

Going to the Doctor

Rideshare as Nonemergency Medical
Transportation

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About This Report

In 2019, Lyft Healthcare asked the RAND Corporation to explore the role of rideshare in nonemergency medical transportation (NEMT). In this report, we build on previous RAND research on health care access for vulnerable populations, innovative transportation modes and business models, and related public policy. Whereas this prior work addressed health care access issues broadly and analytically, the research documented in this report looks closely at rideshare specifically in the NEMT context. We aimed to identify key populations for whom, and types of rides for which, NEMT would be an appropriate model, the role of rideshare in NEMT, and the policies that support such a role. We conclude by considering how best to support NEMT broadly and optimize rideshare within NEMT specifically. This report is intended for a broad general audience. We conducted this research and formulated our conclusions independently, and RAND retains rights to publish this report without sponsor approval. Questions or comments about this report should be sent to Laura Fraade-Blanar (lblanar@rand.org).

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Summary

Nonemergency medical transportation (NEMT) refers to transportation to medical care that does not involve a medical emergency, usually paid for by medical insurance. As the populations accessing NEMT and the population needing NEMT increases, interest has risen in the NEMT sector to improve services, increase quality, improve timeliness, integrate technology, and reduce costs. This, coupled with the expanding popularity of rideshare services, shows the need for research into the role that rideshare-based NEMT (RB-NEMT) can play in the health care access ecosystem. This report builds on existing research on health care access to describe the challenges of NEMT that RB-NEMT can solve and those who need NEMT, including rider and ride types most appropriate for RB-NEMT. Population estimates for these profiles are drawn from three nationally representative sources.

We found that RB-NEMT can help reduce system strain and satisfy the unmet or poorly met need for on-demand cost-effective solutions within the NEMT ecosystem. Current RB-NEMT capabilities are most appropriate for individuals with medical conditions that result in the need to request rides and those who use Door2Door, Curb2Curb, or Area2Area (e.g., bus stop-to-bus stop) services. RB-NEMT is also most appropriate for inpatient and outpatient discharges, on-demand rides, requests for rides in which the scheduled mode failed to arrive, and rides requiring minimal assistance or monitoring. General recommendations include more research on (1) RB-NEMT outcomes and the efficiency of programs targeting potential users and (2) the size, distribution, and projections for required transportation services, especially for vulnerable populations, such as older adults, individuals with disabilities, and rural dwellers. For policymakers, recommendations include recognizing that (1) transportation is a fundamental component of health care access and NEMT as a central pathway of ensuring access to vulnerable populations and (2) rideshare is a generally unique, economical, efficient, and otherwise unoccupied niche of the NEMT ecosystem, although the specific pathways to incorporating rideshare into NEMT will vary by state.

As rideshare services expand in popularity—and as the populations accessing NEMT through Medicaid and Medicare Advantage increases—it becomes more pressing to explore gaps and insufficiencies in current NEMT service paradigms, the role RB-NEMT can optimally play, and the benefit of RB-NEMT playing that role in the health care access ecosystem. Rideshare is a new technology in the NEMT space, and its role is still evolving.¹

¹ As an example of ongoing RB-NEMT projects, a pilot program between Lyft and the HMO CareMore found some confusion among patients who were expecting a branded vehicle rather than a private passenger vehicle. To address this confusion, participants were alerted that Lyft would be providing the rides, were told the make and model of the vehicle dispatched for them, and could track the ride via a smartphone app (Powers, Rinefort, and Jain, 2016).

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Rideshare and Nonemergency Medical Transportation

Transportation is a fundamental component of accessing routine, nonemergency medical care.¹ Even with the recent uptick in the use of telemedicine services during the coronavirus disease 2019 (COVID-19) pandemic (Fischer et al., 2021; Whaley et al., 2020), most primary care still requires patients to travel to facilities (Cantor et al., 2021). Whether transportation involves walking a block or driving hundreds of miles, transportation problems are frequently cited as a barrier to receiving care and medical compliance (Fitzpatrick et al., 2004; Okoro et al., 2005). A 2005 study found that 3.6 million Americans delay or miss medical care because of transportation barriers (National Academies of Sciences, Engineering, and Medicine, 2005). A more recent study showed that 5.8 million people in the United States (or 1.8 percent of the U.S. population) delayed medical care in 2017 for the same reason (Wolfe, McDonald, and Holmes, 2020). This population has a higher rate of chronic diseases and poly-morbidities compared with the general population (National Academies of Sciences, Engineering, and Medicine, 2005) and is therefore more likely to need health services, be negatively affected by the lack or delay of services, and need hospitalizations or emergency department visits. Missed appointments do not just cause delays in medical care. They also cost the U.S. health care system \$150 billion annually (Bryant, 2018). For a health care system to be viable, a minimum number of patients must show up—and show up punctually.

Nonemergency medical transportation (NEMT) services aim to improve health and health care delivery by facilitating access to medical care for transportation-vulnerable people. It is transport specifically for non-emergency medical appointments (including routine primary and preventive-care visits, dialysis, diabetes treatment, and behavioral treatment, such as substance abuse and mental health treatment [Simon and Fishman, 2018]),² to pharmacies, and to laboratory testing locations for people without other sources of transportation. NEMT services are paid by the health care payer (i.e., insurance such as Medicaid). Broadly, NEMT access has been shown to reduce barriers to care; among the Medicaid population, research has shown that it is associated with greater use of preventive and primary health care, lower use of emergency and inpatient services, and timely medical care among people with certain health conditions (Kim, Norton, and Stearns, 2009; Thomas and Wedel, 2014). Furthermore, NEMT may decrease overall health care costs, even accounting for its own cost (Thomas and Wedel, 2014; National Academies of Sciences, Engineering, and Medicine, 2018). Roughly 103 million NEMT trips occur annually paid by Medicaid alone, with an average cost

¹ In this chapter, we use the terms *ridehail* and *rideshare* interchangeably, with *rideshare* as the dominant term. Technically, *rideshares* refer to shared rides, in which multiple customers are present in the vehicle and multiple stops may be made. *Ridehailing* refers to a single-user experience, in which the customer is taken point to point. By these definitions, the service described in this report is ridehailing, not ridesharing. However, because ridesharing is the dominant term generally and specifically within NEMT, we use it here.

² Within Medicaid, frequent NEMT users include individuals with end-stage renal disease; behavioral conditions, such as opioid addiction; and intellectual or developmental disabilities (Medicaid and CHIP Payment and Access Commission [MACPAC], 2021).

between \$26 and \$29 per trip (Abraham, 2018). A study funded by the Medical Transportation Access Coalition pointed to a considerable return on investment for NEMT, notably for patients with diabetes and kidney disease. It also concluded that, in the context of a care-management strategy for people with chronic diseases, the program had the potential to pay for itself (Medical Transportation Access Coalition, 2018). An earlier study by the Transportation Research Board agreed, finding specific cost savings of NEMT when used for prenatal care and treatment for asthma, heart disease, and diabetes (National Academies of Sciences, Engineering, and Medicine, 2005).

NEMT in Policy and Practice

NEMT is a mandatory Medicaid benefit: States are required to provide free or low-cost transportation to and from medical appointments if beneficiaries have no other means of accessing services. But what exactly is covered, how that coverage works, and service quality vary from state to state, depending on state-specific factors, such as beneficiary needs, delivery systems, and geography. For instance, some states may limit the

BOX 1.1

NEMT Need in Numbers

- 5.8 million: number of people in the United States who delay medical care because they lack transportation (Wolfe, McDonald, and Holmes, 2020).
- 4.4 percent: percentage of Medicaid enrollees under age 65 who reportedly delayed care because of a lack of transportation. Of this percentage, 43 percent (1.9 percent of total Medicaid enrollees under age 65) of these individuals were children (ages 0–18) ($n = 2.1$ million adults and children together) (MACPAC, 2019).
- 58 percent: percentage of Medicaid beneficiaries who said in an industry-led survey that they “would not be able to keep their medical appointments without NEMT” (Medical Transportation Access Coalition, 2018).
- Less than 5 percent: percentage of NEMT beneficiaries using NEMT. MACPAC focus group users stated that it is “essential to maintaining their health, and in some cases, has been lifesaving” (MACPAC, 2021).
- 103 million: number of annual NEMT rides under Medicaid alone (Abraham, 2018).
- 5.1 percent: difference between the percentage of individuals with private coverage who delayed care because of lack of transportation (0.7 percent) and percentage of individuals with Medicaid coverage who delayed care because of lack of transportation (5.8 percent) (MACPAC, 2019).
- \$150 billion: the annual cost in U.S. dollars of missed medical appointments (Bryant, 2018).
- \$5 billion: annual federal and state spending by Medicaid on NEMT (\$3 billion federal, \$2 billion state) (Texas A&M Transportation Institute, 2019).
- 0.26 percent: percentage of spending by Medicare and Medicaid on NEMT in 2013 (total budget \$1.035 billion) (Yocom and Goldstein, 2016b).
- 20 percent: percentage of all NEMT ride-days on which a physician’s office was the destination. Other common destinations include diagnostic or therapeutic sites (17 percent), residential facilities (7 percent), dialysis facilities (3 percent), and hospitals (2 percent) (MACPAC, 2021).

number of trips covered, require prior authorization, or charge copayments for each NEMT trip (MACPAC, 2019; MACPAC, 2021).

Medicaid has covered NEMT since its creation in 1966, specifically under federal regulation 42 CFR § 440.170 (Adelberg and Simon, 2017; MACPAC, 2019).³ The federal government has allowed state Medicaid programs to apply for Section 1115 waivers to limit NEMT benefit coverage, either statewide or within certain groups of Medicaid recipients, to reduce costs (Price and Verma, undated), although protocol for applying for a waiver has changed with time and under different administrations. The potential for cost reduction is slight; NEMT comprises what the U.S. Government Accountability Office (GAO) refers to as the “relatively small” percentage (0.3 percent) of total Medicaid annual spending (Yocom and Goldstein, 2016b, p. 1; Powers, Rinefort, and Jain, 2016). Additionally, as just noted, findings on NEMT’s return on investment suggest that the program is fiscally prudent (Simon and Fishman, 2018). As of June 9, 2021, four states (Iowa, Indiana, and Utah for the Affordable Care Act expansion population, and Georgia for the non-expansion population and others) successfully pursued waivers (actively in place) from the CMS (Kaiser Family Foundation, 2021). The Trump administration considered changing the NEMT benefit from mandatory to optional through a revised regulation; this change was initially proposed in the administration’s annual budget starting in fiscal year 2019 (MACPAC, 2021). Instead, with vast bipartisan support, Congress enacted the Consolidated Appropriations Act, 2021,⁴ codifying NEMT as a statutorily required benefit and specifically including transportation network companies (TNCs) as providers (MACPAC, 2021).

There are various ways for states to deliver NEMT. The three most common methods are as follows:

1. State agencies (centrally or locally) manage and pay for NEMT on a fee-for-service basis: The benefit may be managed in-house by the state Medicaid agency or by other state or local government agencies, including the state’s Department of Transportation.
2. State agencies contract with managed care plans to coordinate the provision of NEMT services: All responsibilities are delegated to the plan. The managed care plans may manage the NEMT themselves or use a broker.
3. State agencies contract with a broker to manage the NEMT program overall: Most brokers receive a capitated payment from the state, but they can also be paid on a fee-for-service basis (Adelberg and Simon, 2017). Brokerages may operate regionally or statewide.

