Addressing Infant Mortality Through Improved Non-Emergency Medical Transportation

The Ohio State University
School of Environment and Natural Resources
EEDS Capstone—The Smart Columbus Project
USDOT priority 2.1.1.3.3: Prenatal Trip Assistance

Sarah Davis | Allison DeLong | Madeline Goebel | Zach Horn | Tory Roland

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Executive Summary

This report is the product of a senior capstone course at The Ohio State University for students of the Environment, Economy, Development, and Sustainability (EEDS) major. In collaboration with The Smart Columbus Project, a regional initiative to reinvent mobility and provide safe and reliable transportation for the city's residents, we have investigated the infant mortality crisis in Columbus and the importance of non-emergency medical transportation (NEMT) as it pertains to the issue. This project addresses USDOT priority 2.1.1.3.3, "Prenatal Trip Assistance," which aims to bridge the gap between healthcare providers, expectant mothers, and NEMT services in Linden. Using benchmarking as our main form of analysis, we studied a collection of companies (LogistiCare and Veyo), cities (Baltimore, MD), and states (Washington and Tennessee) that coordinate or provide NEMT services or have similarly faced infant mortality as a problem in their location.

From the beginning of our research, we realized that the NEMT system is complex, resulting too often in unreliable transportation services that are unable to connect new and expectant mothers to the healthcare they require. Our research goal was to better understand the issue of infant mortality and the importance of transportation, as well as to recommend an improvement to the current system. In order to adequately bridge the gap between mothers and necessary healthcare, we recommend the city of Columbus execute three principal actions: **(1)** Establish a connection between local organizations dedicated to addressing infant mortality and the NEMT providers. While our research did not uncover any explicit examples of how changes in transportation may improve infant mortality, creating a channel for mothers to access the resources that are solely dedicated to the issue could help establish a more direct link between the two. **(2)** Offer priority rides to new and expecting mothers. By prioritizing these mothers, the city

can make it clear that the new pilot NEMT program incorporates their needs and concerns, while lessening the likelihood of negative impacts as the program is established. **(3)** Provide an improved channel of communication between patient and driver.

One of the main issues hampering the success of many NEMT programs is the disconnect that exists between the patient and driver. The implementation of advanced monitoring tools in conjunction with a more transparent channel of communication between the two parties that facilitates an ongoing dialogue would allow mothers to access the healthcare services they need in a timely, reliable manner. It is our sincere hope that the research and recommendations we have provided are able to positively impact the lives of new and expectant mothers in Linden and Columbus as a whole, propelling the fight against infant mortality forward.

Introduction

In winning the Smart City Challenge in 2016, the city of Columbus has a unique opportunity to address a pressing local issue — the infant mortality crisis. Columbus has one of the nation's highest rates of infant mortality which can be partly attributed to expectant mothers not receiving the prenatal health care they require. This issue is of particular importance to the residents of Linden, a north-central Columbus neighborhood that has struggled with unreliable transportation under the current Franklin County non-emergency medical transportation (NEMT) model. One of the main goals of the Smart Columbus vision is to connect Columbus residents to safe, reliable transportation that can be accessed by all. Better access to transportation has the potential to significantly improve the lives of new and expectant mothers of Linden.

Therefore, the purpose of this benchmarking analysis is to assist the Smart Columbus team in providing adequate and reliable transportation for new and expectant mothers of Linden. Through comprehensive online research and informative interviews with key stakeholders, our team has developed a greater understanding of the infant mortality crisis in Columbus and the workings of the NEMT system as it operates here and across the country. This is an inherently complex system that can be confusing to coordinate from the patient perspective, often amounting to unreliable service and poor customer outcomes. To better serve these mothers, it is our recommendation that the city of Columbus execute three principal actions:

(1) Establish a connection between local organizations dedicated to addressing infant mortality and the NEMT providers

(2) Offer priority rides to new and expecting mothers

(3) Provide an improved channel of communication between patient and driver

Methodology

We started this project by establishing a baseline of information for the infant mortality crisis in Columbus. To do so, we gathered relevant statistics and reached out to local organizations that strive to combat the issue, including Moms2B and CelebrateOne. Next, we investigated other cities and states that have worked to decrease their infant mortality rate and establish new forms of NEMT services. These different states or cities were chosen for our benchmark because they were either suggested by Smart Columbus representatives or our team recognized that they provided a holistic approach in addressing these issues. We also researched NEMT companies, focusing on LogistiCare and Veyo, and what their company models are, keeping in mind they might need to transport mothers from neighborhoods of risk to their medical appointments. Our main methods of data collection were online research and interviews with key informants. With this information, we identified ways in which the NEMT model in Columbus could be altered based upon the successes and failures of the cities, states, and companies we benchmarked.

