

Improving Outcomes for a High-Frequency, Low-Risk Patient Group

TEMPE (AZ) FIRE MEDICAL

RESCUE Department (TFMRD) is the primary emergency medical services (EMS) provider for the city's 170,000 residents. TFMRD is a six-station department that boasts eight engines and two ladder companies as the foundation of its fleet. The department responded to 21,772 calls in 2013. Service is delivered through an all-hazards response [advanced life support (ALS) and basic life support (BLS), hazardous materials, dive rescue, and technical rescue] that includes third-party private medical transportation.

As a partner in the Phoenix metropolitan automatic aid system, the City of Tempe provides state-of-the-art 911 emergency response coverage. Emergency calls in Phoenix and surrounding areas are dispatched from the Phoenix (AZ) Fire Department Regional Dispatch Center. Despite city boundaries, the closest and most appropriate units are assigned to the call (based on the automatic vehicle locator).

Initial Discussions for Change In 2013, TFMRD and other city stakeholders held initial discussions regarding managed health care and the potential changes to fire-based

EMS. The concepts of matching appropriate treatment to specific patient needs and reducing the overall cost of medical care were—and continue to be—significant challenges. Cost avoidance and insurance reimbursement on readmissions were also hot topics for health care providers. TFMRD was interested in exploring methods to improve the efficiency of delivering EMS and posed questions regarding the cost and quality of health care delivered to at-risk individuals (defined as those who frequently call 911). More specifically, TFMRD attempted to identify why individuals use the 911 system regularly. The concerns were not only the frequency of the patients using 911 but also the efficacy of treatment provided to these customers. Were these individuals having emergencies, or were chronic issues causing them to frequently call 911? If these individuals had low-risk and high-frequency issues, why weren't their problems being solved after multiple visits to an emergency room (ER)? Was there an alternative to expand the scope of the response system to better accommodate their needs?

From these questions, and as part of the department's strategic planning process, a six-month pilot study titled "Patient Advocate Services" (PAS) was born. PAS was designed to assist at-risk individuals in the community while reducing costs to patients, the city, and insurance and health care providers. It also set out to increase coordination among groups responsible for the health care of Tempe's at-risk population.

PAS and Identifying Patients The initial startup of the pilot study presented significant challenges. It not only had to be completed without any significant impact to the operating budget, but it also had to provide appropriate patient care. The exact needs for

service delivery were initially unclear. The proposed intervention model would be a collaborative effort staffed by a TFMRD paramedic and a registered nurse from Tempe St. Luke's Hospital (TSL), an 87-bed general hospital offering comprehensive health care services that is the only hospital within Tempe's city limits. As well-respected supporters of the community, TSL executives were particularly excited about the opportunity to provide this benefit to their customers and improve their service delivery. This was especially true for Medicare patients who were readmitted to the hospital within 30 days. Under new rules, Medicare does not reimburse the costs for these readmitted patients.

It was envisioned that the TSL nurse would provide multiple benefits to an at-risk patient including a strong clinical background and experience in obtaining extensive patient history. The TFMRD paramedic would administer any field treatment and have ALS capability. Chronically ill patients, or those who repeatedly access the 911 system, are often brought through the doors of TSL by TFMRD crews. These nurses and TFMRD members were very familiar with many of the potential PAS clients. Knowing that many of the patients would present with unique and complex behavioral and socioeconomic needs, a working relationship with Care 7, Tempe's behavioral and crisis response team, was crucial. Care 7 is comprised of professionally trained staff and community volunteers who provide 24-hour, on-scene crisis intervention services. By collaborating, these professional responders were able to create a broad spectrum of treatment modalities by accurately identifying a PAS patient's unmet needs.

Patients were identified based on their use of the 911 system within the city's boundaries.

Inclusion criteria were determined by an individual who accessed 911 three or more times from January 1, 2013, to September 30, 2013. The results of this search proved to be extremely extensive. Many of the patients identified were homeless and without a physical address. Based on the challenges in reconnecting with these patients, homeless individuals were eliminated from the initial pilot group.

The focus of the pilot was a select sample of 29 patients who had physical addresses and agreed to receive additional services. In a nine-month tracking period, these individuals used the 911 system between seven and 57 times. This 911 use did not always require transport to the ER. Individual ranges of estimated total costs (see sidebar) (ambulance mileage, ambulance labor, ALS or BLS treatment fees, and ER costs) were \$261 to \$130,603 during the nine month time frame. The combined group incurred an estimated \$732,000 in health care treatment costs. For some, this included multiple 911 calls and trips by ambulance to the ER.

Patients identified in the pilot program were first contacted at their residence on a nonemergency basis. This visit was used to inform the patient about the purpose of the PAS and its extension of care provided by the TFMRD in conjunction with TSL. With the patient's overall well-being in mind, PAS made recommendations to improve the patient's outcome/health. If the patient agreed, services were suggested on an individual basis to help manage the patient's health care appropriately; this included direct communication with the patient's primary care physician. Patients were given PAS contact information and educated on appropriately activating 911 and the PAS. Regular contact—in person and by telephone—was continued with these patients over a three-

month period.

Cost Analysis

Using the same methods as the initial estimation, a cost analysis was completed at the end of the three-month period. Although it would be a three-month and nine-month comparison, the numbers were apparent. As a group, the three month estimated total cost for treatment and transportation fees was \$67,225. The patient who had the highest initial estimated nine-month cost of \$130,603 had a three-month cost of \$2,220. Another patient whose initial nine-month cost was \$106,000 dropped to zero. Health care cost savings, excluding the cost of traditional fire service response, were staggering. And these savings represented only 29 patients!