States most frequently adopt the contracting-with-a-broker option.⁵ There is some evidence to suggest that the brokerage model may help deter fraud and abuse, facilitate oversight, and contain costs (MACPAC, 2019). Specifically where the payment is capitated, the brokerage model is thought to reduce incentives for overuse (Adelberg and Simon, 2017). Additionally, states with a brokerage model are subject to fewer statutory requirements associated with how they report NEMT spending (MACPAC, 2019).

Rides may be scheduled by the individual or the care provider (depending on the state, insurance program, and type of NEMT administration), typically via a broker’s call-center dispatch agent. The broker assesses if the individual qualifies for the NEMT benefit and, if the ride is appropriate, will assign a transit mode. A broker works with multiple transportation providers available to fulfill a request. With rideshare-based NEMT (RB-NEMT), the TNC becomes such a provider.

³ Additional components are authorized under 42 CFR § 431.53; Centers for Medicare & Medicaid Services (CMS), 2016; and 42 CFR § 441.62.

⁴ U.S. House of Representatives, Foreign Affairs Committee, and U.S. Senate, Foreign Relations Committee, 2021.

⁵ As of 2015, 34 states employed some version of a brokerage model (Garfield et al., 2018).

Some enrollees in Medicare Advantage (MA, also known as Medicare Part C) also have coverage for NEMT. This benefit is growing in popularity: The number of MA plans offering NEMT increased by 25 percent from 2019 to 2020 alone (Medical Transportation Access Coalition, 2020). It is worth noting, however, that this growth took place in the same year that CMS expanded supplemental benefits in MA plans to include NEMT for chronically ill patients (Coleman, 2019). Overall, in 2019, 34 percent of all MA beneficiaries were enrolled in MA (Jacobson et al., 2019),⁶ and, although the data are from different years, in 2016, 70 percent of all MA enrollees were offered NEMT (Powers, Rinefort, and Jain, 2016). Also, new flexibility and scope around NEMT was offered to those in the Special Supplemental Benefits for the Chronically Ill program, in which transportation to grocery shopping, banking, and the like may be covered (Coleman, 2019). In addition to MA beneficiaries, some Medicare beneficiaries who cannot travel by other means of transportation (e.g., they require advanced life support) may receive NEMT coverage for transportation via ground ambulance service (Yocom and Goldstein, 2016b).⁷

Medicaid and MA are the primary payers for NEMT services, but other federal programs, such as the U.S. Department of Veterans Affairs' Veterans Transportation Program, can also provide NEMT funding. Additional payers include some commercial payers, hospitals, and health care systems. For example, in 2017, Blue Cross Blue Shield partnered with Lyft to provide NEMT to those with certain commercial health plans living in transportation deserts, explicitly linking lack of transportation to lack of medical care.⁸

RB-NEMT in Policy and Practice

NEMT can involve any mode of transportation. Modes vary widely—from a bus or a subway to a neighbor's or family member's vehicle (and reimbursement for gas) to a taxi-passenger vehicle, paratransit, or other options up to an airplane (MACPAC, 2021). The decision about what type of NEMT to assign an individual is usually based on the following:

- individual rider/beneficiary needs (discussed more in Chapter Three)
- available transportation options (e.g., is there a bus stop within a half mile, and will the total ride be under two hours?)
- environmental conditions (e.g., is it over 100°F, below-freezing temperatures?)
- what the ride involves (discussed more in Chapter Four); for example, because most modes, such as taxis or paratransit, need to be booked in advance (often by at least two days), interviewees noted that these modes do not work well for last-minute appointments and appointments with indeterminable end times
- system constraints; NEMT is generally the lowest cost option offered, and taxis are generally more expensive than rideshare or buses.

An NEMT trip can involve one beneficiary traveling directly from pickup to drop-off, like a rideshare or taxi trip, or it can be a shared and indirect trip where multiple passengers are picked up and dropped off, like paratransit.

⁶ Indeed, MA is growing faster than traditional Medicare (Terry and Muhlestein, 2021).

⁷ CMS research found that ambulance transport through the Repetitive, Scheduled Non-Emergent Ambulance Transport Prior Authorization Model reduced spending while maintaining quality and level of care (CMS, 2020).

⁸ Transportation deserts exist where supply (public transit services and personal vehicle ownership) fails to meet demand (a population's transportation needs); they exist throughout the United States (Jiao and Dillivan, 2013).

For an RB-NEMT trip, the broker coordinates with a TNC, such as Lyft or Uber, to set up the trip, which the TNC then facilitates via its technology platform. The patient does not need a smartphone or a TNC-run consumer app to receive information about the ride or to use RB-NEMT. The TNC driver does not know they are providing an NEMT trip—just that the trip was prebooked by a third party.

Rideshare overall has exploded in popularity in recent years, with TNCs coordinating more than 4.2 billion rides in the United States in 2018 alone (Statista, 2018). A confluence of factors—including expanding TNC service, expansion of the Medicaid population, an increase in the number of Americans over 65 (the pool of potential MA beneficiaries), and strained traditional NEMT providers—led to TNCs like Lyft and Uber entering the NEMT market in 2016 (Lyft, 2016) and 2018 (Weber, 2018), respectively. TNCs offer NEMT services through their existing rideshare model, although relationships vary by state based on how the state Medicaid agency administers NEMT.

Beyond system strain, other factors supported TNCs' entrance into the NEMT marketplace. Although early research found mixed results in RB-NEMT performance (discussed further in Chapter Five), several pilot studies, some industry-sponsored, suggest that there is strong potential for fewer missed and late pickups (and thus increased customer satisfaction) and lower health care costs. For example, a TNC-published report stated that a large health insurer found a 66 percent decrease in rider complaints when using RB-NEMT, and a public health system in Oakland, California, found that using RB-NEMT led to a 73 percent decrease in no-show rates at a primary care clinic and a \$400,000 annual savings compared with taxi vouchers (FierceHealthcare, 2020). Although the white paper was an industry publication, the interviewees cited for our report supported the assertion that rideshare is generally less expensive for the state health insurer than taxis, with one individual interviewed putting the cost at 40 percent lower and another considered its cost comparable with public transit.

Issues of cost and failed pickups have historically been of concern for NEMT. A 2016 GAO report (conducted before TNCs entered the marketplace) found concerns over late or missed pickups for NEMT (Yocom and Goldstein, 2016b). Traditional NEMT rides can involve multiple passengers and multiple stops, drawing out what would otherwise be a quick ride. These issues decrease patient satisfaction, willingness to use the same service in the future, and likelihood of showing up for rides and therefore medical appointments.

The 2016 GAO report on NEMT also noted concerns about fraud, waste, inefficiencies, abuse, and lack of oversight, the provision of which is complicated by myriad NEMT delivery models, current data, and tracking systems. For example, states reported difficulty in verifying patient eligibility, appropriateness of transportation mode to patient need, and appropriateness of trip destination (e.g., to pick up home goods rather than medication). The report also cited a U.S. Department of Health and Human Services (HHS) Office of the Inspector General investigation from 2005 to 2011 that found that five states had paid for rides that did not meet NEMT requirements, collectively costing the government \$63 million (Yocom and Goldstein, 2016b). In addition, the report noted instances in which multiple rides to a destination (e.g., a pharmacy) were billed when one ride should have been sufficient (Yocom and Goldstein, 2016b), rides being billed for deceased beneficiaries, and cases of up-charging on vehicle type in situations in which beneficiaries were assigned to more expensive transportation modes than needed (e.g., an ambulance ride for dialysis transport) (Adelberg and Simon, 2017). Through detailed, easily accessible digital trails and real-time tracking generated by RB-NEMT (including cost, pickup location, and destination), subject-matter expert interviewees approached for this report suggested RB-NEMT as a pathway to combating missed and late pickups as well as fraud and abuse.

State and federal policies around RB-NEMT are developing and, on the state level, varies. Alignment may be imperfect between policy-dictated concepts of what NEMT service requires and what RB-NEMT service can provide. For example, TNCs have requirements for their drivers, but these may not match state requirements for NEMT drivers, such as that drivers learn first aid and be able to provide CPR. Currently, TNCs are

also not geared to provide the oversight that some states require, such as administering random drug testing. And finally, the vehicle itself may present challenges (e.g., NEMT state policy may require all vehicles to have specific types of license plates) (Louisiana Department of Health, Bureau of Health Services Financing, 2020).

The remainder of this report is as follows. Chapter Two is written from the rider (beneficiary) perspective and establishes the profile of NEMT need by exploring who faces barriers to accessing care. Chapter Three is written from the service perspective and discusses what types of riders are most appropriate for RB-NEMT. Chapter Four is written from the ride perspective and considers what types of rides are most appropriate for RB-NEMT, considers the logistical challenges of NEMT, and focuses on which of these difficulties RB-NEMT can solve. In Chapter Five, we consider how these three perspectives align in terms of policy solutions to address the opportunities—and challenges—of RB-NEMT and NEMT broadly.

Chapters Two, Three, and Four draw on results from the National Household Travel Survey, the Health and Retirement Study (HRS⁹), and the Medical Expenditure Panel Survey (MEPS) to illustrate population size and characteristics of potential NEMT and RB-NEMT users (see Appendix A for details on each data set). We also draw on the views and feedback garnered in interviews with subject-matter experts throughout the report. These experts were identified as having deep experience with NEMT as providers, policymakers, or researchers and were engaged in self-structured interviews lasting between a half hour and two hours (Appendix B).

⁹ HRS is a longitudinal survey of American adults age 50 years or older and their spouses or partners. Data are gathered on demographics, health status, family structure, and disability.

BOX 1.2

Chapter One: The Bottom Line

- Transportation barriers can result in missed or late medical appointments, costing the health care system billions of dollars.
- NEMT provides access to routine medical care for individuals who face transportation barriers.
- State Medicaid and some MA plans cover NEMT, although exact implementation varies widely by state.
- Historically, traditional NEMT has had issues with fraud, inefficiency, and poor user experience.
- TNCs have entered the NEMT space as providers under a rideshare business model. Industry-sponsored research has demonstrated an ability to improve beneficiary satisfaction with RB-NEMT, increase system efficiency, and improve program integrity through digital trails and real-time tracking.
- Questions remain about what types of riders and what types of rides work best for NEMT provided by rideshare.

Who Are the Transportation Vulnerable?

Characteristics of Potential NEMT and RB-NEMT Users

Who needs NEMT? Broadly, NEMT users are people who face a transportation barrier(s) to accessing care. This report focuses on two types of barriers: medical and logistical. These could vary from being unable to drive or use public transit because of health conditions (medical barriers) to not having access to a car or not being licensed to drive and being unable to find someone to provide a ride (logistical barriers) (MACPAC, 2021). To examine these barriers, we used data from nationwide surveys. These data sets are discussed in this chapter, but a fully detailed description of them can be found in Appendix A.

From the data discussed in this chapter, a picture develops of who most benefits from NEMT: someone who cannot drive themselves because of a medical issue or does not have access to a drivable, reliable vehicle. An additional picture develops of who could use RB-NEMT: someone who does not have a friend or family member to drive them (and hence would not benefit from a gas-mileage reimbursement), who does not live near or cannot take public transit, and who does not drive but is not so physically or cognitively impaired that they cannot use a passenger vehicle.

