



Transportation to Healthcare Destinations

How A Lifeline for Patients Impacts the Bottom Line for Healthcare Providers

This document outlines the connections between transportation and healthcare, providing context and suggestions that will enable transportation providers to engage in conversations with healthcare agencies and make the case for more collaboration between the two sectors. For this document, two fundamental questions were posed: To what degree is a lack of transportation associated with missed medical appointments? and What do those missed appointments actually cost health systems? In addition to gathering information from literature linking healthcare and transportation, insight was gained directly from providers and by reviewing information from institutions like the Robert Graham Center, which is in the process of gathering non-medical data, (i.e. social, economic, and housing information) from patients for the creation of more comprehensive electronic medical records. The reflections section includes connections made by the literature and some thoughts on ways to weave commentary about social factors that impact health into discussions partners from different sectors might have as they look to positively impact the health of the communities they serve. The document has a companion resource guide transportation providers can use to begin conversations with the healthcare community.

Even in areas where access to healthcare services is relatively easy, achieving and maintaining good health outcomes is a complicated undertaking because of the many factors that contribute to individuals' health. Improving the frequency and quality of the interaction patients have with the healthcare provider team can positively impact health. This is especially true for individuals with limited income who are particularly vulnerable to the negative impacts of poor housing, inadequate education, lack of access to healthy food, challenging physical environments, and high rates of unemployment. As health systems pay closer attention to the costs associated with caring for populations of patients, they have had to focus on the nonmedical factors that impact health outcomes. Factors like housing, education, employment, and economic development all play a major part. Also on that list is transportation. The focus of this document is to explore the role

transportation plays in connecting patients to their healthcare providers, medications, and other health-related services.

The Role of Transportation in Poor Health Outcomes

In any population, missed medical appointments (treatment non-adherence) results in poor health outcomes. There are many reasons cited by patients for missing appointments, including not being able to leave work, inability to find child care, and lack of health insurance, but transportation-related challenges are one of the most often mentioned.

This connection between transportation challenges and the ability to keep medical appointments has been discussed in several studies; and, although anecdotal evidence abounds, we still do not have comprehensive data to determine the ultimate impact that transportation barriers have on health outcomes. However, one report by Syed and colleagues looked at the results of 61 studies that in one way or another explored the issue of transportation barriers; in those 61 studies, researchers reported that anywhere from 3% to 67% of the population sampled reported a lack of transportation as a barrier to healthcare.¹

Among the findings from those 61 studies are the following:

- A survey of 183 caregivers of children in urban Texas who had at least one medical appointment over a 9-week period found an overall no-show rate of 26%. For those with a history of missed appointments, 50% cited transportation problems, and for those who kept appointments, 30% cited transportation issues. Factors associated with missed appointments included not owning a car and not having access to a car.²
- Cancer patients who were significantly less likely to receive first-line chemotherapy were those who lived in neighborhoods that had a higher percentage of households without any vehicle.³
- In one study of 200 children with a history of missed appointments, 51% of parents identified transportation barriers as the primary reason for missing clinic appointments.⁴
- A study of almost 47,000 Medicaid patients demonstrated that when patients were required to receive prior approval for Medicaid-funded transportation, there was an associated reduction in visits for primary care visits at hospital-affiliated healthcare clinics and reduced refilling of prescriptions. Neighborhood-located health centers partially ameliorated the decline in primary care visits.⁵
- In rural North Carolina, patients who had a driver's license or a friend or family member with access to a vehicle, attended anywhere from 1.5 to 2.3 times as many healthcare visits for chronic care as those who did not.⁶
- In a study of an urban population in Dayton, Ohio, 30% of respondents indicated that a lack of transportation was one of the barriers to their seeking healthcare.⁷
- One study looked at access to healthcare for those who used public transit to get there. They found that accessibility to a hospital, defined as getting to a hospital or clinic in 30

min or less by public transit, or being within walking distance (less than a half-mile way), varied from 0 to 28%. Additionally, 55% of missed appointments or late arrivals were due to transportation problems.⁸

Benefit of Accessing Consistent Healthcare

Improving the access patients have to providers is an opportunity to improve health outcomes immediately and in the long-term. Patients who spend more time with their healthcare team have better rapport with their providers, greater understanding of their medical conditions, and are likely to be more satisfied with their experience with the provider, making it a relationship they want to maintain.

