Transportation & Health Access

a quality improvement toolkit 2.0

Using a Continuous Quality Improvement Process to Reduce Missed Appointments Due to Transport Barriers

Health Outreach Partners

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Acknowledgments

Version 1.0 of this toolkit was prepared in 2016 for Health Outreach Partners (HOP) by Melissa Mollard-Martin, MPH, of The Results Group, as a product of HOP's Not Just A Ride (NJR) Project. For this current version 2.0, produced in 2025, Health Outreach Partners would like to extend our appreciation to the staff who contributed to the development of the toolkit:

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Introduction

Purpose of the Toolkit

There is no one-size-fits-all approach to addressing transportation barriers. Your health center's transportation strategies should be patient-centered. This means you are prioritizing your patients' unique needs when establishing these dynamic, ever-evolving transportation strategies. The solutions might focus on improving transportation services, shifting the point of care from on-site to an outreach setting, or addressing a patient's health and health-related needs in just one appointment.

This Transportation Quality Improvement toolkit is an easy-to-use, practical guide to help you assess the scope of the problem of missed medical appointments due to transportation barriers at your health center. More importantly, it will help you better understand how your health center's existing efforts can be improved to reduce those barriers. [link to fact sheet]

This toolkit is version 2.0 of Health Outreach Partners' original Transportation Quality Improvement Toolkit published in 2016. With this updated version, we aim to elevate the resource's efficacy and effectiveness by obtaining feedback from key partners who have employed the toolkit at their organizations. We understand that each health center is unique and different from the next, and the level of implementation of transportation strategies can vary drastically. Therefore, this update is designed to meet you where you are in your organization's efforts and help you reduce transportation barriers for your patients to access vital health and social services. Some key concepts and instructions appear in multiple sections of this toolkit. This is intentional—since users may refer to individual sections as needed rather than reading the toolkit cover to cover, certain guidance is repeated to ensure it's accessible wherever you might begin.

Purpose of the Transportation Quality Improvement Toolkit 2.0:

- Determine your health center's readiness to address transportation barriers and adopt a quality improvement process
- Assess the level of leadership buy-in and support
- Gather data to analyze and identify your patients' current transportation needs
- Evaluate existing strategies and efforts of transportation strategies, as well as staff involvement
- Calculate the cost of missed medical appointments due to transportation barriers to gain support for investments in solutions
- Ensure strategies are sustainable and continuously improving by implementing a Plan-Do-Study-Act (PDSA) Cycle

How to Use this Toolkit

This toolkit offers two starting points based on your health center's current level of preparedness: the **Beginner** section and the **Advanced** section. Both sections include overviews of key concepts and sample tools that can be adapted to fit your organization's specific needs and resources.

The **Beginner** section is intended to help you understand the scope of transportation barriers and assess your organization's capacity to address them. This foundational phase emphasizes information gathering and prepares you for the more action-oriented **Advanced** phase. Start with the **"Guiding Questions"** tool to explore how transportation affects your patients. Next, use the **"Organizational Readiness Assessment"** to evaluate whether your organization is positioned to take action. Additional tools in this section focus on building readiness through topics such as internal structure and support, data collection and analysis, existing strategies, and the cost of missed appointments.

The **Advanced** section guides you through implementing transportation solutions using the **Plan-Do-Study-Act (PDSA)** cycle, a four-step continuous quality improvement (CQI) process. This section is for organizations that have completed the preparation phase or are already implementing strategies and wish to refine or expand their efforts.

To know which section to start with, identify your health center's readiness using Tool #2, Organizational Readiness Assessment on page 10.

Toolkit Sections

Key Terminology

- **Continuous Quality Improvement (CQI)**: CQI is a management approach used in health care to help assess the efficiency and effectiveness of a particular process or set of processes. CQI uses a structured planning method to examine current practices and processes to determine where improvements could be made. A strategy is tested and data is reviewed to determine whether the desired outcome was achieved.

- **Direct Costs:** Costs that are defined as tangible expenses of health care, such as in-patient stays or diagnostic tests.

- **Indirect Costs**: Costs that are not directly associated with a single department, program, activity, event, or patient.

- **Metric**: A metric is an indicator or measure of a process or an outcome. The term metric is often used interchangeably with "measure" and "indicator."