Medical Barriers

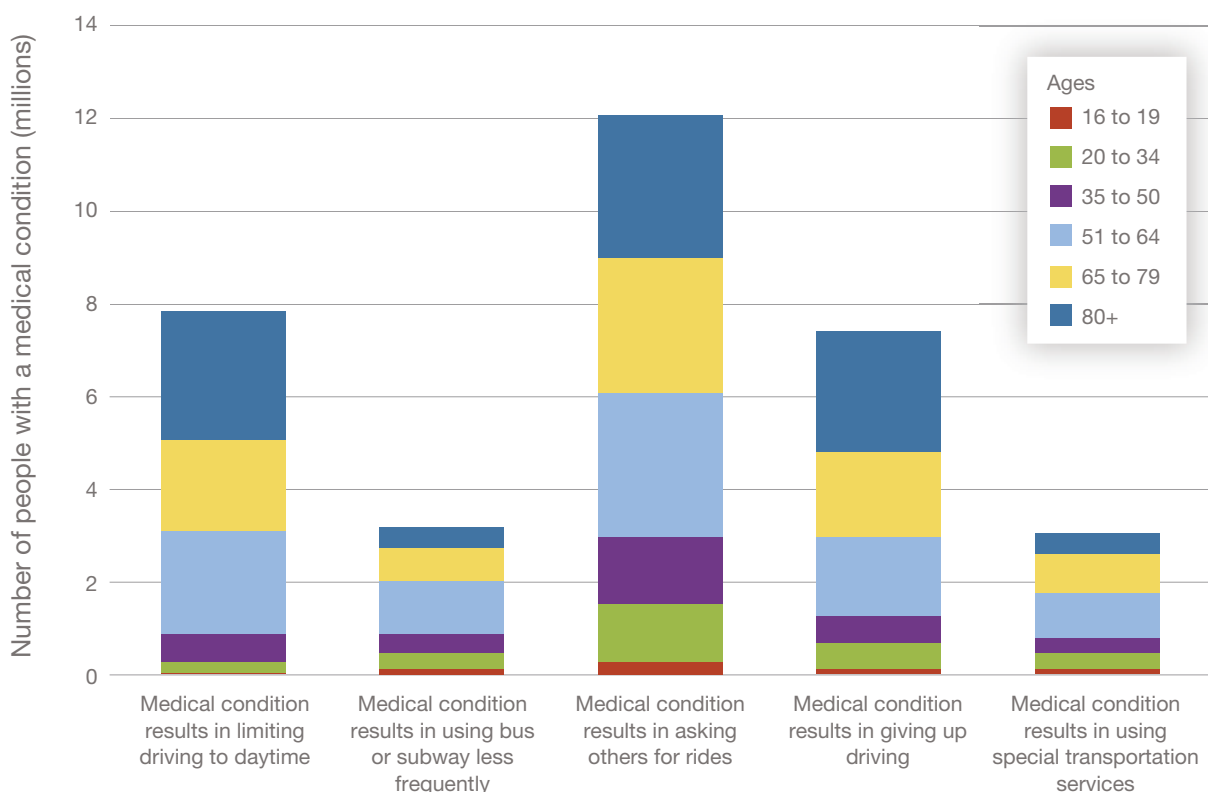
The inability to walk long distances (or short ones), use public transit, or be a driver or passenger in a conventional vehicle because of medical issues can present major barriers.¹ Figure 2.1 enumerates individuals with a medical condition that makes it difficult to travel to and from medical appointments using results from the National Household Travel Survey (NHTS).² More than 10 percent of respondents had a medical condition that makes it hard to travel, with between 1.7 percent and 27.4 percent (varying by age group) having given up driving. Focusing on (potentially) NEMT-eligible individuals, according to the HRS, 12.6 percent (95 percent confidence interval [CI], 11.5–13.6 percent) of individuals on Medicare and 40.1 percent (95 percent CI, 37.2–43.1 percent) of individuals eligible for Medicare and Medicaid (also known as *dual eligible*) cannot drive.

Looking at medical barriers to care, Figure 2.2 shows that more than 75 percent of respondents in at least one insurance group had difficulty walking ten steps, three blocks, and one mile; standing 20 minutes; and

¹ Rather than focus on specific diseases and health conditions, we focus on *functional health state* and what this means in terms of medical barriers.

² NHTS describes the daily travel behaviors of the U.S. civilian, noninstitutionalized population age 5 or older. We used data from the most recent survey from 2017.

FIGURE 2.1
Individuals with Transportation Challenges Among Those Who Have a Medical Condition That Makes It Hard to Travel (by Age)



SOURCE: Data from NHTS survey conducted by Westat (see Westat, 2018).
 NOTE: Total individuals in the 2017 NHTS is weighted at 0.3 percent.

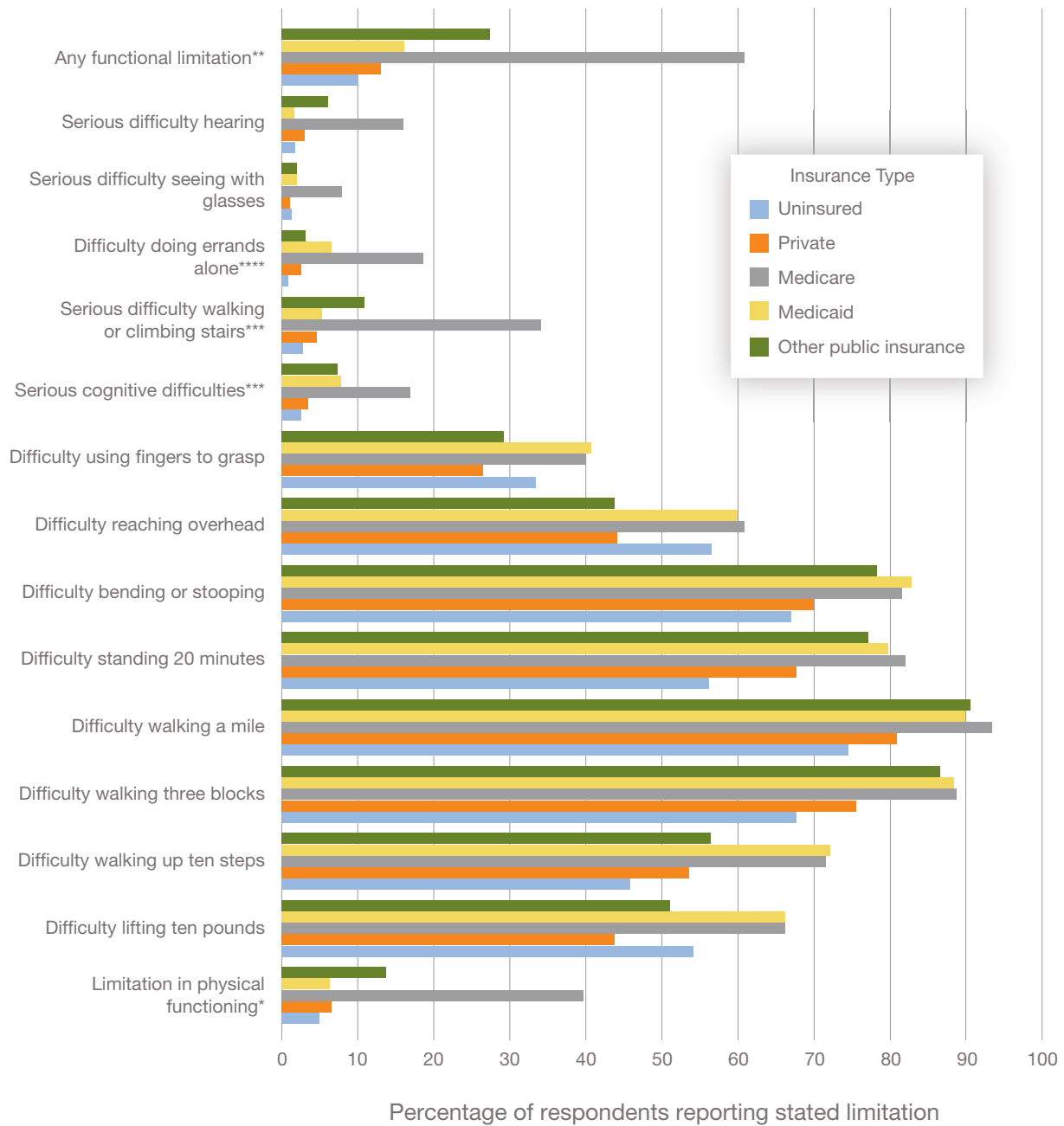
bending or stooping (data are from MEPS).³ These activities occur when in transit, for example, walking three blocks to a bus stop and then standing 20 minutes while waiting for the bus.

Specific to RB-NEMT, Figure 2.2 shows that sizable percentages of respondents have difficulties with gross motor skills, fine motor skills, and functional strengths—all skills that may be needed to use forms of NEMT, including public transit (e.g., walking three blocks, possibly to a bus or train stop, or inserting a ticket into a turnstile) and driving oneself. For these individuals, RB-NEMT could be a particularly good fit. For example, in the scenario above, an RB-NEMT could eliminate the need for both the three-block walk and use of a turnstile.

Individuals with medical conditions that result in asking others for rides (shown in Figure 2.1) may also be prime RB-NEMT candidates, because they likely cannot drive themselves but are still able to be passenger-vehicle occupants; RB-NEMT vehicles are passenger vehicles and specialized care is not needed. Individuals with medical conditions, such as serious cognitive impairment or mobility impairments, who require special transportation services or equipment like wheelchairs, likely require assistance beyond what rideshare would provide.

³ MEPS is a nationally representative survey of the U.S. civilian, noninstitutionalized population age 18 years or older that captures data on health care use and spending.

FIGURE 2.2
Functional Limitation Status by Insurance Type, According to the Medical Expenditure Panel Survey



SOURCE: MEPS data (see Agency for Healthcare Research and Quality, 2020).

NOTES: Frequency and percentage of limitations reflect responses by individuals with the insurance types represented. Individuals were coded as having specific difficulties (e.g., hearing, seeing with glasses, doing errands alone) if they stated they had “some” or “a lot” of difficulty or were “unable to do” the activity.

* Only respondents who indicated having limitations in physical functioning were asked the following questions about difficulty: walking up ten steps, walking three blocks, walking a mile, standing for 20 minutes, bending or stooping, reaching overhead, and using fingers to grasp.

** Any functional limitation summarizes whether a person had any instrumental activities of daily living, activities of daily living, or functional or other activity limitations. Limitations were coded as “yes” if any of the components were “yes”; “no” if all of the components were “no”; and missing if all of the components were “inapplicable.” Limitations were also coded as “missing” if all components had a missing value code or if some components were “no” and others were missing. Limitations were coded as “no” if all components were “no,” except for components that were skipped because of valid skip patterns.

*** This question was only asked of household members 5 years of age and older.

Logistical Barriers

Logistical barriers to accessing health care services include not having access to a vehicle or public transit. The HRS shows that

- 12.7 percent of Medicaid-Medicare dual-eligible beneficiaries and 3 percent of Medicare beneficiaries age 65 and older do not have a car
- 3.0 percent (95 percent CI, 2.5–3.6 percent) of adults age 65 and older who are able to drive do not have access to a car
- 92.9 percent (95 percent CI, 91.6–94.1 percent) of adults age 50 and older do not live near public transit⁴
- 3.1 percent (95 percent CI, 12.3–13.8 percent) of adults age 50 and older live alone with no children within 10 miles and thus do not have family nearby to help drive them.⁵

Because of a lack of access to alternative modes of transportation, these individuals may be prime RB-NEMT candidates.

⁴ This percentage was obtained from interviewer observation and only completed if the interview was conducted at the respondent's residence.

⁵ These numbers are based on interviewer observation rather than statements by the respondent. These are only available for in-person interviews where the interviewer completed the questionnaire.