Infant Mortality in Columbus

The current rate of infant mortality in Linden ranks among the highest in the country, measured at 17 deaths per 1,000 live births as of 2016 (City of Columbus, 2018); this was a significant decrease from the previous measure of 28 from 2007 to 2011 (CelebrateOne, 2016). In the greater Franklin County area, the change between these years was from 10 to 8 deaths per 1,000 live births, with 2 to 3 babies dying before the age of one each week (CelebrateOne, 2016). Premature births are the leading cause of infant death, with birth defects being the second leading
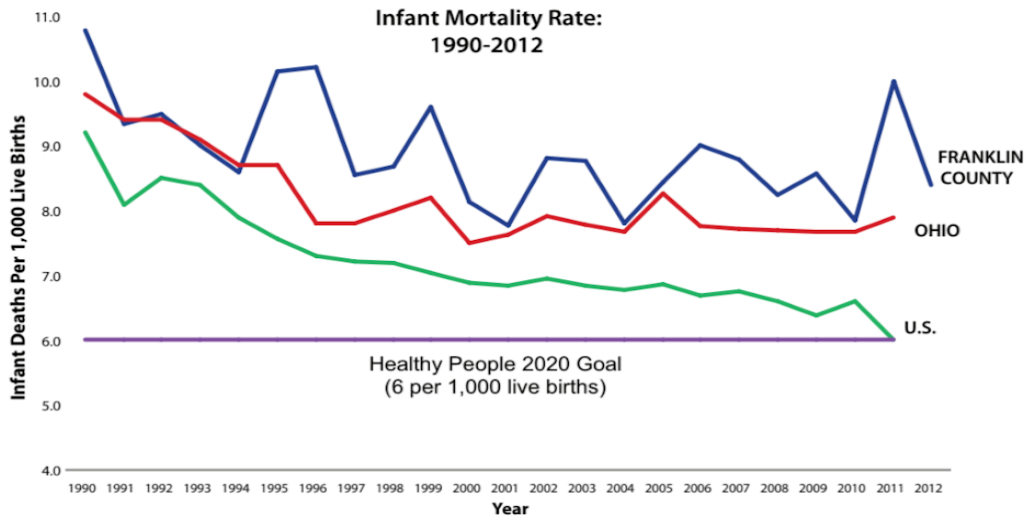
Figure 1: Graph comparing infant mortality rates in Columbus, Ohio, and the United States

cause (CelebrateOne, 2016). This issue has persisted over decades and is a problem that different governmental and non-governmental organizations continue to address. Some of the initiatives and programs that have been created to target this problem include the CelebrateOne organization and their Safe Sleep Ambassadors initiative, the Ohio Better Birth Outcomes Collaborative, the South Side Network for Healthy Families & Babies, and the Ohio Equity Institute - Columbus.

Current NEMT Model in Franklin County

For many Medicaid recipients, the Department of Jobs and Family Services (DJFS) is responsible for the administration of NEMT services in Franklin County. To schedule an NEMT ride, patients are required to contact the DJFS no later than 24 hours or one business day prior to the day of the scheduled appointment (Franklin County). Trips are scheduled over the phone and the patient must be prepared to leave at least one hour prior to their appointment time, as the taxi cab driver may arrive at any point during that window (Franklin County). To secure a ride home from the appointment, the patient is given a paper return slip by the cab driver so that they may

summon a cab when they are ready to leave their current location. Patients are specifically advised to contact the DJFS if a cab has not arrived within a half hour of their scheduled appointment time, rather than directly communicating with the taxi cab company (Franklin County). A similar process is followed for patients who schedule transportation through their managed care providers, as well as when they communicate with a NEMT broker service.

With this current model, there is an evident lack of transparency from the patient perspective that too often results in missed medical appointments. While the DJFS advises patients to be prepared to depart for their appointment ahead of time, this simply may not always be possible for mothers due to a variety of different circumstances. Even if a mother is prepared with time to spare, there is no targeted pick-up time but rather a window, and there is still the possibility that the cab may not arrive on time or at all. This broken chain of communication, in addition to lack of proper technology and monitoring tools, is severely impeding the success of NEMT services in Franklin County.