As more and more healthcare systems establish “medical homes” for patients, transportation will be a key factor in how well that approach is implemented. In this model, the primary care medical home is accountable for meeting the large majority of each patient’s physical and mental healthcare needs, including prevention and wellness, acute care, and chronic care. This model is implemented with a team of care providers, and is focused on delivering comprehensive, coordinated care to patients. Patients who receive the needed, regular primary and preventive care through such a coordinated system will be less likely to rely on emergency departments for care.

The Cost of Missed Appointments

Many factors contribute to the high cost of healthcare. When patients miss appointments—whether for primary/preventive care or as follow-up to a recent hospitalization or other acute care (e.g., surgical procedure)—the cascade of events can all lead to higher costs. For example, not following a healthcare provider’s recommended treatment regimen can lead to

- *poorer health outcomes*, especially for those with chronic conditions, which in turn can lead to a more acute complication needing immediate attention and potentially leading to an emergency department visit or a premature hospital readmission, both more costly than if the patient had followed through with outpatient or clinic-based appointments.
- *diminished ability to closely follow a patient’s condition*. During appointments, not only do healthcare providers treat symptoms of chronic or acute conditions, they also perform necessary diagnostic and screening tests, prescribe or adjust medications, and refer patients to other medical services.
- *lost opportunity for patient education*. Healthcare providers use appointments to build rapport with the patient and educate them on different aspects of their healthcare diagnoses or conditions. It is also the time when providers can ask patients about other non-medical aspects of their life that may be impacting their health and refer them to other supportive services, in essence treating the whole person and not just their disease.

- *financial implications for the healthcare provider*, related to staff time and resources already dedicated to providing a service to the patient which, once the patient doesn't show, cannot be billed, thus resulting in lost revenue for the provider.

The literature shows a wide variance in the cost of missed medical appointments, with health systems reporting a range of \$150 to \$274 in lost revenue per missed appointment. Across a healthcare system, this adds up quickly. For example, in a health system that has 1,000 patient visits each year, if 100 (or 10%) of those patients missed appointments each year, this would result in annual revenue losses ranging from \$15,000 to \$27,400. Using the same missed appointment rate, a system that sees 45,000 patients each year would see annual revenue losses of \$675,000 to \$1.2 million each year. Of course, if the no-show rate is higher than 10%, these costs would go correspondingly higher.

In addition, it should be noted that these cost estimates only consider the cost of running the clinical unit, and do not take into account the additional cost associated with patients needing to use the emergency department for follow-up (estimated in one study to be 15 times more expensive than a regular clinic appointment), premature hospital admissions, inadequate management of pain, or missed opportunities to provide education, perform further assessment, and prescribe medication. These indirect costs were highlighted in a 2012 study of primary care visits for diabetic patients in which a correlation was found between “no-shows” (patients who missed appointments) and a greater risk of hospitalization.⁹

Another cost driver that came to light in conversation with practitioners was the issue of the cost of not being able to discharge patients from hospital beds. A night in a hospital can cost much as \$1,500, without factoring in the cost of ambulance transport, major procedures, or diagnostic testing, so having discharge-ready patients stay beyond their course of treatment is costly. Hospitals need beds for sick patients; further, they wish to avoid spending hospital resources for patients who no longer need hospital-based care and want to decrease the chance of those “discharge-ready” patients getting sick from an infection acquired while in the hospital. In addition, when hospitals do not have available beds for new patients, they must divert these patients—and the potential revenue they would bring to the hospital—to another facility. These potential consequences of not being able to discharge patients home has led to hospitals providing taxi fare or some other transportation option just to get them home.