BOX 2.1

Chapter Two: The Bottom Line

- Barriers exist to transportation. These barriers can be based on the physical, cognitive, or sensory health of a patient, or logistical barriers relating to geography and car ownership, among other issues.
- These barriers result in real changes to transportation patterns—for example, avoiding public transit and asking others for rides.
- RB-NEMT provides a potential mode of transportation for a subset of individuals with medical and logistical barriers to care currently unaddressed by existing NEMT options.

Which Riders Are Best for RB-NEMT?

People who need NEMT services run the full spectrum of physical and cognitive abilities. RB-NEMT is most appropriate for a subset of people on this spectrum. Before considering who makes up this subset, it is useful to define into four categories the levels of service that people may require:¹

1. **Hand-to-hand (H2H):**² H2H services are required either because of the level of assistance needed by the individual or the necessity of a chain of custody. Regarding the level of assistance needed, this may include those who need constant assistance or are unable to travel independently for any distance within their home or outside without support from a companion, assistant, and/or potentially the NEMT driver. An individual could require such assistance because of cognitive, sensory, or physical impairment. Regarding the chain of custody, children would fall into this category of need because they would not typically travel alone but rather with a guardian or parent for the entire continuum of the trip.
2. **Door-to-door (D2D):** D2D services are appropriate for people who can move at least semi-independently and need only light assistance from the driver to get from their front door to (and into) the vehicle and vice versa. Within D2D service, the driver provides light assistance getting from the point of origin to and then into the vehicle and, at the end of the trip, out of the vehicle and then to the destination. This level of service may be necessary because the associated individuals may need assistance opening vehicle doors, getting into the vehicle, buckling seatbelts, and lifting and stowing any goods or mobility devices they have with them. Assistance may include physically helping and interacting with the passenger, managing doors and buckles, or providing auditory or task-based guidance (National Aging and Disability Transportation Center, undated).
3. **Curb-to-curb (C2C):** C2C services are appropriate for people who can get to the curb independently and enter a vehicle with minimal or no assistance (National Aging and Disability Transportation Center, 2018).³ It is argued that D2D service has lower *dwell time* (time between arrival and departure from the curb) than C2C, although this is debated (National Academies of Sciences, Engineering, and Medicine, 2008).
4. **Area-to-area (A2A):** A2A services are appropriate for people who are highly ambulatory, able to walk distances (e.g., a half-mile to a bus stop) independently and without strain, and able to enter a vehicle without assistance. People in this group could walk to a nearby medical service or to a public transit stop at some distance. A2A is distinct from C2C in that people who use C2C can travel a short distance from a building exit to a curb but not farther, but A2A individuals can walk farther to, for example, a group pickup location or bus or train stop.

¹ Definitions for each of these groups vary widely by discipline and definer.

² This is often referred to as *door-through-door* (Burkhardt and Kerschner, 2007).

³ Some define C2C as including assistance into and out of a vehicle, but this is not universal.

BOX 3.1

The Size of Each Population for Each of the Four Service Categories

The **H2H** population may include

- individuals age 65 and older in the HRS who cannot drive and/or have no access to a car, of whom
 - 49.8 percent require assistance getting in or out of bed (95 percent CI, 46.2–53.3 percent)
 - 60.6 percent require assistance with activities of daily living, such as bathing, eating, and using the toilet.
- individuals in MEPS, of whom
 - 5.8 percent (95 percent CI, 5.4–6.2 percent) have serious cognitive impairment, including advanced dementia.

The **D2D** population may include

- individuals age 50 and older in the HRS, of whom
 - 34.9 percent (95 percent CI, 33.6–36.1 percent) have difficulty getting up out of a chair
 - 3.3 percent (95 percent CI, 3.0–3.6 percent) require help walking across a room.
- individuals in MEPS, of whom
 - 75.1 percent (95 percent CI, 73.1–77.0 percent) have difficulty standing for 20 minutes
 - 34.2 percent (95 percent CI, 32.0–36.4 percent) have difficulty using their fingers to grasp objects like car-door openers and seat belts
 - 76.4 percent (95 percent CI, 74.5–78.3 percent) have difficulty bending and stooping and 53.4 percent (95 percent CI, 51.2–55.6 percent) have difficulty reaching overhead.

The **C2C** population may include, of whom

- individuals in NHTS
 - 1.9 percent (95 percent CI, 1.8–2.1 percent) use walkers (these individuals may alternatively require D2D or A2A assistance)
 - 3.1 percent (95 percent CI, 3.0–3.3 percent) use canes (these individuals may alternatively require D2D or A2A assistance).

The **A2A** population may include, of whom

- individuals age 50 and older in the HRS
 - 85.9 percent (95 percent CI, 85.1–86.8 percent) have no difficulty walking one block.

Assigning a service level requires considering a wide range of functional, cognitive, and logistical issues. An individual may require a certain level of assistance in traveling based on the interplay between physical and cognitive states. The numbers we just outlined aim to give an idea about each population size, but each estimate defines only one characteristic of the group. By nature, people are intersectional in their vulnerabilities; very few of us have only one morbidity. Thus, some morbidities affect the required level of service, and some do not. For example, an individual with advanced Alzheimer’s disease and no physical restrictions may require H2H assistance. Conversely, an individual with treated schizophrenia or anxiety and no physi-

cal issues may be able to use A2A service. Therefore, the numbers in Box 3.1 only suggest population sizes for each level of service.

Numbers cannot tell the whole story of the size of each population, and not because the story is not numerate but rather because the numbers are not currently known. Worse, no data set is specifically geared to gather such information. If attempting to gather primary data to determine population sizes for each level of service, available data sets could be adapted. For example, MEPS could be used to identify the level of service for individuals age 19 and older. The flow chart in Figure 3.1 shows an initial profile of these service groups using data from MEPS, bearing in mind the functional measures present in MEPS. The figure is used to determine the needed level of service. It is not usable by brokers to assign a level of service to individuals; other information regarding service availability, environment, and geography is required.

Service Level and RB-NEMT

Generally, individuals who can use C2C or A2A services are prime RB-NEMT users. Individuals who require D2D services may be RB-NEMT users. Individuals who require H2H service are generally not RB-NEMT users. Children may be the exception: They can use RB-NEMT if they are traveling with a parent or guardian. Additional explanation for these findings is outlined in the subsequent subsections of this chapter (see also Figure 3.2). Overall, decisions about the type of NEMT service to provide must be made at the individual patient level.

Curb2Curb and Area2Area Service Users

People who can use either C2C or A2A services—and whose benefits include NEMT—are prime RB-NEMT users not only because of their cognitive and physical abilities but also because of rideshare-vehicle attributes and driver education. Generally, rideshare vehicles are passenger vehicles. These vehicles cannot necessarily accommodate specialized equipment, such as stretchers or motorized wheelchairs.⁴ Additionally, rideshare drivers currently have no medical education, and they cannot be expected to provide monitoring or care while en route. Although rideshare drivers carry automobile insurance, they do not typically have general liability insurance to cover rendering medical assistance. This is the result of rideshare companies' independent-contractor business model, which gives drivers flexibility and independence but limits the type of coverage that can be provided to them.

C2C or A2A transportation can accommodate various physical and cognitive challenges, depending on the severity and level of outside support needed.⁵ According to the 2017 NHTS, of respondents with a medical “condition or handicap that makes it difficult to travel outside the home,” 54.4 percent require some sort of medical device for mobility (Westat, 2018). But using some of these devices does not preclude being able to access C2C or A2A transportation (and thus using RB-NEMT). According to the NHTS, among those with a medical condition or handicap, 36.8 percent (95 percent CI, 35.4–38.2 percent) of respondents across all ages use a cane and 22.9 percent (95 percent CI, 21.7–24.1 percent) use a walker. TNC drivers are required to help stow folding wheelchairs, walkers, scooters, canes, and other mobility devices (Lyft, undated). Assuming that

⁴ In some areas, rideshare includes wheelchair-accessible vehicles.

⁵ *Outside support* here refers to a care provider or family member who may be traveling with the primary NEMT recipient. For example, although a 12-year-old child with developmental challenges would not be an appropriate RB-NEMT user, in part because they are 12 years old and because the driver is unlikely to have education in providing appropriate support, if the 12-year-old is traveling with their parent who can provide oversight and assistance, RB-NEMT may be appropriate.

FIGURE 3.1
Decision Tree of an Individual's Needed Level of Service Based on Measures Available in MEPS

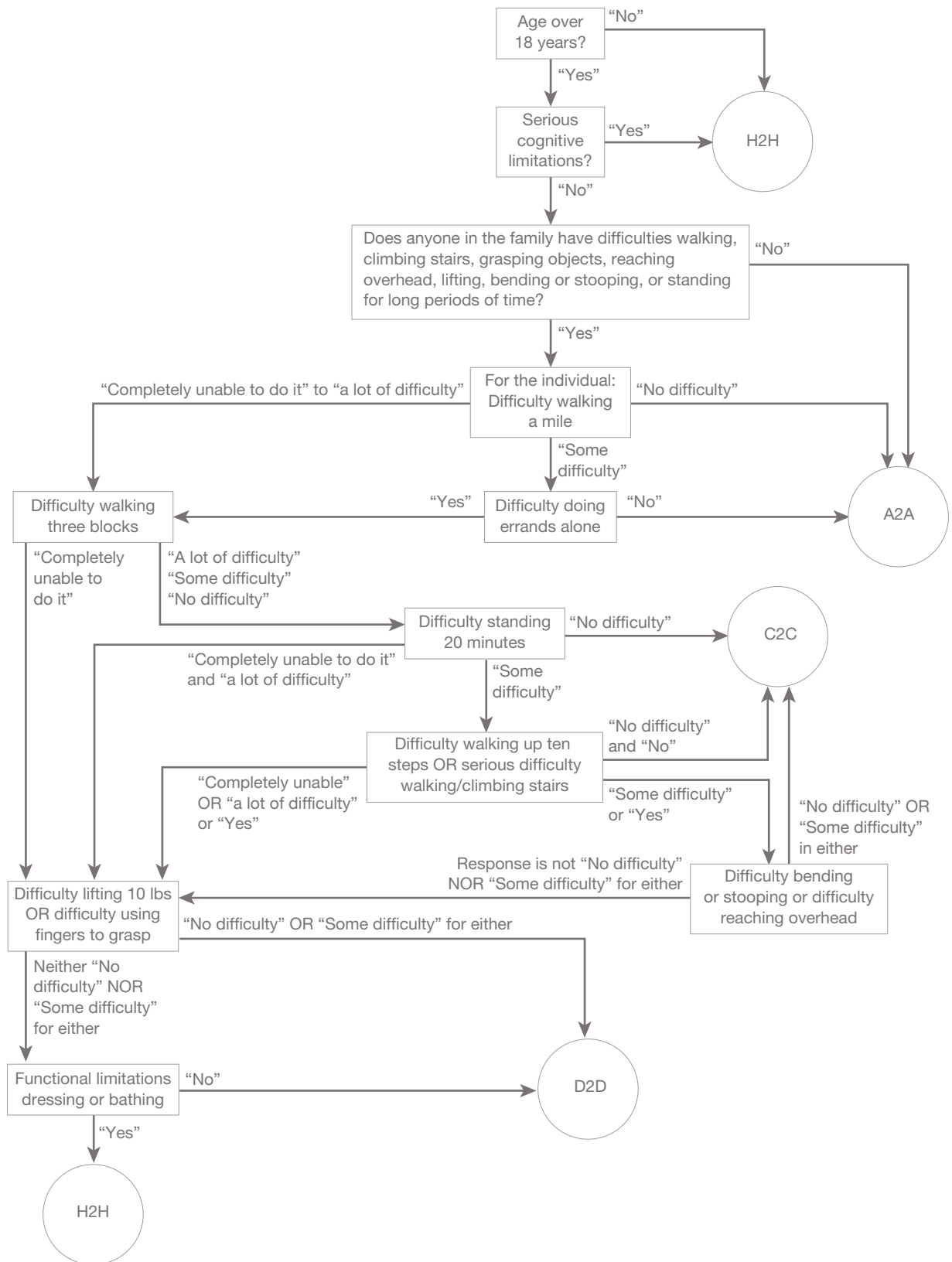
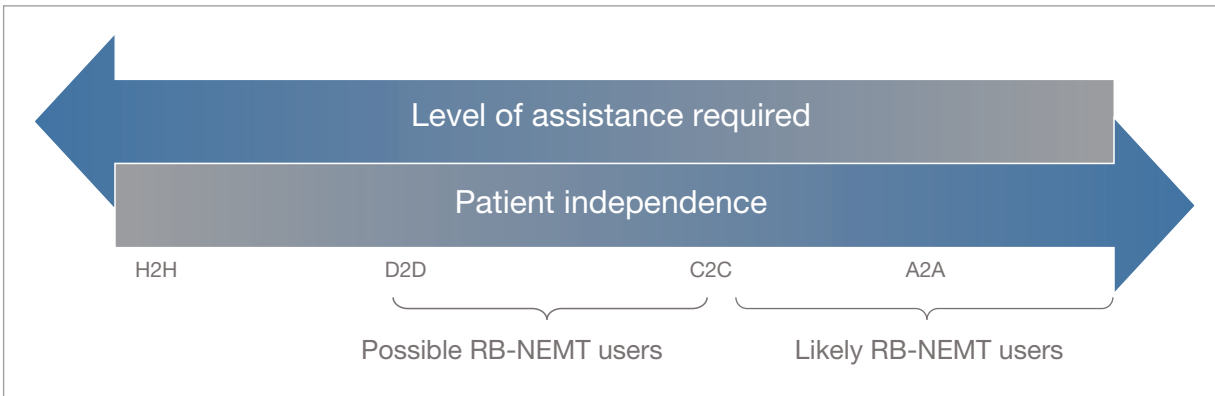


