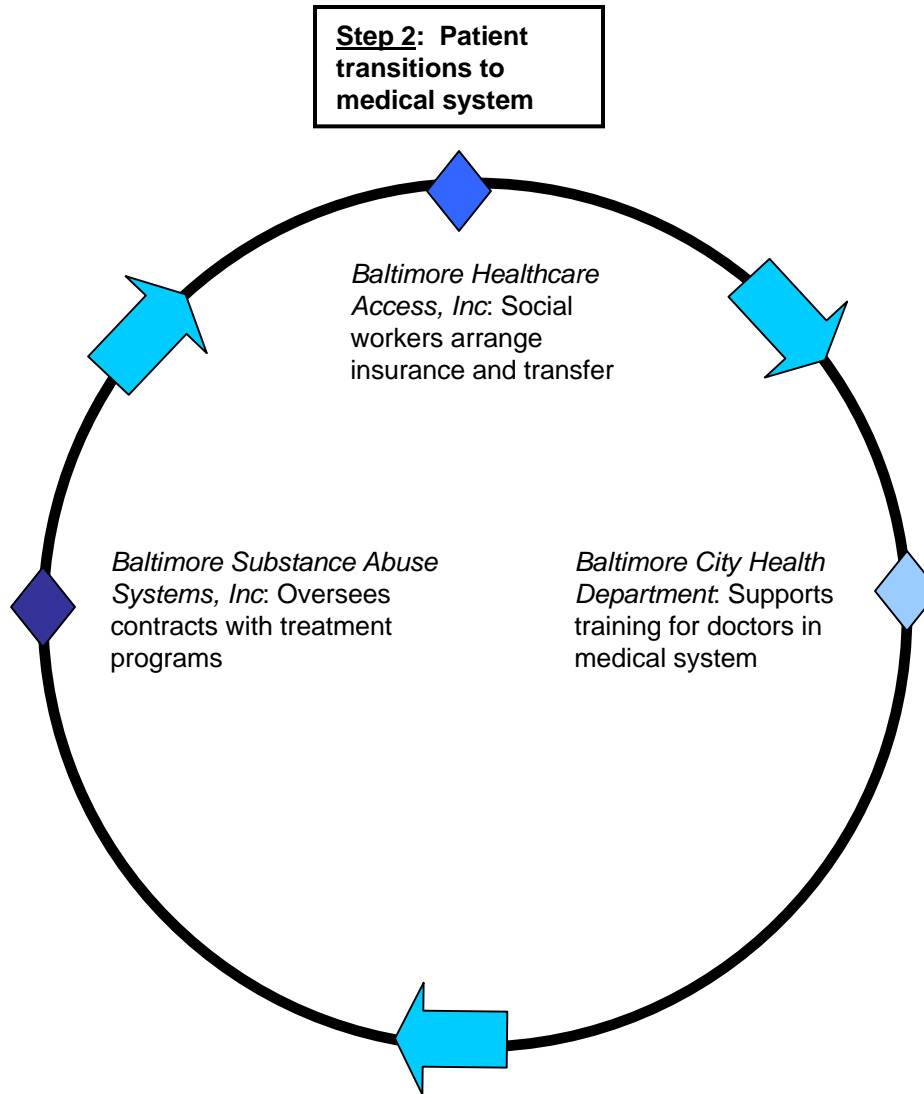
In fiscal year 2007, the public health system spent approximately \$200,000, the substance abuse treatment system budgeted approximately \$650,000 and the medical system spent about \$60,000 on costs associated with the Baltimore Buprenorphine Initiative.

The report concludes that each of the three steps of the Baltimore Buprenorphine Initiative is working, and each has room to improve and expand.

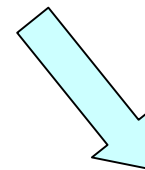
# The Baltimore Buprenorphine Initiative



**Step 1: Patient starts buprenorphine in substance abuse treatment program**



Buprenorphine treatment in substance abuse treatment program now available for someone else



## II. INTRODUCTION

Heroin addiction spreads HIV and other infectious diseases, causes serious medical complications and death, leads to crime and delinquency, and destroys families and communities. It also diverts public efforts and funds to deal with these complications of addiction.<sup>1</sup>

Heroin addiction remains a substantial challenge for the city of Baltimore. More than 10,000 city residents were admitted for heroin treatment in fiscal year 2006.<sup>2</sup> More than 200 die each year from overdoses involving heroin or other narcotics.<sup>3</sup>

Over the last decade, funding for substance abuse treatment in the city of Baltimore has increased from \$17.7 million in fiscal year 1996 to \$52.9 million in 2005.<sup>4</sup> More than 7,000 uninsured individuals receive treatment each day, about half of whom receive methadone for heroin addiction. However, the demand for treatment in Baltimore still greatly exceeds supply. Barriers to expanding existing substance abuse services to meet this demand include inadequate funding, federal and state regulations for licensure and medication distribution, and local obstacles to establishing new programs.<sup>1</sup>

### A. Buprenorphine

Buprenorphine is a synthetic opioid used to treat addiction to heroin and other narcotics. It has three important properties:

- **Reduces cravings.** Buprenorphine binds to and blocks the same brain receptors activated by heroin and other short-acting opioids -- reducing craving and promoting abstinence from illicit drugs.
- **Less potential for illegal diversion.** Buprenorphine is a “mixed agonist-antagonist,” which means it can reverse the effects of more potent opioid drugs. Someone taking heroin who abuses buprenorphine will suffer withdrawal symptoms. This characteristic discourages diversion for illicit use.<sup>5</sup>
- **Fewer overdoses.** Due again to the fact that buprenorphine is a partial agonist, there is a cap to its effect, making it extremely difficult to overdose.