How Addressing Transportation Can Help

Understanding the needs of patients and how factors like transportation impact their health requires good data. Some of this can be achieved by interviewing patients directly, or by reviewing large volumes of medical records and charts.

Given the range of methods, questions, and settings in which this research is done, it is no surprise that there is a lot of variability in what the research shows. The literature reviewed described transportation as one of many factors impacting a patient's access to care. The literature also suggested that improving transportation options would likely serve to decrease missed medical

appointments and the many undesirable outcomes that go along with that. Fixing this not only benefits patients, but also benefits health systems who annually lose millions of dollars because of missed appointments, high emergency department or urgent care utilization, and premature hospital readmissions accompanied by heavy fines and reimbursement penalties.

The incentive to address transportation gaps is also driven by the desire of health systems to provide patients with a quality healthcare experience. Moving patients to and from visits is facilitating care, and increases the likelihood of appointments being kept and of patients being satisfied, more compliant, better informed about their condition(s), and healthier. With the competition created in markets where patients have the ability to choose their provider or payer, the advantage will go to those that can rise above the competition by providing an attractive suite of services designed to make it easier for patients to access care, medication, and other related services. Healthcare providers might look at the option of covering transportation costs (*see next section*), coordinating appointment scheduling with available transportation options, partner with shared-ride providers, or even providing transportation services for clients.

New OIG Opinion: Provision of Medical Transportation and “Safe Harbor” Protection from Penalties

The U.S. Department of Health and Human Services, Office of Inspector General (OIG), issued a new ruling on December 7, 2016, covering financial contributions to and provision of non-emergency medical transportation (NEMT) by healthcare providers. The rule effectively creates a new safe harbor for two types of local transportation: transportation that is provided for individual patients and shuttle services for patients or others – along a fixed route with a set schedule. The rule makes clear that healthcare providers are allowed to contribute to or provide transportation services within certain parameters without being in violation of regulations against unfair business practices. In essence, the new rule permits healthcare providers—including hospitals, clinics, physician’s offices, dialysis clinics, medical laboratories, physical therapists, and the like—to choose to fund by themselves, or in combination with others, local NEMT or shuttle services that may go way beyond NEMT.¹⁰

Reflection

It is clear that transportation barriers have an impact on health outcomes, although the literature shows such variance in how that connection is made that it is hard to be say with certainty that simply improving transportation options will improve health outcomes. It is however indisputable that missed medical appointments carry with them significant cost. Combine this with the fact that hospitals are being heavily penalized for premature readmissions and primary care providers may not be reimbursed if they are unable to show improvements in their patient’s medical conditions, and the “missed appointment puzzle” becomes more pressing.

At the root of the best response to this problem is the availability of data collected from patients as they interact with health systems and healthcare providers. Being able to make the case for transportation as a primary determinant of health outcomes requires more robust data, specifically

the kind reflecting the social, economic, and environmental realities of the low-income, minority, and rural communities most impacted by health challenges. Reliable data from patients captured in electronic medical records is already used for research and to help understand patient populations. It is hoped that over time, more providers bolster their patient's electronic medical records with inputs related to the broader socioeconomic and environmental factors that directly and indirectly impact health.

Filling out a patient's profile with relevant socioeconomic factors, including transportation, can

- lead to a more robust understanding of the patient and what the most impactful interventions are for that patient
- tells the healthcare system more about patient experiences, bolstering their ability to enhance the care provided to patients
- puts funding where resources are needed
- informs policy-making, and
- sets a standard for a comprehensive approach to health and healthcare.

This mindset underpins the patient-centered approach to managing patients' health and the cost of their care. It is a mindset that places a premium on spending more time with patients and getting to know them in a very comprehensive way. This methodology understands the complexity of the factors that impact health, and recognizes that health is more than healthcare. The data systems that support such ventures should be similarly detailed and broad in the data they are capable of gathering. Health systems seeking to work in this way need to ensure that they have payers willing to support the non-medical (i.e. transportation) opportunities to improve health outcomes that the "new data" present.