<u>Results</u>: Private NEMT Companies

<u>LogistiCare</u>

This Atlanta based company is the largest NEMT service provider in the United States. Currently, they have 250 active contracts in 39 states and Washington, D.C. Like many other private NEMT service providers, LogistiCare primarily contracts with managed care organizations (MCOs), healthcare companies, state-run agencies, cities, hospitals and university networks. Due to the complex logistical ties associated with providing NEMT services, few large private firms exist in the marketplace.

When LogistiCare is contracted, they become responsible for scheduling trips, operating a call center, addressing complaints and provider performance issues and maintaining a database with trip level data (Watkins, 2015). Unlike o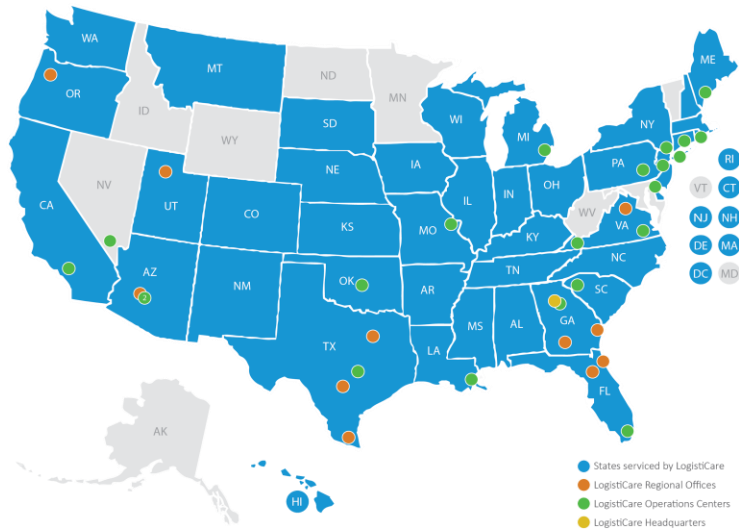ther NEMT service providers, LogistiCare does not individually own their own fleet of vehicles but must instead subcontract with independent

Figure 2: Map of LogistiCare's active contracts

vehicle brokers. The appeal of bringing in these third-party vendors is that with their large amount of resources and technology, they will be better equipped to efficiently schedule rides and reduce costs. To increase their fleet availability and improve ride satisfaction, LogistiCare has partnered with the rideshare company, Lyft, in 276 cities (Hensley, 2017). They hope that the large rideshare company can provide better logistical services and driver tracking technology to improve service and decrease the number of missed rides.

LogistiCare has several NEMT service contracts with individual States such as Virginia and New Jersey. As most states heavily fund NEMT services through Medicaid, NEMT brokers, such as LogistiCare, are contracted through agencies such as the Virginia Department of Medical Assistance Services to lend their resources and expertise to reduce Medicaid spending (Watkins, 2015). In terms of compensation, contracts vary between States with the structure of payment and performance standards that must be met, but consistently it is based on the number of Medicaid members the State serves and not the number of rides they provide (Watkins, 2015). This

payment structure is also known as being "capitated," which means that LogistiCare or any other NEMT broker that is contracted is paid a set amount based on the number of enrolled members whether they use the NEMT service or not (Watkins, 2015). Certain standards that states stipulate within NEMT contracts include; promptness, trip fulfillment, call center operations and safety.

In their most recent plans for 2018, LogistiCare plans on expanding their GPS tracking technology to allow real-time monitoring of vehicle locations. Their proprietary software known as "WellRyde" optimizes trip routes and helps to improve patient pickups. The company hopes to implement some sort of tracking capabilities within 90% of its vehicles by the end of 2018 to improve oversight of transportation providers (Williams, 2017).

