

MOHEG Student Essay Award
Using Mobile Medical Units to Improve Access to Healthcare
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A lack of access to healthcare services is a multifaceted problem U.S. citizens across the country face. Access to care may depend on availability of healthcare services in a given area, transportation available to healthcare settings, income or ability to pay for health services as well as other factors. Of all the elements that limit access to care, evidence from the National Healthcare Disparities Report suggests health insurance is the core factor behind quality of care. Uninsured individuals were far less likely to receive important screenings, dental care, dietary counseling, and flu vaccines (National Healthcare Disparities Report, 2011). Missouri has listed access to care as one of its Health Priorities for its 2013-2018 statewide Community Health Assessment based on a multi-level assessment of health issues most present for state residents (Missouri Department of Health and Senior Services, 2016). One possible method to address the issue of access to care is the use of Mobile Medical Units (MMU's). MMU's are customized mobile health vehicles that can travel to both urban and rural environments. MMU's have the ability to integrate into local healthcare systems and work to serve populations with access to care issues. The barriers faced by those who lack access to care include time, transportation, money and even trust. MMU's can overcome these barriers in unique ways. Approximately 1500 MMU's operate in the United States performing over 5 million annual visits nationwide (Hill, Powers, Jain, et al., 2014). They provide a wide array of health services ranging from primary care to preventive services, and are even performing dental services (Hill, Powers, Jain, et al., 2014). Because MMU's are a relatively new method of providing healthcare, data is still being gathered in effort to determine how effective they are in communities and how their effectiveness may differentiate geographically. However, early examination of their effectiveness concerning access to care issues suggest MMU's strengthen services to vulnerable populations, address chronic disease management issues, and are effective at controlling costs for the provider.

MMU's have shown the ability to provide access to vulnerable populations, particularly ones with low income and lack of access to care. By traveling to the patient, such as setting up in a neighborhood park, the logistical issues of a healthcare clinic are minimized for patients living in the area. The patient experiences less waiting time to be evaluated, less travel time to the clinic, less difficulty making appointments, and even less financial constraints. A study in a California Bay Area county found approximately 80% of MMU patients found the mobile care so valuable they preferred it as their primary care facility (Campos & Olmstead, 2011). This could be problematic for some MMU services as they may be unintended to serve as a primary care facility but rather a gateway to one. Some qualitative evidence suggests MMU's even foster

a more trusting relationship between staff and patients by combining service approaches that are both professional and personal in nature (Hill, Zurakowski, Bennet, et al., 2012).

MMU's have also shown particular promise with chronic disease management abilities. One of the primary abilities MMU's have to address chronic disease is they provide easier access to screening services and associated benefits of said screenings. One such example was a school based MMU program involving asthma screenings for children of low income households. The increased screenings from the MMU were associated with increased use of asthma related medications, decreased hospitalizations and decreased missed school time (Liao, Amaro & Galant, 2006). MMU's also have the ability to reach the population segments most likely to suffer from chronic disease management issues, such as senior citizens who lack transportation.

Because MMU's have the ability to reach patients who may otherwise travel to emergency rooms and hospitals, they also have the ability to produce cost savings. A study of 15,986 pediatric patients who received services from a Breathmobile Program (asthma related services) in Southern California showed a significant return on investment(ROI)for the provider of this mobile medical service. The ROI calculation was based on the emergency department costs avoided plus the relative value of quality adjusted life years saved divided by the annual program costs (\$500,000 per mobile unit). The 2010 ROI was \$6.73 per dollar invested, showing the cost-benefit ratio to be positive for the program. Furthermore, roughly \$2,541,639 in emergency department costs were avoided in the regions with the program (Morphew, Scott& Li, 2013). A similar 2008 study based on one vehicle in Massachusetts found an ROI with a 36:1 ratio. The reasoning for such a high ROI in this case was a significant amount of preventative services were provided to patients (Oriol, Vavasis & Bennet et al., 2009).

Access to healthcare issues are a strong deterrent for Missouri residents in receiving the appropriate level of healthcare. Mobile Medical Units offer a tool in addressing this problem in both urban and rural environments throughout the state. Vulnerable populations and those that suffer from chronic disease seem to have the greatest potential to find relief from MMU's. These groups benefit from the easier access as well as preventative screenings and their associated benefits. All the while these population groups are benefiting, the services of the MMU can have a strong return on investment. The decreased emergency department/hospital visits coupled with quality adjusted life years suggest providers with MMU services are giving a beneficial service for all parties involved. Missouri would do well to further explore MMU services throughout the state. Its large cities and isolated rural areas all have reasons why mobile medical care could improve the health of their respective communities.

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