What kind of data would need to be collected? The data could run the gamut, such as:

- determining a patient's primary language and literacy level
- understanding the environment in which the patient lives
- understanding the patient's family responsibilities and dependents
- knowing about a patient's employment status, work environment, and work activities
- exploring the patient's mobility options (e.g., driver's license, ownership of motor vehicle, current insurance, access to rides by others, access to public transportation)

Combining these data with the medical information in patients' medical records, when added to in-depth focused interviews, will help piece together the many aspects of patients' lives that influence their health. It will enable clinical operations to better understand patient health behaviors based on information coming directly from clients, and could open the door for designing health-impacting programs *with* clients in which they will be more likely to participate.

Notes

¹Syed ST, Gerber BS, Sharp LK. (2013). Traveling towards disease: transportation barriers to health care access. *J Community Health*. Vol. 38(5), pp 976–993.

²Yang S, Zarr RL, Kass-Hout TA, Kourosh A, Kelly NR (2016). Transportation barriers to accessing healthcare for urban children. *J Health Care Poor Underserved*. Vol. 17(4), pp 928–943.

³Salloum RG, Smith TJ, Jensen GA, Lafata JE (2012). Factors associated with adherence to chemotherapy guidelines in patients with non-small cell lung cancer. *Lung Cancer*. Vol. 75(2), pp 255–260.

⁴Silver D, Blustein J, Weitzman BC (2012). Transportation to clinic: findings from a pilot clinic-based survey of low-income suburbanites. *J Immigr Minor Health*. Vol. 14(2), pp 350–355.

⁵Tierney WM, Harris LE, Gaskins DL, et al. (2000). Restricting Medicaid payments for transportation: effects on inner-city patients' healthcare. *Am J Med Sci*. Vol. 319(5), pp 326-33. www.ncbi.nlm.nih.gov/pubmed/10830557

⁶Arcury TA, Preisser JS, Gesler WM, et al. (2005). Access to transportation and healthcare utilization in a rural region. *J Rural Health* Vol. 21(1), pp 31-38. www.ncbi.nlm.nih.gov/pubmed/15667007.

⁷Ahmed SM, Lemkau JP, Nealeigh N, et al. (2001). Barriers to healthcare access in a non-elderly urban poor American population. *Health Soc Care Community*. Vol 9(6), pp 445–453.

⁸Roadblocks to health: Transportation barriers to healthy communities. Center for Third World Organizing (CTWO), People United for a Better Oakland (PUEBLO), Transportation and Land Use Coalition (TALC) 2002.

⁹Chan, KE, Thadhani RI, Maddux FW (2014). Adherence barriers to chronic dialysis in the United States. *J Am Soc Nephrol*. Vol. 25(11), pp 2642-2648.

¹⁰Read the full OIG opinion at <https://www.federalregister.gov/documents/2016/12/07/2016-28297/medicare-and-state-health-care-programs-fraud-and-abuse-revisions-to-the-safe-harbors-under-the>; also, listen to the archived February 21, 2017 webinar in which a legal expert helps the audience understand the ramifications of this ruling: “Safe Harbor Regulation and NEMT” at nc4mm.org/ncmm-webinars.

Additional Resources

Agency for Healthcare Research and Quality, Department of Health and Human Resources. “Defining the Patient-Center Medical Home.” <https://pcmh.ahrq.gov/page/defining-pcmh>

Bellamy, G. R., Stone, K., Richardson, S. K., & Goldsteen, R. L. (2003). Getting from here to there: Evaluating West Virginia's rural nonemergency medical transportation program. *J Rural Health*. Vol. 19, pp 397-406.