Even though LogistiCare boasts having a "99% complaint free program" in both their Virginia and New Jersey contracts, there is contrary evidence. Like many other NEMT service brokers, LogistiCare consistently receives complaints about drivers being late, not showing up, unfulfilled trips and issues regarding the drivers themselves (Watkins, 2015). An example of this is represented in Figure 3, as LogistiCare's unfulfilled trip rate steadily increased from 2013-2015 under the performance standard measure that was set with their Virginia contract. Due to similar
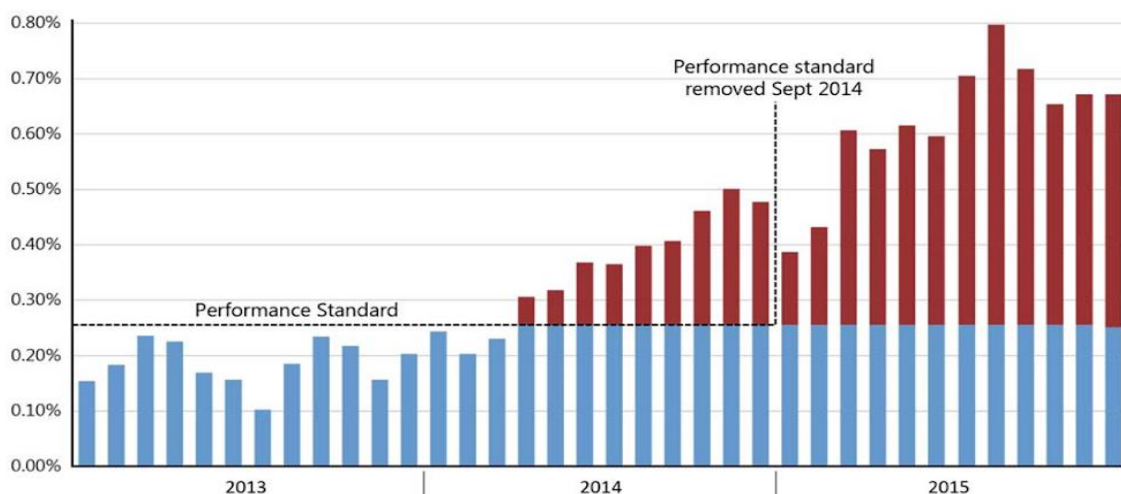

Figure 3: Graph depicting LogistiCare's unfulfilled trip rate and performance standard in Virginia

complaints in Connecticut, LogistiCare lost their contract with the state when they issued a new RFP back in 2017 (Lender, 2017). Even in New Jersey, where LogistiCare operates at the statewide level, the Mental Health Association of New Jersey published results of a Medicaid survey saying that respondents found their service "unreliable and too often arriving late or not showing up at all" (Lender, 2017).

Veyo

Veyo is one of the main brokers of NEMT services in the country, providing around 14,000 rides on an average day (Baum, 2017). They are headquartered in San Diego, CA, with three other regional offices in other states. They currently contract out in the following eight states: Arizona, California, Colorado, Connecticut, Florida, Idaho, Michigan, Texas, and Virginia, with more contracts opening later this year. They connect Medicaid and Medicare Advantage members with rides to their medical appointments by brokering drivers from their network of driver-providers either from Uber/Lyft or independent drivers who apply directly to Veyo through their website, and third-party commercial transportation company providers. They utilize booking portals, call centers, appointment reminders, apps for both drivers and members, and complaint management as part of the services they provide for their customers and drivers.

Their model utilizes a more flexible supply during high demand hours than traditional NEMT service providers because they rely on the supply of other companies and independent driver-providers, rather than their own fixed fleet. Since Veyo has different modes of transportation they can assign for each trip (independent driver-providers and more traditional, specialized van-like vehicles from third-party providers), the best mode is preselected ahead of time, along with the specific route the driver will take to deliver the customer to their appointment. Part of this flexible supply rests on their network of driver-providers, who can

choose their own flexible hours, which is something heavily advertised on their website. However, this Uber-like flexibility leads to unreliable drivers and some of the problems and challenges they have come across. An example of this is the trouble Veyo ran into in Idaho; they recently suspended their contract with the state amid an incompatibility between their model and the region and an inability to be a profitable business (Baum, 2017). There were several complaints from customers and other transportation providers from across the state during a public hearing on health and welfare issues (Russell, 2017). While Veyo boasts a (self-reported) 97.1% on time rate, they have come under fire from the various states where they have contracts for missed appointments because drivers didn't show up on time or didn't show up at all, or the customer was taken to the wrong place (Jones, 2018).