Because of this ample margin of safety, regulatory authorities around the world have approved buprenorphine for prescription by doctors *in their own offices*.<sup>5</sup>

In the United States, the prescription of buprenorphine by doctors in private practice, community health centers, and hospital clinics was first made possible by the Drug Addiction Treatment Act of 2000. This law allowed physicians to obtain a waiver to provide pharmaceutical treatment for opioid addiction from their own offices. In 2002, the Food and Drug Administration approved buprenorphine as the first medication for this practice. Initial restrictions limited each health care practice to 30 patients on buprenorphine at one time.

In the summer of 2005, Congress loosened these restrictions so that licensed physicians, after completing a required training course and receiving the required waiver, could each prescribe buprenorphine to up to 30 patients.<sup>6</sup> In the fall of 2006, Congress permitted physicians with a year's experience prescribing buprenorphine to receive approval to treat up to 100 patients at a time.<sup>7</sup>

## **B. Clinical Evidence**

Buprenorphine helps patients abstain from heroin and regain control over their lives. Numerous studies and comprehensive medical reviews have demonstrated its effectiveness.

For example, a major research study sponsored by the National Institute on Drug Abuse and published in the *New England Journal of Medicine* found that patients on buprenorphine were more than three times as likely as patients on placebo to avoid illicit narcotic use.<sup>8</sup> The study was stopped early because of the dramatic positive results. Other research has found that two of three patients receiving buprenorphine remain in treatment for eight months or longer.<sup>9</sup>

A systematic review of 13 randomized controlled trials showed that buprenorphine is effective in retaining patients in drug treatment and in suppressing heroin use.<sup>10</sup> The longer the duration of buprenorphine treatment, the better the outcome.<sup>11</sup>

Evidence from other countries indicates that expanding access to buprenorphine can have a major impact at a public health level. In 1996, after France approved a sublingual form of buprenorphine to treat heroin addiction, thousands of patients received therapy. From 1995 to 1999, the number of heroin-related overdoses declined from 565 to 143 in France.<sup>11</sup>

Experts advise that buprenorphine may not be appropriate for all individuals addicted to heroin. For example, individuals using large amounts of heroin may fare better on methadone.<sup>12</sup>

### **C. The Baltimore Buprenorphine Initiative**

After buprenorphine became available for prescription by doctors in their own offices, efforts in Baltimore to promote this new treatment were soon underway. Supporters immediately saw the potential for the thousands of physicians who work in Baltimore to increase the capacity for effective drug treatment in the city.

The state medical society, MedChi, with support from the Open Society Institute, led an effort to inform physicians about buprenorphine and provided opportunities for training. The Baltimore City Medical Society also promoted buprenorphine training to its members.

For the past five years, the Mid-Atlantic Community Health Center Association, through support from the Open Society Institute, has helped local federally qualified health centers to initiate or expand their drug addiction treatment capacity. Family Health Centers of Baltimore, Health Care for the Homeless and Total Health Care received funding from Open Society and Park West Medical Center received funding from the Abell Foundation to initiate the use of buprenorphine treatment, while the Chase Brexton Clinic obtained a significant multi-year grant to enhance its drug treatment capacity.

In early 2005, four area hospitals launched a project to encourage physicians to prescribe buprenorphine to inpatients addicted to heroin and then transfer the patients to outpatient settings. The four hospitals were Sinai Hospital, Johns Hopkins Hospital, Union Memorial Hospital, and the University of Maryland. The effort was supported by the Open Society Institute, the Abell Foundation, Herbert Bearman Foundation, Zanvyl and Isabelle Krieger Fund, the Harry and Jeanette Weinberg Foundation, and the France-Merrick Foundation.

These efforts created fertile ground for a citywide effort, launched in the fall of 2006, called the Baltimore Buprenorphine Initiative.

The Initiative's goal is to establish a system of care that helps patients from the moment they seek treatment for opioid addiction through to a stable relationship with a doctor in the medical system.

The Baltimore Buprenorphine Initiative aims to benefit:

- **Patients**, by providing access to effective substance abuse treatment and health insurance, as well as access to treatment for other medical and psychiatric problems;
- **Substance abuse treatment centers**, by providing referrals and social service support;
- **Local physicians**, by referring to them stable, insured patients for ongoing effective care; and
- **Baltimore**, by reducing the devastating human, social, and economic harm from heroin use.

The Initiative has three main components.

### **Step 1: Patient Starts Buprenorphine in a Substance Abuse Treatment Program**

When a heroin addicted individual calls for help, Baltimore Substance Abuse Systems, Inc. refers him or her to one of several substance abuse treatment programs under contract. The program provides the patient with buprenorphine as well as other therapeutic services including group therapy and individual counseling.

