

Operation Care: Report of the Pilot Program through August 1, 2008

Baltimore HealthCare Access
Baltimore City Fire Department
Baltimore City Health Department

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BACKGROUND

When individuals frequently call 911 for an ambulance, it is a warning sign that something is wrong. The individuals may not be receiving appropriate care outside the hospital, leading to frequent setbacks. They may need but not be receiving additional assistance at home. Often the situation represents a worst-case scenario: even though the system expends significant resources responding to frequent calls, the patient experiences poor health outcomes.

The Baltimore City Fire Department responds to each call to 911 by sending an ambulance to the address from which the call was placed. In some cases, emergency medical technicians administer life support on site, without transporting the caller to a hospital (non-transport response). In other cases, transport to a hospital is required (transport response). Both non-transport and transport responses tax emergency equipment and personnel.

During fiscal year 2007, the Baltimore City Fire Department provided ambulance services 15 to 20 times for 38 patients, 21 to 40 times for 37 patients, 41 to 60 times for 13 patients, over 60 times for two patients, 110 times for one patient, and 146 times for one patient.

In May 2008, Baltimore HealthCare Access, Inc., and the Baltimore City Fire Department began a pilot project called Operation Care to provide case management services to frequent ambulance users. The goals of the project were (1) to ensure that patients are adequately linked to healthcare and other community services, and (2) to decrease the number of calls to 911 from frequent users.

In order to determine who should participate in Operation Care, Baltimore HealthCare Access reviewed a list of the top 25 recipients of ambulance services during fiscal year 2007. The Baltimore City Fire Department provided this list, referring individuals on the basis of either transport or non-transport services required by each patient. Of the 25 patients who were referred, five were deceased, two were incarcerated, two were county residents, four were unable to be located, and two were hospitalized. Of the remaining ten patients, one had been referred on the basis of non-transport responses, and nine had been referred on the basis of transports. These ten patients were selected for the pilot project.

INTERVENTION

Baltimore HealthCare Access assigned a dedicated case manager to work with the ten patients during the pilot period, from May 12, 2008 to August 1, 2008. Although patient start dates varied, the majority of the participants received eight to eleven weeks of intervention. After conducting an initial assessment of each patient's needs, the case manager coordinated care and services to address these needs.

Assessment:

As a first step, the case manager visited each patient's home and determined whether or not the patient was enrolled in health insurance program; whether or not the patient had access to primary care with their health insurance company and a community health clinic; and whether or not the patient was adequately connected to services such as disease case management programs, drug and alcohol treatment, specialty providers, food pantries, housing, employment, and homeless shelters.

Intervention:

Once the patients’ needs were assessed, the case manager developed a plan of care for each patient. Weekly meetings were held with clinical and outreach staff at Baltimore HealthCare Access so that the plan could be reviewed and ideas could be shared about challenging patients.

The case manager provided at least weekly visits to patients, coordinated care with medical and specialty providers, connected patients to relevant services, and issued Baltimore HealthCare Access’ phone number for patients to call if they had questions or problems. In addition, all patients were educated on the proper use of calling 911. The Baltimore HealthCare Access case manager maintained weekly contact at a minimum with each patient. Each contact was separately recorded.

Baltimore HealthCare Access worked closely with multiple organizations to link patients to appropriate services. These agencies include: Baltimore Crisis Response; Center for Aging and Retirement; The Baltimore City Health Department’s Adult and Geriatric Program; Adult Protective Services; Baltimore Mental Health Systems; and Baltimore Substance Abuse Systems.

OUTCOMES

The program successfully reached vulnerable patients, connected them to resources, and reduced utilization of 911 services.

- Most patients had insurance coverage prior to intervention and had been diagnosed with multiple chronic illnesses
 - The average age was 61.1 years.
 - 90% were already enrolled in health insurance at time of intervention: Medicare, Medicaid, and private insurance.
 - 70% had a mental health and/or substance abuse diagnosis.
 - All patients had 2 or more chronic diseases or illnesses, including diabetes and heart disease.

Table 1. Age, Insurance Status, and Diagnosis of Patients

Patient	Age	Insurance Status Prior to Intervention	Diagnosis
1	65	Private	Diabetes, depression
2	65	Medicare	Cardiac, depression
3	61	Medicaid	Hypertension, osteoporosis
4	88	Medicare	Diabetes, asthma, dementia
5	39	Uninsured	Drug/alcohol, psychiatric
6	89	Medicare	Cardiac, depression
7	52	Medicare	Cancer, paralysis
8	53	Medicare	Congestive heart failure
9	47	Medicaid	Drug/alcohol abuse
10	52	Medicaid/ PAC	Drug/alcohol, seizure disorder

- The patients had been regular ambulance users prior to intervention.