Veyo calls itself the NEMT broker in the age of data. This is because they have real-time tracking of their drivers, in part to prevent waste and fraud and to make sure their drivers are following the predetermined route to someone's appointment and not adding time or miles to their trip. This means that if a driver takes a different route than the predetermined one, Veyo is notified immediately because the tracking is live and is ongoing throughout the entire trip. They also have a whole page on their website dedicated to discussing their policy on fraud, waste, and abuse, and have a 24/7, anonymous hotline to report any "wrongful, illegal, or unethical business practices" (Veyo). However, based on complaints against the company from various states, it seems their reliability is not what they make it out to be, and this live tracking is not adequate across all services in different states.

Results: City/State NEMT Models

Tennessee

    The state Medicaid program TennCare in Tennessee signed a contract with the transportation broker Southeastrans in 2008 and resigned under new contract in 2014 (Southeastrans) to provide NEMT services to patients enrolled in the BlueCare and TennCare Select plans. Southeastrans has contracts in 7 states and has a network of more than 350 approved transportation services whom they reach out to in order schedule rides depending on proximity to the patient (Southeastrans). Tennessee's program is a shared-ride service. Southeastrans' service areas within Tennessee are broken up into three regions (Figure 4), each of which have their own respective call centers to provide customers with the best possible service (Southeastrans).

Figure 4: Map showing the service regions covered by Southeastrans in Tennessee

    In addition to scheduling by phone, Southeastrans has a web portal on their website where patients can schedule directly. The company has a separate customer service segment called Where's My Ride that patients can contact the day of their appointment to check on their ride status. Other services offered by Southeastrans include free bus passes to clients in counties with established public transport systems, and reimbursement for the cost of gas if the patient is sufficiently financially strained (Southeastrans).

Complaint	% of Total Feedback
Ride was not on time	49%
Ride never arrived	41%
Rude staff	38%
Unhelpful staff	35%
Poor communication	26%
No reimbursement	9%

Figure 5: Percentage of feedback involving specific complaints from customers

In this case, data related to customer satisfaction and frequency of late rides or rides that never arrived are confidential between the broker and the state Medicaid program. However, significant conclusions can be drawn from customer reviews found publicly online. Southeastrans, Inc. (nationwide) has 97 Google reviews that average out to rating them as a 1.9-star service. Reviews from non-clients, reviews that were not related to Southeastrans' services, and reviews without sufficient feedback were removed, and specific complaints from the feedback were tallied. The most common complaints were not arriving on time, not arriving at all, rude service, unhelpful service, delayed or poor communication between the patient and the driver and company, and no reimbursement of fuel costs or bus passes. As shown in Figure 5 above, nearly half of all reviews cited late or non-arrivals. Many others took issue with customer service often related to their late or missed rides, and a fair number mentioned never receiving their reimbursement for instances where they found rides themselves.

<u>Washington State</u>

The Washington State Healthcare Authority is solely responsible for administering any Medicaid program or service in the state of Washington ("Non-emergency medical transportation"). In 1989, a brokerage model was established for NEMT services and has since become one of the most cost-effective programs in the country. It contracts with six brokers who subcontract more than 170 transportation providers statewide, working to serve more than 30,000

clients each month across 13 geographic regions of the state ("Transportative services"). Since 2011, the NEMT program has focused on improving customer outcomes, customer service experience, and reducing cost. This is being completed by ensuring broker compliance with program rules through performance-based contracts and providing accurate program utilization data to make more informed, strategic decisions ("Transportative services"). The Health Care Authority utilizes an interactive map on its website (Figure 6), allowing patients to simply choose the region in which their county lies and re-directing them to the respective regional NEMT

broker website. Trips may then be booked via phone, fax, or online. Patients may also receive an ORCA card through their NEMT broker, allowing them to use public transit (rail, bus, train, or even ferry) free of charge, obtain vouchers to offset their fuel costs if they have access to a personal vehicle, or receive mileage reimbursement given they are able to arrange a personal ride.

Figure 6: The interactive online map provided by WA State Health Care Authority for patients to easily access transportation broker resources

Baltimore, Maryland, has drastically reduced infant mortality rates over the course of the last decade. In 2009, the city had the fourth highest infant mortality rate in the country; that same year, the city announced an outreach and education program called 'B'more for Healthy Babies. This program focuses on the three main causes of infant mortality: premature birth, low birth weight, and unsafe sleep. Strong community partnerships have been created and utilized to provide healthcare, education, and more through grassroots efforts. The most notable aspect of the program is how holistic it is, including a "Sleep Safe" campaign, anti-smoking and obesity efforts, postpartum depression screenings, free cribs, home visits from health and social services providers, and teen pregnancy reduction (B'more for Healthy Babies, 2016). While results have been seen across the board, the 50% drop in African American infant deaths (B'more for Healthy Babies, 2016) is the most staggering improvement.