### **Step 2: Patient Transitions to the Medical System**

While the patient is receiving treatment in a substance abuse treatment program, a social worker from Baltimore Healthcare Access, Inc. assists the patient with locating appropriate health insurance and other social services.

Any patients who are U.S. citizens with income less than 116% of poverty and assets totaling no more than \$4,000 for individuals and no more than \$6,000 for families can qualify for the Primary Adult Care program. This state insurance program provides a limited package of outpatient benefits. Significantly, this package of benefits includes both the physician fee for buprenorphine treatment and the cost of the buprenorphine itself.

As the patient stabilizes over two to four months, the social worker helps the patient find a doctor in the medical system. Patients are considered ready for transfer when they (1) are stable on a consistent dose of

buprenorphine; (2) have negative drug tests; and (3) have health insurance to cover the cost of their treatment in the medical system.

**Step 3: Patient Continues to Receive Buprenorphine From His or Her Own Doctor**

After transfer, the patient sees his or her doctor for medical care as well as continued buprenorphine treatment. He or she can also receive at least another 3 months of counseling at his or her original treatment site and will continue to receive another 3 months of case management services from the social worker.

Meanwhile, the now freed-up spot for buprenorphine treatment in a substance abuse treatment program is available for someone else.

To increase the number of certified buprenorphine physicians in the city, the Health Department provides free online training to any Baltimore City-based physician. The Health Department is also leading an effort to understand the cost implications of expanding access to buprenorphine for the medical system.

### **III. ACTIVITIES TO DATE**

Baltimore Substance Abuse Systems, Inc., Baltimore Healthcare Access, Inc., and the Baltimore City Health Department are leading the Baltimore Buprenorphine Initiative. Critical start-up funds were provided by Baltimore City, the Open Society Institute, and the Annie E. Casey Foundation.

Activities to date can be grouped into three categories: oversight and planning, outreach, and implementation.

#### **A. Oversight and Planning**

The Baltimore Buprenorphine Initiative is overseen by a coordinating committee of staff from the three lead agencies. This committee receives advice and input from two advisory committees. The first, comprised of drug treatment specialists, has helped to craft the guidelines and protocols for patients stabilized on buprenorphine in the substance abuse treatment system. The second advisory committee, comprised of primary care doctors and psychiatrists, has guided efforts to recruit doctors, clinics, and hospitals to receive referrals of patients on buprenorphine.

## **B. Outreach**

Baltimore Substance Abuse Systems, Inc. has led the outreach to the substance abuse treatment centers and their staff. Six centers are now under contract to provide buprenorphine as part of comprehensive substance abuse treatment in Step 1 of the Initiative. The six centers include Total Health Care, Family Health Centers of Baltimore, Partners in Recovery, Universal Counseling Services, Harambee, and Next Passage.

Baltimore Healthcare Access, Inc. has led outreach to the managed care organizations participating in HealthChoice and in the program known as Maryland's Primary Adult Care program.

To ensure that patients in the Initiative can receive buprenorphine from primary care doctors without delay, staff from Baltimore Healthcare Access met numerous times with leadership of the participating managed care organizations and with state health officials who set the rules and define the coverage for these public insurance programs. MedChi, the Maryland State Medical Association, has also aided in this effort. (See Appendix A for two examples of instructions developed for primary care physicians.)

The Baltimore City Health Department has led outreach to clinics and hospitals around the city. This has included calls, visits, or presentations to physicians at more than 20 community health centers, community clinics, and hospitals in Baltimore. The Health Department has also worked closely with professional medical organizations, including the Baltimore City Medical Society, and MedChi. (See Appendix B for training information for doctors in the medical system).

## **C. Implementation**

Implementation of the Initiative has involved numerous steps, including:

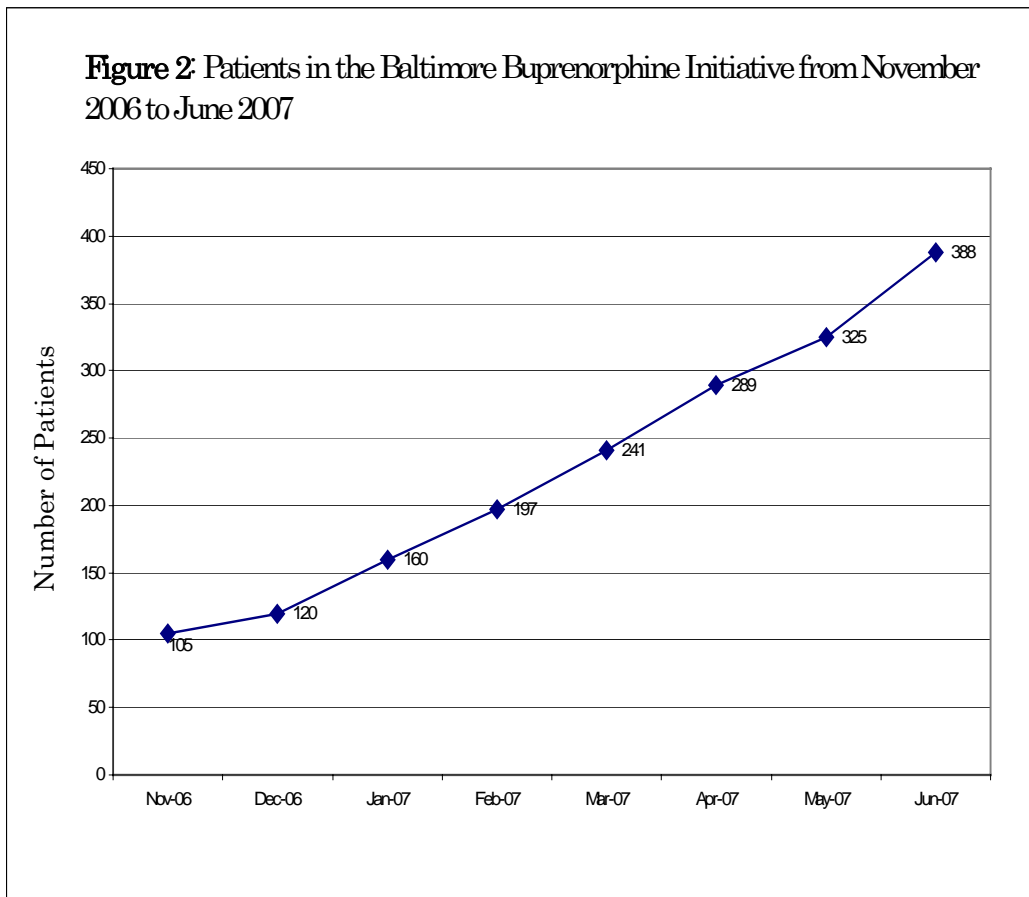
- **Contracting.** With the support of its board, Baltimore Substance Abuse Systems, Inc. transferred approximately \$650,000 from contracts supporting short-term detoxification with buprenorphine to contracts supporting Step 1 of the Initiative. This transfer was justified by data demonstrating poor rates of continuance into treatment after detoxification. Separately, the city of Baltimore made a \$10,000 contract with Clinical Tools, Inc. to make online training in prescribing buprenorphine available to any licensed physician practicing in Baltimore.

- **Fundraising.** The Open Society Institute provided \$200,000 in support of the Baltimore Buprenorphine Initiative and also provided a contracted technical advisor with background in previous buprenorphine efforts in Baltimore. The Annie E. Casey Foundation provided \$60,000 for four economic analyses of the cost-effectiveness of buprenorphine by the University of Maryland, Baltimore County. Finally, the Abell Foundation funded Baltimore HealthCare Access to help insurance applicants access required documents.
- **Hiring staff.** Baltimore Healthcare Access, Inc. hired a social worker and a part-time graduate student to support its role in the Initiative. The Health Department hired a part-time consultant to oversee clinical protocols and lead outreach to medical organizations in the city.
- **Designing a database.** Baltimore Healthcare Access, Inc. oversaw the development of a database to track patients in the Baltimore Buprenorphine Initiative from drug treatment through to the medical system.
- **Developing clinical protocols.** The coordinating committee developed a protocol for the initial stabilization of patients in drug treatment. The committee also developed a standardized “patient transfer summary” to accompany patients from the drug treatment system into primary care (Appendix C), a list of requirements for transfer (Appendix D), guidance for substance treatment centers (Appendix E), and basic instructions for primary care doctors to follow upon receiving the patients (Appendix F).
- **Establishing a co-payment reimbursement system.** The Health Department and Baltimore Healthcare Access, Inc. created a way to provide prescription co-pay vouchers to patients who cannot afford these costs. Baltimore Healthcare Access, Inc. reimburses participating local pharmacies for the patients’ co-pays.
- **Providing access to urine drug screening.** Because the Primary Adult Care program does not cover urine drug screens, the Health Department and Baltimore Substance Abuse Systems, Inc. developed a contract with Friends Labs to provide these tests for patients in the Baltimore Buprenorphine Initiative in the medical system.
- **Producing regular reports of progress.** Biweekly data reports summarize the status of the initiative. E-mail newsletters provide updates to the many programs and clinics involved with the effort.

- **Holding provider and program staff meetings.** Monthly provider and Baltimore Buprenorphine Initiative coordinating staff meetings serve to share best practices as well as improve communication and transparency between providers and program staff. Separately monthly coordinator meetings serve to streamline processes and facilitate program improvements.

#### IV. RESULTS

Through June 30, 2007, a total of 388 patients have entered the Baltimore Buprenorphine Initiative (Figure 2).



Goals in nine areas are guiding the Baltimore Buprenorphine Initiative. Specific initial benchmarks represent targets to measure performance of the Initiative. To complement the data review, two patient vignettes are in Appendix G.

## **A. Retention in Drug Treatment**

Goal 1 is to minimize drop out rates in the Step 1. The initial benchmark for this goal is to have at least 67% of patients remain in substance abuse treatment for 90 days.

Of the 388 patients, 269 entered treatment prior to April 1, 2007 and are eligible for the 3-month analysis. Of these patients, data available as of June 30, 2007 indicate 176 (65%) remained in substance abuse treatment for at least 90 days.<sup>13</sup> The Initiative is very close to meeting its initial benchmark of 67%.