- **Missed Appointments:** A patient does not show up for the designated time of their medical appointment, and does not call to cancel in a timely manner (usually at least 3 days in advance). Other terms used in the broader literature include "no-shows" and "nonattendance rates."

- **Modes of Transportation:** The ways in which people get to and from their medical appointment: personal vehicles; rides from a family member or friend; public transportation, such as regional transit or a city bus; taxicab or ride share services, such as Uber and Lyft; non-emergency medical transportation (NEMT); and biking or walking.

- **Patient-Centered Transportation:** Services that are designed with the patient's needs and preferences in mind.

- **Plan-Do-Study-Act Cycle (PDSA):** A specific CQI methodology that is used to establish goals, define the scope of the problem, determine metrics of success, and test the effectiveness of implemented strategies. The PDSA cycle should be an ongoing process for continuous improvement.

- **Return on Investment (ROI):** ROI is a metric used to gauge the overall benefit resulting from an expenditure. In other words, ROI is the profitability ratio.

- **Transportation Barrier:** A transportation-related issue that results in a patient delaying or missing medical appointments, experiencing difficulty making and keeping follow-up appointments, being unable to comply with prescribed health management plans, increasing their use of emergency rooms, and or experiencing poor health outcomes. There is no standard method used to assess transportation as a barrier to accessing health care. The following factors can be measured: time spent traveling to a care provider; distance between patients and available health care facilities; existing transportation infrastructure; cost of transportation services; and patient knowledge, perception, and use of available transportation services.[8]

Access to Transportation: Barriers and Challenges

Prevalence of the Problem

In Any Given Year, 5.8 Million Americans Miss at a Minimum One Medical Appointment Due to a Lack of Transportation.[1]

Transportation is a major barrier to accessing critical health care and social services, particularly for seniors, children, veterans, those living in rural areas, and low-income individuals and families. The impact of transportation barriers on people's health consists of delayed or missed medical appointments, difficulty making and keeping follow-up appointments, inability to comply with prescribed health management plans, increased use of emergency rooms, and poor health outcomes. Studies have found the following:

1. 1 in 5 adults skip medical visits due to transportation problems.[2]
2. As per a study of inner-city families who skip pediatric care appointments, 62% cited a lack of personal vehicle as a main barrier.[3]
3. Those with income less than $26,000 spend 30% of their income on transportation, while those with income over $140,000 spend 11.6%.[4]
4. Transportation barriers impact access to pharmacies as well, resulting in medications not filled.[5]

Health Outreach Partners' focus on transportation as a barrier to care was driven by findings from our biannual outreach program needs assessments. The 2013 report, *Outreach Across Populations: National Needs Assessment of Health Outreach Programs*,[6] identified transportation as the second most commonly cited obstacle to accessing health services among vulnerable populations. These findings emphasized the essential role of transportation in addressing health disparities and provided the basis for developing version 1.0 of the Transportation QI Toolkit.

The top four barriers preventing access to transportation services consisted of:

1. living in a rural area;
2. cost;

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1 Wolfe, M. K., McDonald, N. C., & Holmes, G. M. (2020). Transportation Barriers to Health Care in the United States: Findings From the National Health Interview Survey, 1997-2017. *American journal of public health*, *110*(6), 815–822. https://doi.org/10.2105/AJPH.2020.305579

2 Robert Wood Johnson Foundation. (2023, April 27). *More than one in five adults with limited public transit access forgo healthcare because of transportation barriers.* https://www.rwjf.org/en/insights/our-research/2023/04/more-than-one-in-five-adults-with-limited-public-transit-access-forgo-healthcare-because-of-transportation-barriers.html

3 Syed, S. T., Gerber, B. S., & Sharp, L. K. (2013). Traveling towards disease: Transportation barriers to health care access. *Journal of Community Health, 38*(5), 976–993. https://doi.org/10.1007/s10900-013-9681-1

4 Bureau of Transportation Statistics. (2024). *Transportation Economic Trends: Transportation spending*. U.S. Department of Transportation. https://data.bts.gov/stories/s/Transportation-Economic-Trends-Transportation-Spen/ida7-k95k/

5 Hensley, C., Heaton, P. C., Kahn, R. S., Luder, H. R., Frede, S. M., & Beck, A. F. (2018). Poverty, Transportation Access, and Medication Nonadherence. Pediatrics, 141(4), e20173402. https://doi.org/10.1542/peds.2017-3402

6 Health Outreach Partners. "Outreach Across Populations: 2013 National Needs Assessment of Health Outreach Programs." Oakland, CA, 2013.