Results: Testimonials from Stakeholders
Moms2B: Twinkle Schottke

A part of our fieldwork included attending one of the weekly meetings held by Moms2B as a resource to new and expectant mothers, and to speak to the coordinator and founder, Twinkle Schottke, with regards to how NEMT options can be used to improve infant mortality rates. These meetings happen in 6 target neighborhoods with the highest infant mortality in Columbus, with their mission being "for all participants to deliver healthy, full-term infants that live to celebrate their first birthday" (Moms2B). The sessions are held in a group education setting divided into expectant mothers, new mothers, and a separate fathers group. Skills and relevant information are taught such as breastfeeding, child development, safe sleep, family planning, goal setting, labor and delivery, and stress reduction. The program also focuses on connecting the mothers with

other necessary resources related to them and their child's health. The program has boasted significant improvement in infant deaths in the Weinland Park area, reductions in smoking during pregnancies, increases in breastfeeding, fewer premature births, and improved postpartum depression scores (Schottke, 2017).

As of now, some of the mothers arrive to these meetings via Yellow Cab taxis that Schottke schedules herself and the organization pays for out of pocket. Many others opt for taking the bus or otherwise must coordinate their rides. In our conversation, she noted that transportation is an extreme stressor for many of the mothers not only for doctors' appointments but also for getting to the store for diapers or baby food or accessing other social services that may affect their ability to parent. She feels that some transportation options purported to improve infant mortality, such as a lightspeed rail, are solutions that will help years down the line and not the mothers who need help now. Even with the idea of an on-demand NEMT service, she stresses that drivers need to have compassion and understanding toward issues that at risk pregnant women and mothers with newborns face and consider that perspective when providing them with services. Lastly, she emphasizes that community resources like her organization are what have really been helping mothers on an individual basis, so for the pilot program to frame itself as a direct solution it needs to both advertise Moms2B and other organizations as well as consider them medical destinations for their clients (T. Schottke, personal communication, 2018).

Discussion

As mentioned, the most commonly cited complaint about any NEMT service was that a patient scheduled a ride in advance following the necessary guidelines, but ultimately missed their appointment and was penalized because the ride either arrived too late or not at all. One of the

main reasons for this failure is not enough drivers in general or in their specific area to meet the demand for service. Another problem we sensed was that models often involve a complicated chain of communication between the patient, broker, contracted agency, managed care provider, and the medical professional which creates imperfect information about the scheduled ride. Lastly, communication or information between the patient and their driver is limited or non-existent. This means that in the event the driver does not arrive on time for the appointment, the patient does not have the opportunity to arrange for a different mode of transportation. Often there is only a grace period of 15 minutes before a doctor's appointment is considered cancelled, and this can be especially difficult for new mothers because enough cancellations can result in being dropped as a patient.

The strengths associated with more successful services included focusing their values on providing compassionate care as well as logistics and technology, and it seemed the smaller the service area, the better able a brokered agency can arrive promptly and navigate to the destination. The most desired improvement was having the ability to know where a patient's ride is and how far away they are in real time; however, companies like Uber and Lyft that can provide this lack other requirements for being a qualified NEMT service such as specific medical training.

One thing that we continued to come across when researching private NEMT contractors was that they are starting to partner with large ridesharing companies, such as Uber and Lyft. These partnerships are arising due to the tracking software capabilities and on demand response time that these companies can provide to NEMT brokers. Two of the main problems that plague the NEMT industry are improper tracking technology and missed rides that were scheduled by patients in advance; while these partnerships between NEMT brokers and ridesharing companies are still recent, they have already shown promising results in finding a solution to the two

previous problems. Some cases with the Lyft partnership have shown average wait times decrease by 30% and average ride costs have reduced by 32.4% (Castellucci, 2017). Not only are the ridesharing companies providing better pick-up results, but they have also improved the process of scheduling rides. One partnership with MedStar Health has enabled the hospital system to offer a widget on their website allowing patients to request rides for themselves instead of going through multiple chains of communication (Versel, 2018).