Patients drop out of all types of drug treatment. Efforts to reduce drop-out rates include regular meetings of treatment providers to share experiences, data, and best practices.

To reduce drop-out, Baltimore Substance Abuse Systems, Inc. will assess the predictors of treatment failure to determine whether certain patients may need extra services in substance abuse treatment (such as enhanced mental health services) and whether other patients may not be appropriate for outpatient buprenorphine treatment at all. The results of this review can be used to improve the performance of the Initiative.

## **B. Health Insurance**

Goal 2 is to find health insurance for patients in the Initiative. The initial benchmark is for 75% of patients to have health insurance to transfer to the medical system.

The Initiative is meeting this benchmark for the 251 current patients in the initiative. Of these individuals, 164 (65%) have health insurance, and additional 36 (14%) have completed applications for insurance pending with the Primary Adult Care program. As a result, at least 79% of the patients are anticipated to get health insurance.

Most of the remaining patients are gathering required documents for their insurance application, and will likely receive insurance too. Only 3 patients to date have been denied health insurance.<sup>14</sup>

The key to meeting this benchmark is the work of Baltimore Healthcare Access, Inc. Their staff has helped 97 patients obtain Primary Adult Care insurance and has ordered 84 birth certificates for the purpose of health insurance applications.

The main insurance barrier has been extended delays in obtaining Primary Adult Care coverage. Original projections were that applications could be processed and approved by the Department of Health and Mental Hygiene within 45 days. However, it has taken more than 90 days for some of the patients to receive coverage.

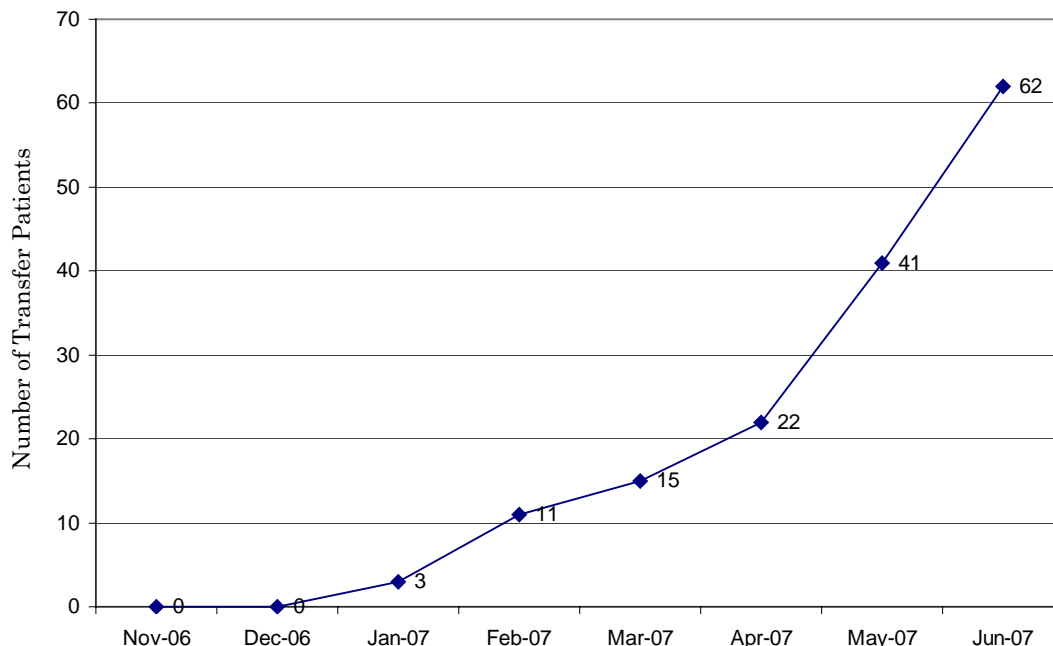
Effective July 1, 2007, the Department of Health and Mental Hygiene is transferring the enrollment function for the Primary Care Program for Baltimore city residents to Baltimore Healthcare Access, Inc. This step will allow Baltimore Healthcare Access, Inc. to both enroll patients in the Baltimore Buprenorphine Initiative and to ensure more rapid insurance coverage for those eligible.

### **C. Transfer to Medical System**

Goal 3 is to encourage transfer to the medical system after approximately 90 days in drug treatment. The initial benchmark is for about 75% of patients to transfer at approximately 90 days.

As of June 30, 2007, 62 patients have transferred to the medical system for ongoing buprenorphine treatment (Figure 3). The average time in drug treatment prior to transfer is 155 days.

**Figure 3:** Patients Transferred from Substance Abuse Treatment Programs to the Medical System in the Baltimore Buprenorphine Initiative



The Initiative is not meeting its initial benchmark for timely transfers. A review of delayed transfers identified two key factors.

First, many patients have waited past 90 days to receive insurance coverage through the PAC program – coverage that is required before a transfer can be made. As a result of administrative difficulties and documentation requirements, the state’s program has been more difficult to access than anticipated.