FIGURE 3.2
RB-NEMT Groups Associated with Cognitive and Physical Ability



these individuals can enter a passenger vehicle with minimal to no assistance, transportation via RB-NEMT is still a viable option. However, for the 4.4 percent (95 percent CI, 3.8–5.0 percent) of respondents with a medical condition and using motorized scooters or the 3.9 percent (95 percent CI, 3.3–4.5 percent) and using motorized wheelchairs, D2D transportation or even H2H transportation may be needed, in which case it is unlikely that RB-NEMT would be appropriate. Although some rideshare vehicles are wheelchair accessible, availability varies.

Door2Door and Hand2Hand Service Users

People who require D2D services may be able to use RB-NEMT. But because these individuals require a more patient-centric experience, a few changes in service delivery may be necessary to enhance the likelihood that an individual requiring D2D services could use RB-NEMT. For example, drivers may need education on how to communicate information about patient needs, how to provide assistance, on medical and cultural sensitivity, and how to de-escalate a situation if needed. Future system-based changes could include drivers accessing clinician, care-provider, and/or broker-generated notes and reminders about the type of assistance the individual requires. Additionally, interested drivers could be educated about how best to provide specific types of assistance. Some of these are already underway or under consideration. Uber Assist, launched by Uber, provides D2D-focused education with drivers who have received additional third-party training on assisting individuals with disabilities (Powers, Rinefort, and Jain, 2016; John 2019). Lyft plans to launch a similar service soon.

For H2H service, when arranging transportation, it is important to clarify who is expected to provide assistance and/or maintain chain of custody: the driver or a companion. Although RB-NEMT may not be the ideal match for people who require H2H services, some people in this category could use RB-NEMT if they have a companion or assistant traveling with them. For example, several interviewees cited individuals with severe mental disabilities as requiring assistance beyond what the rideshare driver would provide. But if a companion could accompany the individual on the trip, RB-NEMT may be an option. Similarly, children, who cannot travel alone and thus require H2H service, could travel with a parent or other adult caretaker in an RB-NEMT to maintain custody.

Other User Characteristics

Beyond beneficiaries being able to use RB-NEMT, there is being able to engage in the surrounding, supporting technology. Recall that, in the pilot program with Lyft and CareMore described in Chapter One (footnote 1 in the Summary), smartphone apps were among the methods used to increase user comfort. Although owning (and being able to use) a smartphone is not a prerequisite to using NEMT in general or RB-NEMT specifically, having access to (and familiarity with) a smartphone undoubtedly would create a more seamless experience, especially with RB-NEMT, in terms of receiving notifications about a ride, including information about arrival time and the make and model of the vehicle. This information can also be conveyed by an automated voice call or text message.

A 2018 survey found that 86 percent of Medicaid recipients own smartphones, slightly lower than the rate among those on employer-based insurance (94 percent) (Carroll, 2018). According to a 2019 survey, among Medicare recipients, 79 percent own a smartphone. However, this percentage drops to 56 percent when looking at recipients age 80 and older (eHealth, 2019). Overall, according to the HRS, 34.3 percent of respondents age 65 and older (95 percent CI, 32.6–35.9 percent) do not use the internet. There is a concomitant drop in using rideshare and age: Among the general population in 2018, 36 percent had used a ride-hailing service at least once, but among adults age 50 and older, that number dropped to 24 percent (Jiang, 2019). Although individuals do not need to be comfortable with technology to use RB-NEMT, it may make it an easier process.

TABLE 3.1
Select NEMT Providers and Levels of Service

	Public		Individual	Private			
	Public Transit	Paratransit	Friends and Family Mileage Reimbursement	Rideshare	Small Business NEMT Providers with Passenger Vehicles ^a	Small Business NEMT Providers with Special-Use Vehicles ^b	Small Business NEMT Providers with Vans
Cost	Low	Low	Determined by mileage	Low	High	High	Low
Availability	On a schedule ^c	Booked in advance	Arranged informally in advance	On demand	Booked in advance	Booked in advance	Booked in advance
Fixed route?	Yes ^c	Yes ^c	No	No	No	No	No
Shared or private ride	Shared	Shared	Varies	Private	Private	Varies	Shared
Level of service required	A2A	D2D, H2H	A2A, C2C, D2D, H2H	A2A, C2C, some D2D, H2H ^d	A2A, C2C, D2D, some, H2H ^d	D2D, H2H	A2A, C2C, D2D, some, H2H ^d

^a Includes taxis.

^b For example, nonemergency ambulances, stretcher vans, medicars, amulettes, and handivans.

^c In some rural areas, public transit and paratransit may also operate on-demand. Generally, paratransit may pick up and drop off within three-quarters of a mile on a fixed transit route (Federal Transit Administration, 2015).

^d For children if accompanied by a guardian and if other cognitive, functional, or sensory limitations do not exist.

BOX 3.2

Chapter Three: The Bottom Line

- Although more detail is needed, required levels of service can broadly come down to three questions:
 - How ambulatory is a patient on their own?
 - How much assistance is needed to carry items they have with them?
 - Can they travel alone?
- Table 3.1 provides details on a selection of NEMT providers, along with level of service (these details reflect feedback heard during interviews and are generalized within the transportation mode).

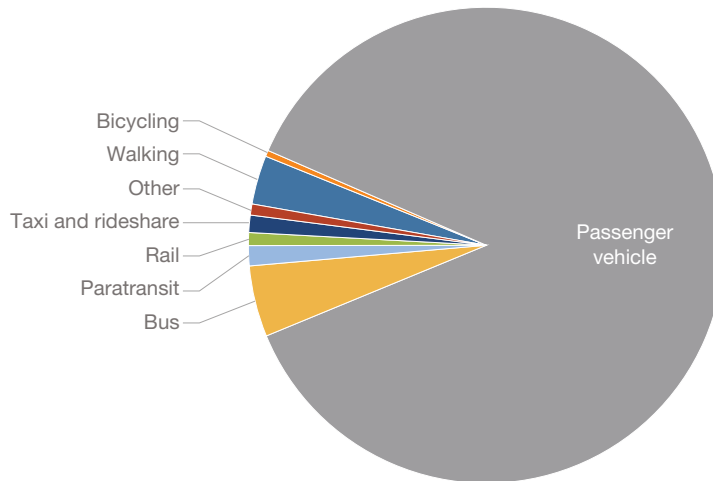
Which Rides Work Best for RB-NEMT?

Currently, across all ages, functional health states, and insurance statuses, the vast majority (87.3 percent, according to NHTS) of individuals get to their medical appointments in a passenger vehicle, as either the driver or the passenger. Figure 4.1 shows the breakdown of mode of transport to medical appointments.

The mean trip duration was 25.14 minutes (95 percent CI, 24.49–25.78 minutes), and the median was 16.52 minutes (95 percent CI, 9.62–29.61 minutes). Figure 4.2 shows travel habits among individuals taking a taxi or rideshare.

There are types of NEMT rides that play to RB-NEMT’s unique strengths and for which the use of RB-NEMT could help satisfy an unmet or poorly met need within the NEMT ecosystem. Rides in small towns or rural areas are a notable example of this. NEMT access and options are limited in rural areas (MACPAC, 2021). Currently, TNCs can coordinate service across most of the United States: Lyft alone is available to approximately 95 percent of the country’s population (Lyft, 2019). Consequently, in areas where traditional NEMT, such as public transit and taxi service coverage, is thin or nonexistent, rideshare may already be available and able to provide rides and bolster the NEMT provider network. A challenge with RB-NEMT service (and all NEMT broadly) in rural areas, however, is the fact that rideshare drivers may face an expensive and uncovered trip in one direction if an appointment is far from the pickup location. For example, if the patient lives in a rural area and is going to an appointment in an urban area 150 miles from home, one

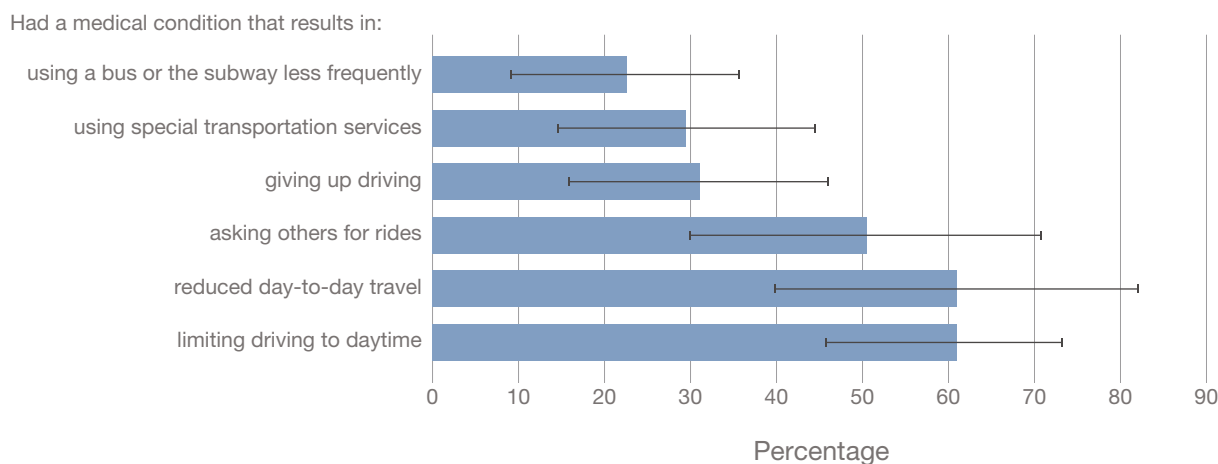
FIGURE 4.1
Mode of Transportation to Health Care Visit



SOURCE: Westat, 2018.