3. limited or lacking transportation options; and
4. difficulty obtaining a driver's license.[7]

Is Your Health Center Impacted?

Health centers play a critical role in helping communities have better access to transportation. There is a need to understand the extent to which transportation is a problem for your patients and the communities you serve. Only after fully assessing the extent of the problem can you begin to address it and effectively persuade stakeholders of the need for change. Given below is a set of guiding questions that will help you assess how deeply your health center is impacted by reduced access to transportation:

Tool #1: Guiding Questions

The following set of guiding questions is intended for internal consideration by your health center:

Questions for Consideration	Response
1. Are missed appointments a problem for the health center?	**Yes/No** If yes, describe the nature and scope of the problem. a) What is the frequency of missed appointments? b) What type of appointment is the most frequently missed?
2. Are there specific patient populations or groups for whom missed appointments are a problem?	**Yes/No** If yes, do these patient populations share common characteristics? Yes/No a) If yes, which characteristics do they share? (E.g., language, income level, insurance status, diagnosis stage)
3. Do you have mechanisms to track and analyze missed appointments?	**Yes/No** If yes, what mechanisms are there to track and analyze the missed appointments? (E.g., Electronic Health Records, patient intake forms)

4. Are missed appointments mainly due to transportation barriers or due to another barrier?	**Yes/No** What mechanisms are there to determine the reason for missed medical appointments? (E.g., Electronic Health Records, patient intake forms)
5. What is the average cost of missed appointments due to transportation barriers?	a) You can write down an estimate of the cost here if you already have the data or the tools available. _____ b) If not, Tool #7, "Cost Methodology of Missed Appointments" on page 19 will assist you in better understanding the average cost of missed appointments.
6. Are there available local and regional transportation options in the community?	**Yes/No** a) If yes, what are they? (E.g., public transit, buses, trains, shuttles) b) What patient populations do they serve? (E.g., transportation services for elders)
7. What strategies or solutions can be considered for mitigating the problem of missed appointments due to transportation issues? Is there evidence from the literature that these strategies will be effective?	These should be strategies that work best for your unique needs. (E.g., identify ways to fund or obtain transportation services, and adopt cost-effective and effective administrative strategies)

Health Center Readiness Assessment

Importance of Identifying Readiness

After identifying the scope of the problem, you can determine your level of readiness to engage in the PDSA cycle. Understanding the problem's scope lets you assess your health center's capacity for improvement. This allows for targeted solutions to reduce missed appointments due to transportation challenges. Based on the results, you will determine whether you should start with the Beginner section or the Advanced section of this toolkit.

Tool #2: Organizational Readiness Assessment

The following is a sample Organizational Readiness Assessment that can help you understand your health center's current resources and capacity. It can also help you identify potential challenges when implementing new structures, processes, or procedures.

The target audience for this tool is individuals at a Director/C-Suite level who can determine leadership buy-in.

Tool #2: Organizational Readiness Assessment			
1. Structure and Buy-in: Ensure your health center has the organizational capacity and support to initiate a Continuous Quality Improvement (CQI) process.	Yes	No	If you answered "No", what barriers are you facing?
Is there organizational buy-in for addressing transportation barriers?			
Is there a willingness to integrate a Quality Improvement process on transportation into the health center's quality improvement process?			
Do we have the organizational capacity to initiate a Quality Improvement process?			
ACTION STEP: If you answered "No" to one or more of these questions, present the information gathered in the needs assessment phase to key staff, particularly senior leadership, to gain organizational buy-in and support. To learn more, refer to "Organizational and Structural Buy-In" in the Beginner section on page 13.			
2. Data Collection and Analysis: Ensure your health center can collect and analyze information about transportation and missed appointments.	Yes	No	If you answered "No", what barriers are you facing?
Do we currently monitor missed appointments?			

If YES, do we have the capacity to separate data to determine which patient populations are more at risk of missing appointments?			
Do we track how patients get to appointments?			
Do we track missed appointments due to transportation barriers?			