Second, some patients require ongoing drug treatment prior to transfer to the medical system because of other concurrent drug addictions, such as addiction to cocaine. Treatment providers and program administrators agree that a transfer prior to a patient being free from all illicit drugs is undesirable because of the heightened risk of relapse and treatment drop-out.

Of these two issues, the first should improve substantially soon. As discussed above, Baltimore Healthcare Access, Inc. is assuming responsibility

for enrolling city residents in the Primary Adult Care program. This will allow for quicker processing of applications.

The second problem requires additional investigation. Patients who cannot transfer because of concurrent drug addiction may need higher levels of drug treatment, or more prolonged care in the drug treatment system.

One solution may be better collaboration with the mental health system. Patients with refractory substance abuse problems may have co-occurring mental illness. In fiscal year 2008, Baltimore Mental Health System will lead a review to determine how the mental health system can accept transfers of patients with significant mental illness who also have heroin addiction and have started on buprenorphine. Another solution may be inpatient stabilization for patients with ongoing cocaine addiction and then developing a transfer mechanism to outpatient treatment upon stabilization. It may also be possible that certain patients need a longer stay in the substance abuse treatment system before transfer to the medical system.

#### **D. Continuity of Care**

Goal 4 is for patients to continue receiving buprenorphine treatment in the medical system for as long as they and their doctors think appropriate. The initial benchmark is for less than one patient to drop out of treatment for every 12 months of buprenorphine care in the medical system.

Social workers at Baltimore Healthcare Access, Inc. track each primary care appointment for the patients who have transferred to the medical system. As of June 30, 2007, 2 out of the 62 transferred patients have left medical treatment. The 62 patients have collectively received buprenorphine in the medical system for 124 months. This corresponds to one drop-out per 62 months of care. The initiative is exceeding its initial goal and seeing fewer patients drop out of the medical system than anticipated.

As patients stay longer in the medical system, the drop-out rate is likely to increase. Baltimore HealthCare Access, Inc. will continue to monitor patient drop-out and assess factors to improve retention.

#### **E. Ongoing Counseling**

Goal 5 is to support patients receiving buprenorphine treatment in the medical system with ongoing counseling. The initial benchmark is for 100% of patients to receive such services. All patients are eligible for an additional 3 months of counseling services after transfer to primary care.

In total, 37 out of the 62 patients who have transferred to primary care have continued counseling. This rate is 60%.

According to participating physicians and treatment providers, there are three main reasons for discontinuity of counseling services: (1) patients do not think they are in need of additional services; (2) patients have entered the workforce and are unable to take time off for counseling; and (3) the site location and/or the timing of counseling sessions are inconvenient.

Patients not receiving counseling may be at higher risk for relapse. Social workers from Baltimore Healthcare Access, Inc. will monitor these patients and encourage doctors and patients to take advantage of opportunities for ongoing supportive care.

#### **F. Other Health Problems**

Goal 6 is to promote treatment of other concurrent medical problems in primary care. The initial benchmark is for each patient to have one other medical problem evaluated or addressed.

The Initiative has developed but not yet implemented a systematic way of tracking compliance with this benchmark. It is known that at least 6 patients are now receiving HIV care, at least 8 patients are being treated for high blood pressure, and at least 3 are receiving treatment for depression. With the beginning of fiscal year 2008, the Initiative will track medical problems addressed by the primary care provider.

#### **G. Physician Training**

Goal 7 is for as many doctors in Baltimore to be trained to prescribe buprenorphine as possible. The initial benchmark was to train 100 additional physicians by December 31, 2006.

There are three, overlapping groups of physicians with respect to buprenorphine in Baltimore.

First, there is the group of doctors listed online by the Substance Abuse and Mental Health Services Administration as available to prescribe the drug. This is a voluntary listing; unlisted doctors who have the required waiver can still prescribe buprenorphine. As of June 30, 2007, this federal website includes 107 buprenorphine-prescribing doctors in Baltimore.<sup>15</sup> This includes doctors working in substance abuse treatment programs as well as the medical system; psychiatrists as well as primary doctors; and doctors who only take private insurance as well as doctors who accept the Primary Adult Care program.

Second, there is the group of physicians who is open to referrals through the Baltimore Buprenorphine Initiative. As of June 30, 2007, there are 28 doctors in the medical system willing to receive such transfers. These doctors work in nine community health centers, two hospital-based clinics, two other clinics, and one private practice.

Third, there are those doctors trained through the Baltimore Buprenorphine Initiative. While it is hoped that these doctors will eventually accept referrals and list themselves on the federal website, it is not required. The initial goal was for 100 physicians to complete training by December 31, 2006.

As of June 30, 2007, 93 physicians have signed up for the city sponsored training. A total of 50 have completed the training. Of these 50, 39 have received their federal buprenorphine waiver to prescribe buprenorphine.

While the initial benchmark was not met, the Initiative has added a substantial number of trained physicians to the city.

The failure to meet the benchmark may be due to physicians receiving training from sources other than the city. Alternatively, some physicians who may intend to complete the training may fail to commit the eight hours necessary to do so. The city has received promises from health centers and hospitals to train over 175 physicians in prescribing buprenorphine.