- Boccuti C, Casillas G (2015). Aiming for Fewer Hospital U-turns : The Medicare Hospital Readmission Reduction Program. Policy Brief., 1–10. <http://bit.ly/1KW5Okd>
- Centers for Disease Control and Prevention (2014). National Chronic Kidney Disease Fact Sheet. CKD Surveillance Project, 1–4. https://www.cdc.gov/diabetes/pubs/pdf/kidney_factsheet.pdf
- Champlin L (2016). Improved Community Health Depends on Knowing the Extent of Social Deprivation. www.graham-center.org/rgc/press-events/press/all-releases/111016-social-deprivation.html
- Cheung PT, Wiler JL, Lowe RA, et al (2012). National study of barriers to timely primary care and emergency department utilization among Medicaid beneficiaries. *Ann Emerg Med*. Vol. 60(1), p 4.
- Cronk I (2015). The transportation barrier. *The Atlantic*. <http://www.theatlantic.com/health/archive/2015/08/the-transportation-barrier/399728/>
- Deen TL, Bridges AJ, McGahan TC, et al (2012). Cognitive appraisals of specialty mental health services and their relation to mental health service utilization in the rural population. *J Rural Health*. Vol. 28(2), pp 142-151.
- Frueh BC (2015). Solving mental healthcare access problems in the twenty-first century. *Aust Psychol*. Vol. 50(4), pp 304-306.
- Godavarthy R, Mattson J, Ndembe E (2014). Cost-benefit analysis of rural and small urban transit. National Center for Transit Research. <https://www.nctr.usf.edu/2014/07/cost-benefit-analysis-of-rural-and-small-urban-transit-2/>
- Green-Hernandez C (2006). Transportation challenges in rural healthcare. *Nurse Practitioner*. Vol. 31(12), p 10.
- James P, Ito K, Buonocore JJ, et al (2014). A health impact assessment of proposed public transportation service cuts and fare increases in Boston, Massachusetts (U.S.A.). *Int J Environ Res Public Health*. Vol. 11(8), pp 8010-8024.
- Cronin J, Hagerich J, Horton, J, et al (2008). Florida Transportation Disadvantaged Programs: Return On Investment Study. http://tmi.cob.fsu.edu/roi_final_report_0308.pdf
- Kheirkhah P, Feng Q, Travis LM, et al (2016). Prevalence, predictors and economic consequences of no-shows. *BMC Health Serv Res*. Vol. 16(1), p. 13.
- MSJ & Co, Marsico D (2014). Medicaid Expansion and Premium Assistance: The Importance of Non-Emergency Medical Transportation (NEMT) To Coordinated Care for Chronically Ill Patients. <http://web1.ctaa.org/webmodules/webarticles/articlefiles/MedCT14chronic.pdf>
- Nuti LA, Lawley M, Turcan A, et al (2012). No-shows to primary care appointments: subsequent acute care utilization among diabetic patients. *BMC Health Serv Res*. Vol 12, p 304.

Pellowski JA (2013). Barriers to care for rural people living with HIV: a review of domestic research and healthcare models. *J Assoc Nurses AIDS Care*. Vol. 24(5), pp 422–437.

Phillips RL, Liaw W, Crampton P, et al (2016). How other countries use deprivation indices--and why the United States desperately needs one. *Health Aff*. Vol. 35(11), pp 1991-1998.

Salanitro AH, Safford MM, Houston TK, et al (2011). Patient complexity and diabetes quality of care in rural settings." *J Natl Med Assoc*. Vol. 103(3), pp 234–240

Siegel CE, Wanderling J, Haugland G, et al (2013). Access to and use of non-inpatient services in New York state among racial-ethnic groups. *Psychiatr Serv*. Vol. 64(2), pp 156-164.

Sorkin DH, Murphy M, Nguyen H, et al (2016). Barriers to mental healthcare for an ethnically and racially diverse sample of older adults. *J Am Geriatr Soc*. Vol 64(10), pp 2138-2143.

Syed ST, Gerber BS, Sharp LK (2013). Traveling towards disease: Transportation barriers to healthcare access. *J Commun Health*. Vol 38(5), pp 976–993.

Wallace R, Hughes-Cromwick P, Mull H (2006). Cost-effectiveness of access to nonemergency medical transportation comparison of transportation and healthcare costs and benefits. *Transportation Research Record*. Vol. 1956, pp 86–93.