The Mayor’s Citistat Office provided data on transport and non-transport responses during the year prior to intervention, from May 12, 2007 through May 12, 2008. Transport data came from the Baltimore City Fire Department’s billing service, which records the identifying information of the patient associated with each transport response. Non-transport responses came from the dispatch system and are recorded using only the street addresses to which ambulances were dispatched, and not the names of the patients who received on-site services. For this reason, non-transport response data were only available for three patients; these data were not available for homeless patients or patients living in apartments.

The numbers of transport and non-transport responses are provided in Tables 2 and 3.

**Table 2. Non-Transport Responses
May 12, 2007 – May 12, 2008***

Patient	Non-Transport Responses
1	103
3	5
7	0
Total	108

* Non-transport response data were only available for patients with a unique street address.

**Table 3. Transport Responses
May 12, 2007 – May 12, 2008**

Patient	Transport Responses
1	6
2	54
3	63
4	55
5	7
6	11
7	23
8	30
9	130
10	33
Total	412

Case Study #1:

Patient: 65-year-old female
Medical Concerns: Insulin-dependent diabetes; hypertension; depression
Insurance Status: Private

Prior to intervention, the patient’s husband called 911 on her behalf whenever hypoglycemia caused her to faint – typically 1-3 times per week. Emergency Medical Technicians would respond by coming to her home and infusing her with Dextrose. The client rarely required transport to a hospital.

Through Operation Care, the patient was connected to services including a registered dietitian within her health insurance company who could provide diabetes education, an in-patient psychiatric evaluation at the University of Maryland, an Adult Protective Services investigation, and a referral to Joslin Diabetes Center for diabetes management.

The patient’s average non-transport ambulance responses per week have dropped 83% since she started receiving weekly contact from her Baltimore HealthCare Access case manager.

- All patients were referred to services through Operation Care.

The case manager at Baltimore Healthcare Access, Inc. linked patients to multiple resources to address their complex, chronic health needs. (See Table 4.)

Table 4. Linkage to Resources

Patient	Programs and services to which patient was referred
1	Psychiatric evaluation, nutritional consultation, diabetes management, adult protective services, domestic violence program
2	Adult evaluation services, specialty care (ophthalmology), adult day services, Food Stamps
3	CARE (Adult Day Care), Meals on Wheels, durable medical equipment (wheelchair)
4	Adult and geriatric services, specialty care (ophthalmology), medicine compliance
5	Health insurance, drug treatment
6	Baltimore City Health Department's Personal Care Program, specialty services (ophthalmology/podiatry), energy assistance
7	Substance abuse treatment, assistance with photo ID/birth certificate
8	Kidney disease program, transportation, Adult Protective Services, Meals on Wheels, assisted living
9	Long-term drug treatment, psychiatric evaluation
10	Food Stamps, Medicaid

Case Study #2

Patient: 47-year-old male

Medical Concerns: Alcoholism; multiple suicide attempts; homelessness; bi-polar disorder; seizure disorder; sclerosis of the liver; hepatitis A; hepatitis B

Insurance Status: Medicaid

Prior to intervention, the patient was homeless and drank at least one liter of vodka per day. The patient had made multiple suicide attempts, and his right leg was partially paralyzed because of a failed attempt to commit suicide by jumping off of a bridge. Most calls to 911 were made on behalf of the patient by concerned citizens who saw him unconscious on the street.

Through Operation Care, the patient was connected sequentially to five alcohol and drug treatment programs. During the pilot period, the patient often stayed in treatment for a few days and then left against medical advice, or he would become so disruptive that he was asked to leave. The patient was also connected to transitional housing and was asked to leave due to disruptive behavior.

The patient is currently incarcerated due to an assault charge. There was no significant drop in 911 usage during the pilot program.

- Most patients showed a significant reduction in ambulance responses after intervention.

The ten patients worked with the Baltimore HealthCare Access case manager for different lengths of time during the pilot period, depending on their start date. While one patient was visited from May 12, 2008 through August 1, 2008, others were visited for only ten weeks. Over the pilot period, the case manager provided a total of 97 weeks of care for all ten patients.