NOTE: $N = 12,180,142,493$ weighted, 3.3 percent of all trips. Health care visits of total visits, $n = 923,572$ (weighted $n = 371,152,000,000$).

FIGURE 4.2
Percentage of Individuals Taking a Taxi or Rideshare Who Have a Medical Condition or Handicap Affecting Their Transportation Abilities



SOURCE: Westat, 2018.

NOTE: Horizontal lines represent a 95-percent CI.

rideshare driver may drive them there, and another may drive them home.¹ The rideshare driver driving *to* the appointment may have difficulty finding a ride going back to the small town, and the rideshare driver driving *from* the appointment may have difficulty finding a rider who needs to go back to the urban area. In each case, the driver risks what is known as a “deadhead.”² Given the lack of access to health care services in many rural areas, NEMT programs may consider covering the driver in both directions of a ride (thereby providing payment for any deadheading) or, for some health services that take less than half a day, covering the rideshare driver’s time while they wait and provide service in both directions.

In-patient and outpatient discharges are also an excellent match for RB-NEMT services. Patients and providers rarely know exactly when a patient will be discharged. Often the decision is finalized day of, and exact timing can be difficult to anticipate. But because a TNC’s business model involves providing access to transportation on demand, a ride can be requested and arrive shortly after the discharge decision is made. Such nimbleness also saves money in the cost of care: Anecdotally, an interviewee referenced patients who remained in the hospital for extra days and another who rode home in a limousine because of local NEMT service snafus. Both resulted in unnecessary costs. Discharging patients promptly also allows the medical facility to accept new patients that they may otherwise be unable to treat.

Similarly, RB-NEMT is well suited to meeting last-minute NEMT requests,³ for instance, when an appointment is scheduled less than two days in advance⁴ or when another type of NEMT missed a pickup or has a no-show (known as a “recovery ride”). Unlike traditional NEMT services, which can require notice ranging from days to weeks in advance of the ride, rideshare can be arranged in minutes. Similarly, RB-NEMT can be

¹ This may seem unusual, but a parent of one of the authors of this report makes a trip longer than this every six months to see a specialist.

² *Deadheading* occurs when the vehicle has no passenger or cargo. It becomes problematic when the driver must travel a considerable distance to pick up a passenger.

³ Within NEMT, *last minute* can refer to same-day or next-day trips.

⁴ This might occur because of the development of a nonemergency but time-sensitive health issue, or a last-minute opening, getting off a waitlist, among other scenarios (MACPAC, 2021).

called into action during surges of need or high-volume periods. Off-hour rides, such as late-night hospital discharges, are also a key need RB-NEMT can fill (MACPAC, 2021).

Interviewees were split over the utility of RB-NEMT for regularly scheduled rides—for example, for mental health treatment or dialysis. Some felt that TNCs' digital infrastructure made it easy to book regular rides for an individual. Additionally, using RB-NEMT for regular travel by low-needs individuals (e.g., those traveling to a methadone clinic) freed up other NEMT resources for those who need more in-transit care. Others preferred to use NEMT services where the rider would get the same driver every time. This was especially useful if the rider had the potential for medical complications and a regular driver could be aware of the medical condition and trained to recognize signs for concern. Taking this into account, RB-NEMT may be best suited for regular rides where the patient not only requires no to minimal assistance (as discussed in Chapter Three) but also where they would not require monitoring.

Interviewees from several states noted that RB-NEMT was excellent at increasing system robustness. Because the pool of rideshare drivers is highly likely to exceed NEMT needs in a given locality, rideshare drivers provide a release valve for any strains created when NEMT demand exceeds traditional NEMT supply. Additionally, vehicle type assignment is optimized because those who can use traditional passenger vehicles are assigned to rideshare, leaving specialized vehicles (e.g., handivans, wheelchair-accessible vehicles) and drivers with medical training (both of which are likely to be in shorter supply than rideshares) to individuals who specifically need specialized support.

RB-NEMT may be particularly synergistic in producing positive outcomes in association with specific treatment programs and other social services. For example, a study on HIV treatment found that an NEMT initiative with on-demand D2D transportation services in association with other care services improved patient retention (Solomon et al., 2020).

Finally, rideshare experiences acquired through RB-NEMT may make individuals more comfortable with using rideshare services in general. This increased comfort could come dually from exposure to the service and muting of elements of the service that may deter use. Specifically, discomfort with paying through an app, cited as a barrier for some populations, is not present in RB-NEMT because the individual does not pay for the service (Tooley et al., 2019).

This potential increase in comfort is particularly important for older adults, who may have pent-up transportation needs (Shrestha et al., 2017; Span, 2019). In a 2019 study, 150 older adults were offered unlimited, free-of-cost Lyft rides for three months. Participants took a mean of 69 rides. Ninety percent reported an improvement in quality of life, and 66 percent reported an increase in social visits. One-third of all trips were for medical appointments. Prior to the study, the majority of participants had heard of rideshare, but few had tried it, citing concerns about cost, a lack of familiarity, and discomfort with the concept (Saxon, Ebert, and Sobhani, 2019).

Reciprocally, rideshare may increase interest in and use of NEMT. A focus group from the MACPAC (2021) noted that using rideshare helped normalize accessing NEMT and removed the stigma generated by using traditional NEMT vehicles.

According to the NHTS, rideshare usage is highest among those ages 20–34, with 18.9 percent (95 percent CI, 18.1–19.7 percent) taking at least one ride in the last 30 days. It is lowest among individuals ages 65–79 and 80 and older, with 2.4 percent (95 percent CI, 2.4–2.7 percent) and 1.2 percent, respectively, having used rideshare. Many factors may contribute to older adults being less likely to use rideshare, despite having unmet transportation needs, some of which could be addressed by exposure to RB-NEMT. One unaddressed factor is cost when the older adults themselves are paying (rather than health insurance); for example, in the 2019 study of older adults mentioned above, 80 percent of participants said they would continue to use rideshare services after the study ended, but among those who would not, the main reason was cost. The mean cost per user per month was \$500 (Saxon, Ebert, and Sobhani, 2019).

The benefit of RB-NEMT in increasing general rideshare uptake hinges on three factors: that the individual can afford to pay for rideshare themselves, knows the NEMT ride is a rideshare, and has a positive experience in the rideshare. The first factor involves broader questions of equity and access for the transportation vulnerable. Around the second factor, both research (Eisenberg et al., 2020) and interviewees suggest individuals do not always know that the transportation they are taking is a rideshare as opposed to a taxi. The third factor, the user experience, is discussed in Chapter Five.

BOX 4.1

Chapter Four: The Bottom Line

- Generally, all NEMT rides would be appropriate for rideshare. This contrasts with the results from Chapter Three, which described riders who would be inappropriate for rideshare.
- But there are some rides that work particularly well for RB-NEMT: urban rides, situations in which the timing of discharge is uncertain, rides during peak hours, situations in which the scheduled option was late or a no-show, and last-minute rides.
- It is unknown if riders and rides who would most benefit from NEMT and specifically RB-NEMT are being routed to that service (Chaiyachati, Moore, and Adelberg, 2018).

Optimizing RB-NEMT Through Policy and Process

The previous chapters discuss when, where, and for whom rideshare has the potential to improve NEMT. But realizing this potential hinges on rideshare services not just providing services but providing them successfully. Although there are established measures of success for NEMT, using those measures, especially in research, remains difficult. Part of this difficulty stems from the diversity of ways that NEMT is implemented in research and in practice and the need to match service level with personal needs and resources. The net result is an unusual situation where positive indicators of RB-NEMT performance are likely to be valid (if potentially not generalizable beyond the TNC and the program's specific circumstances). However, negative indicators of RB-NEMT performance could be valid or could be confounded by a program where uptake or effect was minimal because the type of NEMT service was not matched with need.

Defining NEMT Success

Success is measured differently depending on the stakeholder. Some differences are artificial—NEMT that is punctual means that more patients will show up for a ride and arrive on time for their medical appointment. This is good for patients, clinicians, regulators, and drivers. But some broad distinctions can be made by stakeholder group.

Patient and Provider-Oriented Measures of Success

Measures of NEMT success range from service-based (e.g., on-time pickup, on-time drop-offs, customer satisfaction, customer complaints) to process-based (e.g., reduced cost of care, reduced in-patient services, reduced intensiveness of services) to outcome-based (e.g., healthier beneficiaries). Outcome-based measures around patient well-being are unavailable, likely because such research would be difficult to conduct without randomizing people to types of transportation service, which would be unethical. But it is reasonable to suspect that more primary care and less emergency care would result in better patient outcomes.

Process-based measures require a clear link between reduced transportation barriers and greater and/or more regular primary and preventative care. This link can be difficult to establish because of the variety of other barriers present and the analytical complications of accounting for severity of illness. A pilot study with a health system in Washington, D.C., published by Lyft, however, found that using RB-NEMT services to get Medicaid beneficiaries to urgent care, follow-up, and prenatal appointments led to a 40 percent decrease in emergency department use and a 12 percent decrease in ambulance use (FierceHealthcare, 2020).

Around service-based indicators, initial studies on RB-NEMT services and their effect on such outcomes as missed or late appointment pickup or customer satisfaction are mixed. For example, the two-month pilot with Lyft and CareMore referenced in Chapter One saw a 30 percent decrease in wait time for patient pickup and an 80 percent increase in satisfaction, according to CareMore researchers (Powers, Rinefort, and Jain, 2016; Powers, Rinefort, and Jain, 2018). A pilot of the managed care provider Centene's users saw that RB-NEMT (administered by Lyft) had an average wait time of seven minutes compared with 28 min-

utes for traditional NEMT, and a difference-in-difference analytical approach in Philadelphia found fewer missed appointments in patients who used RB-NEMT services (Chaiyachati et al., 2018b). A study using an intent-to-treat design in Philadelphia found that RB-NEMT did not decrease missed appointments of Medicaid recipients (Chaiyachati et al., 2018a), although the authors of that study note that they obtained information on rideshare benefit eligibility. Another study, in an unnamed northwestern U.S. state, found an increase in the percentage of missed and late pickups associated with an increased percentage of RB-NEMT rides—although it is unknown if the missed ride itself was an RB-NEMT ride (Eisenberg et al., 2020). There was no reported difference in user feelings of safety, driver courtesy, and vehicle condition associated with RB-NEMT experience (Eisenberg et al., 2020).

Another service-oriented definition of success may include how easy it is for users (MA and Medicaid beneficiaries who qualify for NEMT) to access NEMT plan benefits. This is a concern for NEMT broadly. As a 2016 GAO report stated:

Coordination of NEMT programs at the federal level is limited, and there is fragmentation, overlap, and the potential for duplication across NEMT programs. As a result, individuals who rely on these programs may encounter fragmented services that are narrowly focused and difficult to navigate, possibly resulting in NEMT service gaps (Yocom and Goldstein, 2016a, p. 6).

Multiple interviewees noted a cumbersome, burdensome system for requesting NEMT can itself deter use. Because the system to request a ride is located at the state level rather than the provider level, as the system currently stands, TNCs would not differ from other providers. However, such opportunities as an app-based system for tracking rides once the ride is booked, as occurs in RB-NEMT, could benefit the beneficiary.