One of the patients treated by the PAS was a 60-year-old male who suffered from a multitude of cardiac, behavioral, and emotional disorders. His history included depression, alcoholism, anxiety, and severe untreated hypertension. He lived alone, had no extended family, and was forced to resign from his employment as a security guard because of a recent stroke. Also, he did not have any health insurance. The stroke left him with minor deficits in memory and speech. By nature of the 911 system, this patient (and any other similar patient) was routinely loaded onto an ambulance gurney and transported to the ER time and time again. His hospital discharge paperwork consistently recommended he follow up with a primary care physician and obtain a long-term prescription medication to control his hypertension.

With a treatment plan created by the PAS, multiple resources were called on to render assistance including Care 7 to enroll him in disability and health insurance through the Arizona Health Care Cost Containment System. This took months to accomplish and required diligent

efforts by Care 7 outreach specialists. The PAS settled his medical needs by educating him on his discharge instructions, locating a nearby primary care physician (PCP), creating appointments with a PCP and specialty physicians, having regular wellness checks, and having a diet evaluation.

After a carotid endarterectomy, PAS evaluated the surgical site and ensured home health care made regular visits. The patient managed to gradually take care of himself and obtain the appropriate treatment to fit his needs. PAS continued to assist with his medical needs (appointments, guidance, and so on) until he became more independent.

From the 29 pilot patients, multiple reasons for recidivism were observed. PAS sought to identify these reasons and to use various avenues to solve the individuals' issues. For some, putting a patient in touch with a PCP to schedule regular visits made a significant impact on the use of 911. On many occasions, it was as simple as informing the individual's PCP that the patient was treated in the hospital on multiple occasions. For others, social service and economic resources within the city were used to assist the patient through Care 7. Based on the three-month treatment period, the following considerations emerged as the pilot group's primary causes for increased frequency of 911 emergency calls:

- Lack of a PCP.
- Dislike of a PCP.
- Lack of communication with a PCP.
- Noncompliance of physician orders.
- Lack of knowledge of their health conditions.
- Chronic or complex health conditions.
- Multiple complementing conditions.
- Behavioral and psychiatric issues.
- Socioeconomic issues.

- Confusion on recent discharge from hospital or on orders from a PCP.
- Physical limitations.

Advancing the System

As community paramedicine models are developed and managed and health care programs take shape, PAS is exploring alternative avenues to advance the expanded service within the Tempe community. Referrals from TSL's case management department have since allowed Tempe residents to receive transitional care when they are discharged from the hospital. Based on a set of criteria that identify the patient to be at risk of readmission, the case manager explains PAS to the patient and, if he agrees, he signs a "transitional care form"; this releases the person's personal information to PAS, which facilitates the scheduling of an initial intake visit. Patients who receive complex discharge orders, who are having trouble navigating their insurance benefit program, or who are expecting home health care postdischarge realized a notable benefit from participating in PAS. Collaborative meetings with case managers, PAS, and Care 7 take place regularly to encourage the cooperation in each case. In a similar fashion, company officers are able to send referrals to PAS (with agreement from the patient) for individuals they encounter through 911 calls who may benefit from PAS.

Recently, the Salt River Pima-Maricopa Indian Community awarded the PAS program a \$181,000 gaming grant to assist with staffing and program development. This will include funding for a one-year community health coordinator and a new community health vehicle. It is planned that the program can be more fully developed during the tenure of the grant. The long-term goal of the program is to become part of the TFMRD pedigree of services offered to the community.

The future changes in managed health care are producing a variety of programming models in the Phoenix valley and across the nation. Proactive agencies are searching for their niche as well as the specific needs of their communities as they relate to community paramedicine. Although this particular pilot study did not offer a universal model for creating nonemergent patient care in all fire-based EMS agencies, it does suggest viable opportunities to evaluate and assist those patients who frequent the 911 system in other cities. The cycle of emergent medical episodes, followed by a 911 call, ambulance transport, and subsequent ER visits (repeated time and time again), does not provide patients with the care they need or deserve. Emergency medical care is episodic in nature and unable to ensure long-term successful management of complex medical or psychological issues.

PAS follows through with patient care in a way that traditional emergency medical care systems cannot and thus has a greater likelihood of improving the health of our residents in a more efficient and collaborative manner. The evolution of the PAS program's accepting referrals from line personnel and case managers also suggests that there may be multiple types of at-risk populations within one community. Although there are a plethora of unknowns, the PAS staff's most strongly held belief is that the program will improve the patient's quality of life by assisting him in making more efficient health care choices.

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Estimated Total Costs of Services

Mileage: based on six miles driven per call and includes fuel and maintenance costs from 2013 fire maintenance records with an equivalent of \$3.35 per mile.

Labor: based on an average labor rate for 1 paramedic captain, 1 paramedic engineer, and 2 firefighters. Equivalent to \$24.17 per hour/\$1.61 per minute.

ALS: based on professional medical transport (PMT) charge for an ALS patient. Equivalent to \$1,000 per transport.

BLS: based on PMT charge for a BLS patient. Equivalent to \$800 per transport.

ER charge: Based on an average East Valley, level 3, ER, and ER physician fee. Equivalent to \$900 ER/\$468 physician