At the rate of patients' demand for ambulance services in the year prior to intervention, 76 transport responses and 24 non-transport responses would have been required for these 97 patient-weeks without Operation Care. 53 transport responses and 4 non-transport responses were actually required during the pilot period. Seven of the ten patients reduced their average number of ambulance responses per week by at least 80%. (See Case Studies #1 and #3.) Two patients had an increase in transports, and one patient had only a marginal decrease. (See Case Study #2.)

Case Study #3

Patient: 88 year-old female

Medical Concerns: Hypertension; depression; bypass surgery; brain aneurysm; peptic ulcer disease

Insurance Status: Medicare

Prior to intervention, the patient made frequent calls to 911 because of her heart condition and because of loneliness. She stated that all she wanted was for "someone to take me for walks," and she acknowledged that most of her calls to 911 were not medically necessary. She stated that most of her friends had passed away and that she did not interact often with her living family members.

Through Operation Care, the patient was connected to services including ophthalmology, coordinated visits with a primary care physician to address her peptic ulcer disease and hypertension, and transportation. In addition, she was referred to Adult Evaluation and Review Services, which has provided daily visits from a case worker who assists with laundry, bathing, cooking, and taking the patient for walks. The patient's primary care physician now visits her senior living facility once a month.

The patient has not required any ambulance services since she started participating in Operation Care.

- The program resulted in substantial financial savings.

Based on average expenses, the Baltimore City Fire Department estimates that a non-transport response costs \$460.54. A transport response is estimated to cost \$805.61.

At the rate of previous use of ambulance services over the prior year, the cost of services to these ten patients during the pilot period would have been \$72,184.17. The actual cost of services to these patients was \$44,194.42.

For the seven of ten patients who showed at least an 80% decline in calls, the predicted cost of services would have been \$37,186.61. The actual cost of services to these patients was \$5,525.14.

The cost of Operation Care was approximately \$10,000 in salary and benefits to the dedicated case manager over the course of the pilot period. \$5,000 was provided in city funds specifically for Operation Care. The remaining \$5,000 had already been budgeted by Baltimore HealthCare Access for miscellaneous outreach work.

Using this approach to calculating costs, the overall net savings to the EMS system from Operation Care were \$17,989.75.

DISCUSSION

The Operation Care pilot project demonstrated that those who frequently call 911 face numerous medical and psychosocial challenges. Most of the patients who participated in Operation Care were in need of multiple services including food or food stamps, housing, drug treatment, mental health treatment, referrals to specialty providers, and coordination with medical providers for chronic health conditions. Most of them called 911 because they needed help but were not sure how to obtain it. Most patients expressed great relief at having a case manager who could facilitate access to valuable services and programs.

There were many challenges in locating patients who were homeless and coordinating care for those with multiple medical and psychosocial needs. Regular communication with patients, health care providers, family members, and community organizations was essential in successfully linking patients to services. It will also be imperative to follow-up with patients periodically to ensure that they are still linked to resources and determine if other services are necessary.

Significant cost savings were realized in a very short period of time. The majority of the participating patients reduced their average number of transports per week by at least 80%. The one patient who had been referred because of a high volume of non-transport responses showed an 83% decrease in average non-transport responses per week.

This report calculated potential cost savings to the EMS system. It does not include other savings, including fewer Emergency Department visits and possible hospitalizations. Given that eight of the ten patients are covered by Medicare or Medicaid, a decrease in emergency care also represents a potentially substantial savings to taxpayers.

Beyond financial savings, reducing the number of runs made in non-emergency situations gives ambulance crews more freedom to attend to true medical emergencies. Operation Care has also provided a direct benefit on the individual level: the patients who participated in the pilot program are now healthier and leading higher quality lives.

There are several limitations to this analysis. The numbers of patients were small. We used the prior year's EMS utilization as a baseline, and did not adjust for seasonal trends. Future analyses should incorporate more patients and address seasonality and other factors. Despite these

limitations, it is clear from the narratives that Operation Care did make a substantial difference in people's lives.

One of Baltimore HealthCare Access' core functions is to provide care-coordination services to the most difficult populations in Baltimore City. Operation Care has created a unique partnership that identifies the most difficult patients and provides them with services to enhance health and wellbeing, all while reducing the burden of an overloaded emergency response system.

Efforts to sustain and expand this effort are underway.