Even though both Lyft and Uber offer important resources that can help improve the NEMT industry, they do lack in one key area. One requirement that many NEMT brokers such as LogistiCare and Veyo have is that their drivers be properly trained to handle complex patients that may need additional service. Uber and Lyft do not currently mandate that such training be attained before completing these services, which can potentially be a large problem if not addressed in the future (Versel, 2018). If these large tech companies plan on integrating themselves within the current NEMT system, then mandating proper driver training will be crucial to provide customers the peace of mind that they are in qualified hands.

Challenges

While developing our research plan, we predicted certain limitations and challenges and now having completed the project and reflecting, we certainly experienced a few of these issues. Our first anticipated challenge was adhering to our timeline considering the limited timeframe we were given to complete the breadth of research that this project required. Additionally, relying on our contacts for their technical expertise concerning infant mortality and transportation in Columbus and beyond was another potential challenge as they may not be able to get back to our team within the timeline our course deadlines presented. Throughout the project, we did run into

some of these anticipated challenges. Communication was certainly a challenge for us; reaching out to cities, states, and companies proved difficult as they often either did not get back to us or did get back to us after our project deadlines had already passed. However, we did anticipate this challenge ahead of time, having recognized that these are busy professionals who have their own work and deadlines and are not likely to return calls right away. Because of this anticipation, we spent focused time before one of our key project deadlines reaching out to these contacts multiple times through different forms of communication. This was a challenge for us because we underestimated how long we needed to coordinate schedules and establish an open dialogue with these key contacts and should have allowed for more time to open lines of contact with these key informants. In response, we relied on information found on websites or published in news articles, which was not always specific to the questions we were hoping to have answered. Despite these challenges, our team still feels we provided an excellent scope of research on infant mortality and non-emergency medical transportation for Smart Columbus to base their decisions on in moving forward to address this issue within Columbus.

Recommendations

After a considerable amount of research and collaboration with our different stakeholders, our capstone team compiled a list of our top three recommendations for Smart Columbus. As our team has explained previously within this paper, both the issues of structuring a reliable NEMT service and preventing widespread infant mortality are incredibly complicated and multifaceted problems. However, our team believes that if Smart Columbus takes our research and advice into consideration, not only will NEMT services be better structured and provide more reliable service, but Columbus will continue its path to eliminate the infant mortality crisis.

- Recommendation 1: Form a Partnership Between the NEMT Service and Moms2B

        Throughout our research we could not find explicit plans to tackle infant mortality using improved NEMT methods or evidence showing that these services provide specific support to mothers. If Smart Columbus hopes to reduce infant mortality rates through transportation, it is vital that the third-party company or model chosen to provide these services is connected to organizations that specifically provide resources for new and expectant mothers, such as Moms2B.

        Through this unique partnership, we think that the incoming third-party vendor could have a critical impact on providing transportation for this organization. Our team not only recommends that vehicles used by the third-party vendor advertise for Moms2B (along with other local organizations such as CelebrateOne), but also provide discounted rides for community members attending their meetings. Many women who attend the meetings currently are responsible for paying for their own transportation. Therefore, if the third-party vendor advertises discounted rides for women attending these meetings, then the city can be confident that they are connecting the loop between reliable transportation and teaching new or expecting mothers' proper techniques for healthy childcare.

- Recommendation 2: Priority Rides for New and Expectant Mothers

        We suggest that the pilot program prioritize finding rides for mothers from Linden and other areas with high infant mortality who are in need of transport to pre- and post-natal appointments. Putting mothers at the front of the waitlist will lessen the likelihood that they will be affected by any issues that may arise while the program takes root. This

priority designation will also make it clear that the funding for the new NEMT model is directly incorporating the overall health concerns of new or expecting mothers.

- Recommendation 3: Better Technology to Increase Communication and Information Between Patients and Drivers

    Many problems that exist in the current NEMT industry involve the disconnects experienced by patients and their corresponding drivers. Several opportunities exist in this marketplace for technological innovation that would provide advanced monitoring tools for both the patient receiving the ride and the driver conducting the service. By offering more transparency in the process of scheduling rides and communicating with subcontracting companies, patients could feel safer knowing that their ride will be there for them at the scheduled time. Therefore, we recommend that during the RFP phase of acquiring a third-party broker that GPS or an equivalent tracking technology be an essential feature of the new NEMT platform.