Perhaps the most basic measure of success is the percentage of individuals who need NEMT and get NEMT. An important component of this measure is the beneficiary knowing that NEMT is available and knowing the procedure to access it. According to a survey by Evidation Health, a health data company, in partnership with Lyft, only 29 percent of Medicaid beneficiaries eligible for NEMT are aware of the benefit (Evidation Health, 2021).

Regulator-Oriented Measures of Success

In addition to patient-oriented measures of success, it is also important to consider success in terms of issues related to fraud and abuse.¹ NEMT has a checkered history in this area (Yocom and Goldstein, 2016b), as discussed in Chapter One. For example, in 2018, New York State noted crimes ranging from falsifying health care records and business records to bribery in relation to NEMT (U.S. Attorney’s Office Northern District of New York, 2018). GAO noted vulnerabilities in terms of how NEMT providers were selected, how NEMT was administered, and how eligibility was verified for patients (Yocom and Goldstein, 2016b), a concern supported by interviewee anecdotes of systemic misuse. Although RB-NEMT cannot address issues at the state or programmatic level, interviewees hypothesized that RB-NEMT helped reduce the opportunities for fraud and abuse by providing a clear, GPS-tracked, and easily accessed and understood digital paper trail of pickup and drop-off. Because RB-NEMT rides generally cost the market rate for rideshare (as would be visible to any user on the rideshare platform), TNCs bring an extra element of transparency to NEMT administration.

¹ Interviewees stated that most of the fraud and abuse was not perpetrated by patients themselves. As one stated, “Patients don’t abuse these services often. People view these as precious resources, and they don’t want to lose it.”

Driver-Oriented Measures of Success

Finally, success can be defined according to the RB-NEMT driver. It is plausible that the types of patients who use RB-NEMT are different than self-paying rideshare passengers. Although drivers are unlikely to be able to precisely identify an RB-NEMT user, they may be able to make inferences based on the ride being prebooked and the patient requesting a drop-off or pickup at a medical facility. Interviewees suggested that these rides may be less desirable for drivers because patients do not always show up for booked rides. These rides may potentially also be less lucrative because there is currently no mechanism for the driver to receive a tip. And longer rides may involve a rural destination, in which case, as discussed in Chapter Four, the driver ends up far from the next potential customer. Additionally, riders may request assistance that the driver may be uncomfortable providing (Olson, 2016).² Offering rideshare drivers a financial incentive to provide transportation to RB-NEMT users undermines one of the major reasons for TNC use (e.g., their relative low cost compared with taxis and other forms of NEMT) and risks identifying passengers as RB-NEMT users. Still, if rideshare is indeed so much cheaper than traditional NEMT, possibly some of the marginal savings could be put toward driver pay, such as an automatic tip paid by the booker (i.e., Medicaid or MA) for RB-NEMT passengers.

Across all measures, research into RB-NEMT outcomes has faced methodological challenges. Variation between study results can stem from study design, changes over time, differences in study rigor, time of TNC's implementation of NEMT services (e.g., do they focus only on NEMT [e.g., Veyo] or are they offering NEMT in tandem with general transit services [e.g., Lyft and Uber]?), the TNC's breadth of network, among other variables. More specifically, variation can result from the following scenarios:

1. TNC performance and user experience differs between TNC providers (e.g., Lyft, Uber, Veyo), so results from a specific TNC may not be generalizable to other TNCs. Similarly, services evolve greatly over time—results from when RB-NEMT services are first introduced may not reflect services one year later.
2. Variations in how states administer NEMT benefits (Chaiyachati, Moore, and Adelberg, 2018) and how the program performs (Buderi, 2020) constrain the external validity of study results and make it difficult to reach sweeping programmatic conclusions. These variations can result in different performance outcomes by the same TNC between states (Louisiana Department of Health, 2020).
3. Data need to be on the trip level—and related to trips actually taken (or scheduled or attempted)—to clearly establish a link between the type of NEMT and results. Such data are difficult and resource-intensive to obtain.
4. Much of the research that is uniformly positive around RB-NEMT has been published with limited details by industry or industry-affiliated groups. Conversely, research showing mixed or negative results is generally published in technical journals, where it is easier to identify limitations and methodological shortcomings. Consequently, it is easier to identify the shortcomings of research showing mixed or negative results compared with uniformly positive results. The results from Chaiyachati et al. (2018a and 2018b) and Eisenberg et al. (2020) suggest the importance of matching patient service-level needs (e.g., D2D, H2H) to the service level provided.

² Both Lyft and Uber have sought to recruit older adults as drivers. Ergo, it is possible the driver may not be physically able to provide assistance, even if they were comfortable. This is a concern for general rideshare use. One method of counteracting it, already in use, is to allow the rider to state they require assistance when summoning the vehicle.

Transportation as a Health Issue

Between 10 percent and 51 percent of patients cite transportation as a barrier to accessing health care (Simon and Fishman, 2018). Additionally, a 2013 review found more than 60 studies supporting the assertion that transportation can present an important barrier to accessing health care (Syed, Gerber, and Sharp, 2013). Yet transportation is not always seen as a health issue. As one interviewee said, “From a political viewpoint, there is a dissociation between transit and access to care.” Although there are many barriers to accessing health care, providing transportation is both basic and low-hanging fruit. HHS, the American Hospital Association, and others have explicitly classified transportation as a social determinant linked to health costs and health outcomes, along with other social determinants, such as health behavior, employment, and education (Health Research and Educational Trust, 2017; Healthy People 2030, undated). Recognizing the important role that transportation plays in accessing health care—and the challenges that transportation presents to many populations—is essential to managing this key social determinant of health.

Transportation insecurity means lacking access to safe, affordable, dependable, accessible, appropriate, and efficient transportation. Factors leading to transportation insecurity range from lack of access to a car to lack of funds to pay for transportation to discomfort over getting into a vehicle with a stranger to an inappropriate fit between available options and personal need (Center for Care Innovations, 2020; Gould-Werth, Griffin, and Murphy, 2018). Transportation insecurity can ameliorate or worsen other types of social risks, such as food insecurity or social isolation, by facilitating or impeding access to resources. Consequently, investments in transportation can have large, positive spillover effects into other social determinants of health.

RB-NEMT and NEMT alone will not solve transportation insecurity. Among individuals with NEMT coverage, transportation barriers to accessing medical care can persist. Especially among those requiring H2H service, some of these barriers relate to logistical issues, including NEMT programmatic oversight and implementation, cumbersome wait times, indirect rides, and difficulty with last-minute appointments (Chaiyachati, Moore, and Adelberg, 2018), and some to the challenge of matching user needs and abilities to transportation amenities. However, RB-NEMT and NEMT provide a conduit to health care for those who may need it most but who can access it least. As one interviewee said:

Transit isn't sexy. . . . The best thing rideshare does for NEMT is it makes it sexy and something to talk about. It's no longer stogy or boring, in the shadows. But it has shone a light on the deficiencies in the system—gives it a glow, changes outcomes, and sheds light. Everyone wants to talk about AI. But it's the stupid stuff that gets people safe, that does the heavy lifting.

Sometimes, all people need to access care is a ride.

The Future of NEMT and RB-NEMT

NEMT requires a careful balancing of the priorities of the payer (MA or Medicaid), the arranger (e.g., brokers), and the user (i.e., MA or Medicaid beneficiaries). For arrangers and payers using RB-NEMT, the benefits include easy monitoring, lower cost, and flexible, on-demand transit to increase system capacity and service areas with otherwise unmet or poorly met needs. But changes could enhance and smooth the interactions between user, ride, and driver needs.

General NEMT Policy Recommendations

Beyond the sensory, cognitive, and physical factors that determine an individual's required level of service, transportation needs can vary. As we articulated in Chapter Two, MA and Medicaid beneficiaries are more transportation-insecure because of logistical and medical factors. These individuals may need programs and assistance like NEMT, which private medical insurance beneficiaries do not require. Given that low-income individuals have a higher likelihood of facing transportation insecurity (Gould-Werth, Griffin, and Murphy, 2018) and such programs as Medicaid primarily cover low-income individuals, it is reasonable to conclude that transportation support would be needed by individuals within these programs, even if it is not needed by individuals in private, employer-provided insurance. Medicaid recipients are more likely than those with private insurance to delay medical care because of a lack of transportation and face transportation barriers to accessing medical care (MACPAC, 2019; Wolfe, McDonald, and Holmes, 2020). A 2017 MACPAC study noted that 2.1 million Medicaid enrollees reported delaying care because of a lack of transportation (MACPAC, 2019). According to the GAO, "Given that transportation limitations can disproportionately affect low-income individuals' access to medical services, Medicaid's NEMT benefit can serve as an important safety net for program enrollees" (Yocom and Goldstein, 2016a, p. 2).

State waivers for NEMT in Medicaid granted by CMS under the argument that private, insurance-based programs do not offer NEMT make a false equivalency. The Medicaid population is not the same as the private insurance population. The former relies on NEMT and faces different barriers to medical transportation. According to the Medical Transportation Access Coalition, 58 percent of surveyed Medicaid beneficiaries stated they could not make it to their medical appointments without NEMT (Medical Transportation Access Coalition, 2018). They also have different functional health statuses, as Figure 2.1 showed.

As stated in Chapter One, four states have successfully received approvals for Section 1115 waivers, allowing them to not offer NEMT along with other service changes. But in Kentucky, this waiver was approved and then set aside by federal court. Although the case was complex, a central argument was that the HHS Secretary had failed to consider how such a waiver "would in fact help the state furnish medical assistance to its citizens, a central objective of Medicaid" (United States District Court for the District of Columbia, 2019, p. 3) and a standard for waiver approvals. This is a stark reminder that Medicaid, and Medicare, are meant to ensure that individuals can access health care and that services supporting access are central to this goal; sometimes in the rush to cut costs or achieve other policy or political goals, this is forgotten.

Additionally, NEMT is not an expensive benefit: One interviewee put the average ride at \$25 at the unit level. This cost compares with the costs of missed medical appointments, pegged by an industry publication as \$200, or emergency room visits, at an average of \$530 (Moore and Liang, 2020).³ The codification of NEMT as a benefit ensures that CMS does not save a little immediately only to spend much more long-term.

RB-NEMT Policy Recommendations

RB-NEMT has been incorporated into the Medicaid NEMT benefit in at least 17 states and the District of Columbia. Barriers are inconsistent: There is no one standard reason for why RB-NEMT is allowed to operate in some states and not in others. Barriers may relate to state-specific requirements about the driver, vehicle, and/or entity. Broadly (not specific to NEMT), TNCs, in most states, are authorized and operate under a statewide legal framework to ensure safety, consumer protection, and alignment of TNC operations with the state transportation regulatory authorities. However, in some states, there may be gaps and inconsistencies between the state NEMT requirements and the TNC requirement (Texas A&M Transportation Institute, undated), making it difficult to use rideshare as a Medicaid NEMT provider. More generally, a nonindustry subject-matter expert referenced entrenched vendors as a barrier. They also referenced the uniqueness of an

³ If the service level matches individual needs and if fraud, abuse, and overuse are prevented.

NEMT compared with other forms of transportation, with the concomitant suggestion that specific systems should be dedicated to NEMT—and it alone. The newness of the technology, along with the idea that a service provider that supplies both NEMT and non-NEMT rides, may present a point of tension with traditional service providers.