A major goal for FY 2008 is to further expand training in buprenorphine for physicians in Baltimore. In addition to continuing outreach to hospitals and physicians across the city, the Health Department will seek legislative changes to permit residents to prescribe buprenorphine with supervision, and to permit nurse practitioners to prescribe buprenorphine.

The contract to provide online buprenorphine training for Baltimore City physicians is being renewed for an additional 100 doctors in fiscal year 2008.

## **H. Funding Streams**

Goal 8 is to establish new funding streams to support buprenorphine treatment. The first such stream relates to funding for patients with HIV.

Through the federal Ryan White Program, more than \$20 million comes to the Baltimore area to care for patients with HIV. Since many patients contract HIV through intravenous drug use with heroin, the HIV funding can be used to support buprenorphine treatment for these patients.

In January 2007, with the support of the Health Commissioner, the Maryland AIDS Drug Assistance Program became the first program in the country to specifically add buprenorphine to its formulary.<sup>16</sup>

In March 2007, the Ryan White Planning Council for the Baltimore area required that primary care providers caring for HIV patients with federal funds under the Ryan White Care Act offer buprenorphine treatment. (Appendix H).

Integrating buprenorphine treatment into HIV care promotes multiple objectives. It supports the patient in his or her battle against heroin addiction. It makes it much more likely that the patient will continue to take their medication for HIV. It also enhances HIV prevention, as patients are no longer using and sharing syringes.

## **I. Analysis and Evaluation**

Goal 9 is to further public and leadership understanding of buprenorphine's role in the substance abuse treatment and medical systems in Maryland.

With funding from the Annie E. Casey Foundation, the Health Department contracted with the University of Maryland Baltimore County for four research studies on the economics of buprenorphine treatment. Three of these studies have been completed and the fourth is underway.

In the first study, *Heroin Addiction Correlates in Maryland*, researchers compared the experiences of people addicted to heroin, divided into two groups according to whether they received treatment (most often with methadone). Persons receiving drug treatment were four times less likely to be hospitalized, and substantially less likely to visit the Emergency Department than those not in drug treatment. The study also found that persons receiving drug treatment consumed less than one-quarter of the health care resources of those not in drug treatment in the Medicaid fee-for-service system.<sup>17</sup>

In the second study, *Opioid Exposure in Maryland Hospitals*, researchers found that the Maryland hospital system spent \$99 million in fiscal year 2005 to care for individuals with diagnoses suggesting opioid use. More than one-third of hospital visits involving opioid use diagnoses across the state were made by people without health insurance. These costs are financed by higher hospital and health insurance rates to everyone. The authors concluded, "These data indicate that eradication of the morbidity associated with opioid diagnoses has the potential to save nearly \$100 million statewide (>\$60 million in Baltimore City) in hospital charges alone."<sup>18</sup>

In the third study, *Review of Cost-Benefit and Cost-Effectiveness Literature for Methadone or Buprenorphine as a Treatment for Opiate Addiction*, researchers surveyed the scientific literature to identify information on the cost-effectiveness of opiate treatment with methadone and buprenorphine. After closely reviewing the 13 most relevant papers, the study found that both methadone and buprenorphine are viable and cost-effective treatments.<sup>19</sup>

The Health Department will explore the implications of this research with lawmakers and state health officials.

In addition, a goal for fiscal year 2008 is to arrange for an independent review of the Baltimore Buprenorphine Initiative.

## V. EXPENSES

A full evaluation of the costs and benefits of the Baltimore Buprenorphine Initiative will require an independent review. The initial costs include start-up costs, and the assessment of the benefit will depend on the longer-term success of the Initiative.

Nonetheless, some basic data are available on costs for the first fiscal year, and it is possible to make some general comparisons to other modalities of substance abuse treatment.

### A. Public Health System

In fiscal year 2007, public health costs associated with the Baltimore Buprenorphine Initiative were \$200,000. These included:

- **\$87,000** for a social worker, policy analyst, and program oversight at Baltimore Healthcare Access, Inc.;
- **\$60,000** for economic analyses by the University of Maryland Baltimore County;
- **\$28,000** for clinical director and outreach coordinator at the Health Department (not continuing in fiscal year 2008);
- **\$10,000** for physician training;
- **\$7,500** for the pharmacy co-payment fund;
- **\$5,000** for database development; and

- **\$2,500** to cover urine drug screening in primary care.

Of this funding, \$125,000 was provided by Baltimore City and \$60,000 by the Annie E. Casey Foundation for the economic analyses. The remainder was provided by the Open Society Institute through Baltimore Substance Abuse Systems, Inc.

## **B. Substance Abuse Treatment System**

Baltimore Substance Abuse Systems allocated \$644,000 to the participating drug treatment centers for Step 1 of the Initiative in fiscal year 2007. Of each dollar spent, approximately 42 cents is for medication, 18 cents is for physician time, 30 cents is for other health professional time, 8 cents is for administrative costs, and 2 cents is for drug testing.

The medications costs (and overall costs) are expected to drop in fiscal year 2008 as patients qualify for Primary Adult Care program sooner. This is because the program will cover the cost of buprenorphine even while patients are in Step 1 of the Initiative.

## **C. Medical System**

An approximate per-month cost of buprenorphine in the medical system is \$500 per month. This includes about \$300 for the cost of the medication and the remainder for one or two visits to the primary care doctor.