Conclusion

Upon researching multiple case-study companies, cities, and states, and conducting interviews with collaborators, our team was able to derive several recommendations for the Smart Columbus Project to guide them in implementing a new NEMT program that will aid in reducing the systemic issue of infant mortality within Columbus. While our team assembled a large quantity of research to both address NEMT services and infant mortality, gaps in knowledge and problems with current studies exist. Many of the problems in our current research include the lack of specific company information on how they structure partnerships and the specific contract agreements sewn into these deals because of that being confidential information. Also, our team

would have liked to learn more about if other cities or states have invested in better transportation to assist reducing infant mortality or other citywide health issues, but we were not able to find any substantial information on that topic.

Beginning this benchmarking study by reviewing the current NEMT system in Franklin County and the severity of infant mortality in the area, we were able to assemble a more holistic array of research to address our project goals. When researching LogistiCare and Veyo's NEMT platforms, we found how important the role of GPS tracking technology and partnerships with ride sharing companies will be for the future of providing reliable NEMT services. Decreasing wait times, improved customer scheduling interfaces, and reduced costs have all been observed when NEMT service companies have invested heavily in developing a system that better connects its drivers and customers. From our state case studies of Tennessee and Washington, we found how states can efficiently provide NEMT services through their Medicaid programs by strategically segmenting their state into different transportation regions. In our last case study of Baltimore, Maryland, we found how vital it is for cities to establish community-wide programs targeted to help expecting or recent mothers. Through education, medical advice, and teen pregnancy reduction efforts, the city has seen a significant reduction in infant deaths. Finally, through our collaboration of different stakeholders, such as Moms2B, we were given an incredible opportunity to witness first-hand what local organizations in Columbus are doing to fight infant mortality, which played an integral role in forming our recommendations.

If these recommendations and benchmarking research are taken into consideration as a third-party NEMT service provider is contracted, we believe that this project will make significant strides in connecting NEMT services with mothers in Linden to mitigate future infant mortality issues. Reliable and cost-effective transportation will bring security and peace of mind

to mothers in Columbus when attending their regular doctor appointments and will connect them to community-wide educational programs. Reliable transportation is key for a more connected Columbus, and the pilot NEMT program could take the City of Columbus one step closer to ending the infant mortality crisis once and for all.

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Appendix A: Contacts & Collaborators

Andy Wolpert: (ADWolpert@columbus.gov) is our main contact working with SMART Columbus. He provided guidance for our project and connected us with other relevant contacts in the transportation industry.

Twinkle Schottke: (Twinkle.Schottke@osumc.edu) is the director of Moms2B. Moms2B is a central Ohio program that was founded to fight infant mortality and pre-term birth.

Dr. Patricia Gabbe: (Pat.gabbe@osumc.edu) is the founder of Moms2B. We contacted her and Twinkle Schottke to gather more information on the infant mortality epidemic in Columbus and see what their organization is doing to combat it.

Kristin Boggs: (boggs4ohio@gmail.com) is a State Representative for the 18th District for Ohio. She assisted our team by connecting us with relevant contacts in Columbus.

Morgan Landis: (malandis@columbus.gov) is the Communications Coordinator for CelebrateOne, a Columbus-based coalition working to reduce infant mortality in the region.

St. John Providence: (313-369-5730) is the infant mortality program that is implemented in Detroit, Michigan.

Ohio Department of Jobs and Family Services: (614-466-2319) The department helped us gather information about how they contract NEMT services for patients in Columbus.

Appendix B: Metadata

Dataset #1: Southeastrans_FeedbackData.xlsx
Source: Public Google reviews on Southeastrans: https://bit.ly/2HTObqT
Description: Excel file that tallies the frequency of certain complaint points within each review. Criteria were: ride not on time, ride never arrived, rude staff, unhelpful staff, poor communication, and failure to reimburse for gas mileage or bus passes. These were then summed and turned into percentages that are presented in a summary table in the report.

Dataset #2: Interview_TwinkleSchottke.docx
Source: Personal communication with Twinkle Schottke, Mom2B Director, 29 March 2018
Description: Notes from conversation with co-founder and active volunteer Twinkle Schottke regarding the place of Moms2B in the struggle with infant mortality in Columbus, and her perspective on how transportation options can be utilized to improve current conditions. She emphasizes the importance of having empathy for the mothers, desiring a partnership with the chosen NEMT service, and mentions wanting more advertising for the organization in public places like the bus.