Ideally, RB-NEMT maximizes the system’s ability to meet all patient needs by allowing traditional NEMT to focus on those rides and riders for which RB-NEMT is not appropriate. This requires two steps:

One, RB-NEMT is allowed to operate in a state. The difficulty of removing barriers in state policy to RB-NEMT varies by how NEMT is administered (e.g., by a statewide broker, by a state agency) and how NEMT policies are framed.⁴ To removing barriers, states generally should

- Develop a parallel set of requirements specific to TNCs. This approach is easy to tailor to TNC capabilities.
- Create a new provider type and map the requirements of that provider type to the statewide legal framework for TNCs already adopted in the state so that TNCs can provide RB-NEMT. This approach may be simplest.
- Exempt TNCs from requirements.

Exemptions for rideshare drivers often include background checks, incident reporting, and training (MACPAC, 2021). Regarding training, over time, demand for D2D and H2H transportation may grow because of the aging of the U.S. population. TNCs may explore a tiered rideshare system, possibly starting with the four levels of service described in Chapter Three, where riders could request a driver with specific expertise, willingness, and/or strength in lifting wheelchairs, helping users into and out of the vehicle, and the like. Such programs may be useful for RB-NEMT but also for self-paying users.

Two, a detailed system is put in place at each dispatch center to assess and understand user and ride requirements and then match them to available resources. How a profile of services is generated and matched to profiles of patient need varies by state. Generally, this is the responsibility of CMS, state and local Medicaid agencies, brokers, and commercial MA health insurance plans. For example, users who need drivers with medical training are identified and matched with a credentialed driver who has received training. Users who do not need this level of service are matched with drivers without this credential. Matching transportation services with user needs will generate a more cost- and resource-efficient system overall.

Because RB-NEMT is responsive to user demand, patient need, and provider scheduling, those who can use it can take advantage of its benefits, such as being able to access last-minute medical appointments. However, there is a risk of an unequal system, in which those who can use RB-NEMT get easy, on-demand transportation, while those belonging to more difficult-to-serve and expensive-to-serve populations (e.g., those with poly-morbidity or children) are left with a system that is increasingly cumbersome. CMS, state and federal policymakers, TNCs, NEMT brokers, and other providers could work to explore how elements of the TNC operability can be extended to provide rideshare-like services to those who cannot use rideshare or to increase the level of access to health care for those for whom RB-NEMT is not an appropriate mode of transportation.

NEMT itself is understudied. On top of this, because TNCs are relatively new compared with the life cycle of NEMT, more research on outcomes of RB-NEMT, notably experimental or quasi-experimental studies, is needed. Supporting research about the short- and long-term effects of RB-NEMT on users and on the NEMT system broadly would yield a better understanding of best practices. This is especially important

⁴ NEMT regulation can be dictated statutes, regulation, Medicaid guidance, provider handbooks, and the like. Each of these present a different kind of barrier.

because TNCs, as technology companies, are rapidly developing and deploying new products. In just a few years, much has changed and improved with the use of TNCs across the country in NEMT. The four levels of service could serve as a broad framework to drive more research and to think about best practices. Other important research areas include understanding how the rideshare model can be used to deliver needed health-related goods and medical services to individuals who cannot travel. These could and have ranged from food-delivery services to rideshare companies working with care providers to deliver medications and provide meals and perform wellness check-ins.⁵

Broad recognition of the key opportunities that RB-NEMT offers in the broader NEMT ecosystem will allow it to further grow into its position and allow the ecosystem to realize its advantages. TNCs like Lyft were solicited to contribute to the recent MACPAC report (2021). It will be constructive to involve TNCs along with other NEMT providers in ongoing stakeholder discussions at the state and federal level on issues, such as system integrity.

Additionally, rideshare may have more to offer NEMT beyond literal transportation. Thus far, TNCs have focused on transporting patients. But TNCs have built a sophisticated digital infrastructure that schedules, deploys, tracks, and documents rides. Brokers could work with TNCs to coordinate rides for all patients—those who use rideshare and those who cannot. Broker companies like Veyo and a field of startup technology-enabled brokers, such as Roundtrip, Ridehealth, Saferide, offer a type of technology platform to facilitate all transportation types to some degree. This was apparent when ModivCare (formerly LogistiCare), acquired Circulation as a technology platform. An interviewee noted that they liked using TNCs partially because of the ease of monitoring and documenting—characteristics of the service, not the ride. Expansion could increase system efficiency and decrease fraud.

Lastly, regarding funding and planning for health care access at the state and federal level, there needs to be broad recognition in every organization that directly works on or is adjacent to NEMT of the important role that transportation plays in health and investing in programs that enhance it. Transportation allows individuals to seek emergency and nonemergency care, get groceries, exercise, and meet with friends and family. The need and desire for quotidian travel is fundamental, even during a pandemic. Transportation needs to be recognized as a fundamental component of health care access. MA already provides such service—and Medicaid could too.

Overall, NEMT is a health-care facilitator and, arguably, RB-NEMT is a facilitator's facilitator. In administering NEMT, there is a difference between providing transportation when no other option is available and providing the best and most flexible transportation option available. For NEMT to perform optimally in measures like missed or late medical appointments, the latter should be pursued. Transportation makes a healthy population possible—it is the rails on which the health care system runs. Such enablers as NEMT broadly and RB-NEMT specifically deserve support.

⁵ For example, Uber has worked with Meals on Wheels (Uber, undated).

BOX 5.1

Chapter Five: The Bottom Line

- NEMT and transportation in general is a means to an end: individual health and well-being. It is, however, structured and funded like an end. Like electricity and water, we depend on access to transportation to sustain our daily lives. And like electricity and water, there needs to be broad funding and logistical support for transportation, specifically for vulnerable populations.
- There is evidence that the NEMT benefit is needed by Medicaid and MA beneficiaries to access care and promote positive health outcomes.
- Measures of NEMT success can be defined from the viewpoint of the beneficiary experience, NEMT system, health care system, and driver. Developing and implementing these measures will allow for a better understanding of system changes over time.
- The size of populations needing each level of service is unknown, making it challenging to provide and plan for service. Even the basic definitions of these terms can vary from source to source.
- RB-NEMT could fill a key role in the NEMT ecosystem, making the whole system run smoother and more efficiently.

Data Set Descriptions

We conducted descriptive analyses using data from three nationally representative data sets: HRS, MEPS, and NHTS. All analyses were weighted using analysis weights provided by each survey to adjust for complex survey design, such as differential probability of selection and nonresponse, using SAS Version 9.4.

Health and Retirement Survey

HRS is a longitudinal survey of American adults age 50 years or older and their spouses or partners. The survey is conducted biennially by the University of Michigan through face-to-face or telephone interviews and includes questions across multiple domains, such as demographics, health status, family structure, and disability (Juster and Suzman, 1995). We used publicly available data from the 2016 survey, which contains a sample of 20,912 respondents from 15,023 households. Our final analytic sample comprised 19,929 respondents with positive, nonzero weights. All analyses were adjusted using the person-level weight, variance-estimation stratum, and primary sampling unit.

Variables

- **Age.** Respondent age in years was calculated using birth month and year and the interview date from the Tracker file. The date of birth was set to the 15th. If birth month was missing, but year was given, we set the birth date to July 1 (Bugliari et al., 2018).
- **Driving measures.** In 2016, the alternate wave flag was not set to ask questions related to respondents' ability to drive, access to a vehicle, and recent driving behavior. The non-missing driving variable from 2014 was assigned where missing.
- **Living alone.** We defined *living alone* as not married or living with a partner, relative, or other unrelated adult. Nursing-home residents were considered not living alone.
- **Functional limitations.** Respondents who answered "yes" or "can't do" to activities of daily living items were set to having difficulty. Instrumental activities of daily living items were set to having difficulty if respondents answered "yes" or "can't/don't do" because of a health or memory problem. Respondents who answered positively to any activities of daily living, instrumental activities of daily living, or other functional-limitation items were flagged as having any functional limitation. Otherwise, if at least half of the functional limitation items were completed and all were marked as "no," respondents were flagged as having no functional limitation. For select variables, it was assumed that, if respondents had no difficulty completing a more strenuous activity, they would have no difficulty performing a similar, less difficult task. For instance, if a respondent reported no difficulty walking several blocks, it was assumed that they would have no difficulty walking one block.
- **Visible public transportation stops.** The household-level interviewer observation questionnaire asked whether there were public transportation stops on streets visible from respondents' homes. The ques-

tionnaire was completed by the interviewer during face-to-face interviews at respondents' places of residence. As a result, analyses involving this variable only include the subset of respondents for whom a household-level interviewer observation was available.

Medical Expenditure Panel Survey

MEPS is a nationally representative survey of the U.S. civilian, noninstitutionalized population age 18 years or older conducted by the Agency for Healthcare Research and Quality. The survey uses an overlapping panel design to collect information on health care use and spending over two full calendar years (Agency for Healthcare Research and Quality, 2020). Our analysis used data from the 2018 Household Component and was adjusted using the person-level weight, variance estimation stratum, and primary sampling unit. Data were obtained in rounds 3, 4, and 5 of panel 22 and rounds 1, 2, and 3 of panel 23. The sample comprised 30,461 persons from a subsample of households responding to the previous year's National Health Interview Survey. Our analytic sample comprised 29,415 respondents with positive, nonzero weights.

National Household Travel Survey

NHTS is conducted by the U.S. Department of Transportation to understand the daily travel behaviors of the U.S. civilian, noninstitutionalized population age 5 or older (Westat, 2018). For our analysis, we linked data from the 2017 Household, Person, and Trip files to describe the relationship between select household, personal, and trip characteristics. Our analysis comprised 264,234 respondents and 923,572 trips. Estimates of personal characteristics, such as demographics and medical conditions, were adjusted using person-weights; while estimates of trip characteristics, such as reason and mode of travel, were adjusted using trip-weights.

Expert Contributions

Semistructured interviews ranging from a half hour to two hours were conducted by teleconference with a diverse group of stakeholders in summer 2020. These experts were identified through literature scans and suggestions from NEMT policymakers and stakeholders. Experts were also identified through a “snowball” technique, where initial experts suggested future study experts. Subjects were promised that what they said would not be attributed to themselves or their organizations. We took notes during the otherwise unrecorded conversations. Interviewed participants were recruited by email. In almost all cases, people who responded to the outreach agreed to be interviewed; some people never responded. The questionnaire was pilot tested within RAND and with a TNC.

We are grateful to these subject-matter experts for sharing their expertise and experience. Constituting a purposive sample, these experts were selected based on our own professional knowledge and suggestions from the sponsor, including participants in the NEMT industry, government, and researchers. Among state government, there were efforts to interview experts from states where rideshare could offer NEMT and where it could not. In addition to some interviewees who preferred to remain anonymous, affiliations include Faegre Drinker Consulting, Virginia Department of Medical Assistance Services, Anthem Florida Medicaid (Simply Health Plans), Health Plan San Joaquin, University of Pennsylvania, Nevada Department of Health and Human Services, Veyo, Lyft, TennCare, and an individual formerly with LogistiCare.

Abbreviations

A2A	area-to-area
C2C	curb-to-curb
CI	confidence interval
D2D	door-to-door
GAO	U.S. Government Accountability Office
H2H	hand-to-hand
HHS	U.S. Department of Health and Human Services
HRS	Health and Retirement Study
MA	Medicare Advantage
MACPAC	Medicaid and CHIP Payment and Access Commission
MEPS	Medical Expenditure Panel Survey
NEMT	nonemergency medical transportation
NHTS	National Household Travel Survey
RB-NEMT	rideshare-based nonemergency medical transportation
TNC	transportation network company

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