As of June 30, with 62 patients in primary care for a total of 124 months, an estimate for the cost to the medical system would be \$62,000.

## **D. Cost Comparison of Treatment Modalities**

Because heroin addiction can be treated in several different ways, it is useful to compare the costs of various approaches to treatment. One of the challenges facing the substance abuse system is to determine which type of treatment works best for each patient.

At the most intensive end of the treatment spectrum, a patient might spend half the year in a long-term residential treatment facility and the second half of the year in a halfway house. Using contract prices from fiscal year 2007, the cost to the substance abuse treatment system would be \$16,740.

Outpatient methadone treatment is highly effective for heroin addiction. Using contract prices from fiscal year 2007, this treatment modality costs approximately \$4,000 per person per year.

Buprenorphine through the Baltimore Buprenorphine Initiative costs approximately \$9,800 per patient for the first year. Approximately \$3,700 of this cost accrues to the substance abuse treatment system, approximately \$500 to the public health system for social workers and case management, and the remaining \$4,500 to the medical system.<sup>20</sup> For the second year of treatment, the cost would be approximately \$6,000, accruing to the medical system.

### **III. DISCUSSION**

This interim report finds that each of the three steps of the Baltimore Buprenorphine Initiative is working.

In Step 1, patients are calling for help and receiving buprenorphine and other services in the substance abuse system. Two in three patients are remaining in treatment for 90 days or more.

In Step 2, with the help of social workers, patients are gaining access to health insurance and transferring to the medical system. Virtually all patients appear to be eligible for some form of health insurance.

In Step 3, patients are receiving buprenorphine from their own doctors with low rates of attrition. More physicians are signing up for training and referrals each month.

Each step also has room to improve and expand.

In Step 1, the substance abuse treatment system needs to identify factors associated with success in buprenorphine, both to enhance retention and facilitate timely transfer to the medical system. Additional capacity and funding to prescribe buprenorphine would expand the front door of the Baltimore Buprenorphine Initiative in fiscal year 2008.

In Step 2, the challenge is for Baltimore Healthcare Access, Inc. to reduce the wait time for Primary Adult Care insurance and facilitate faster transfers to the medical system. Baltimore Healthcare Access, Inc. is planning to hire additional case managers to expand its key role.

In Step 3, more doctors are needed. Hospitals, community health centers, and private physicians should redouble efforts to prioritize

buprenorphine training and use their skills and compassion to save the lives of thousands of city residents.

Finally, additional funding streams need to be developed to support buprenorphine treatment in the medical system. Promising funding streams could include funding saved from reduced inpatient medical admissions, and funding from the mental health care system for patients with severe mental illness.

## **VI. ACKNOWLEDGMENTS**

The Baltimore City Health Department, Baltimore Substance Abuse Systems, Inc. and Baltimore Healthcare Access, Inc. gratefully acknowledge Mayor Sheila Dixon, former Mayor Martin O'Malley, and the City Council of Baltimore for their strong leadership and support of the Baltimore Buprenorphine Initiative.

The agencies thank the Department of Health and Mental Hygiene and the Alcohol and Drug Abuse Administration of the State of Maryland for their collaboration.

From the launch of the Baltimore Buprenorphine Initiative to June 30, 2007, Commissioner of Health Dr. Joshua M. Sharfstein led efforts at the Baltimore City Health Department with consultant Marla Oros and Chief Medical Officer Dr. Laura Herrera. At Baltimore Healthcare Access, Inc., President Kathleen Westcoat and Director of Program Operations Traci Kodeck oversaw a team that included Sadie Matarazzo, Tammy Brasswell, and Vanessa Kuhn. At Baltimore Substance Abuse Systems, Inc., President Adam Brickner and Director of Policy and Planning Bonnie Campbell worked with technical consultant Rebecca Ruggles to implement the Initiative.

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The agencies thank all of the staff and patients of participating substance abuse treatment centers, community health centers, hospitals, and clinics.

## VII. ENDNOTES

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5. The most commonly used formulation of buprenorphine is a tablet called Suboxone© that dissolves under the tongue. Suboxone contains naloxone, a powerful opioid blocker that is inactive under the tongue but highly active if injected. This formulation discourages abuse by injection, because naloxone is a pure opioid antagonist that precipitates withdrawal.
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11. Ling W, Smith D. Buprenorphine: Blending practice and research. *J Subst Abuse Treat.* 2002; 23(2):87-92.

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13. This estimate is based on the best available information as of June 30, 2007. There may be delays in entering data for some patients being discharged in June 2007. This change is not expected to be significant, as 90-day retention rates are similar for patients entering treatment prior to March 1, 2007.
14. The three patients were rejected from the Primary Adult Care program because their income exceeded the threshold.
15. See [http://buprenorphine.samhsa.gov/bwns\\_locator/index.html](http://buprenorphine.samhsa.gov/bwns_locator/index.html).
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20. This calculation is based on the substance abuse treatment system paying for three months of buprenorphine, one month of intensive outpatient therapy, and five months of outpatient therapy. The medical system would pay for nine months of buprenorphine and medical care to prescribe buprenorphine.