ACTION STEPS: If your health center does not currently track this information, a patient needs assessment can help determine the scope of the problem of missed appointments, specifically those due to transportation barriers. Consider dedicating staff to understanding and monitoring the scope of the problem. Additionally, consider including transportation-related questions in the patient intake process, and train staff on how to collect this information.

To learn more, refer to "Data Collection and Analysis" in the Beginner section on page 14.

3. Tracking Costs of Missed Appointments: Ensure your health center has a good understanding of the financial impact of missed appointments.	Yes	No	If you answered "No", what barriers are you facing?
Does your health center track the financial impact of missed appointments?			
If yes, do you have a designated staff member in charge of tracking this information?			
If no, is there someone who could be assigned this role and function within the health center?			

ACTION STEPS: Establishing the average cost of a scheduled appointment and the financial impact of missed appointments can help justify a PDSA cycle to mitigate missed appointments due to transportation barriers. Determining who is responsible for estimating costs is an important step.

To learn more, refer to "Tracking Costs of Missed Appointments" in the Beginner section on page 20.

4. Existing Efforts and/or Strategies: Ensure your health center has identified and implemented strategies to address transportation barriers.	Yes	No	If you answered "No", what barriers are you facing?
Do we have current strategies in place to mitigate missed appointments?			
Do we have current strategies in place to remove transportation barriers for patients?			
If YES, are these strategies effective?			

ACTION STEPS: If your health center is already working to address transportation barriers and you responded "yes" to most of the prompts in this exercise, you may be ready to move on to the Advanced section. While you're welcome to review the remaining tools in the Beginner section, the Advanced section will support you in evaluating and enhancing your current strategies.

To find the Advanced Section and begin a Continuous Quality Improvement process, refer to page 22.

Important Note:

Based on your readiness assessment:

If you answered **No** to any of the questions, refer to the appropriate sections in the toolkit's **BEGINNER** section.

If you answered **Yes** to all questions, please proceed to the **ADVANCED** Section of this toolkit.

Beginner

Getting Your Health Center Ready for Change

Organizational Structure and Buy-In

A strong team helps keep everyone accountable and focused on solutions. It is also important for those collecting information, like nurses, providers, or outreach workers, to share it with people who can champion improving or implementing transportation services. When planning for transportation solutions, including members of each department within your organization brings different perspectives and increases awareness and readiness to engage in these activities. Therefore, it is recommended that you share the process of your planning, including the data and results from the steps taken in this toolkit, with identified members of your team. It is especially important to include those at the leadership level who have the biggest impact on organizational buy-in, and who may ultimately have the final say on whether or not you can pursue these efforts.

Tool #3: Forming a Team

Who are the key staff members who need to be involved to make this effort successful? It is critical to include the appropriate people on a quality improvement team. Health center staff are the experts at what works well and what needs to be improved.

TEAM		
Name	Title/Dept	Roles and Responsibilities
	E.g.: Front desk, Medical Asst.	**Clinical Team** Those responsible for patient intake
	E.g., Outreach staff, Navigators	**Operations** Those in charge of transportation services and implementing them
	E.g., Outreach Director, COO	**Leadership** Staff for QI processes
	E.g.: Info Manager, Data Analyst	**Data Analysis** (This might look different at different organizations)

Data Collection and Analysis

Gathering your patients' input and feedback is important to address their unique transportation challenges better. A standardized data collection methodology will ensure that the right information is collected and stored for optimal use. Clear data allows your team to endorse better resources, such as improved transportation options, leading to better patient care and outcomes.

Tool #4: Patient Needs Assessment

The following tool is a sample patient needs assessment that may be used to collect information about the transportation problem. It is designed to help you target your efforts to make them effective, and it can be expanded or modified as needed depending on the information you require.

You will need to collect information from various sources to understand health and health-related needs, risk factors, barriers to care, and the types of health care and supportive services needed by patients and their communities.

The needs assessment phase is organized in the following areas:

Tool #4: Patient Needs Assessment	
1. How did you get to your appointment today? (Check all that apply.)	• Drove yourself in a private vehicle • Ride from a family member/friend in a private vehicle • Taxi or ride-sharing (E.g., Uber, Lyft) • Public transit (bus, streetcar, regional transit) • Para-transit services (dial-a-ride or medical taxi service) • Walk/bike • Health center transportation (E.g., vanpool) • Other, please specify:
2. How long did it take you to get to your appointment today?	_____ hours and _____ minutes
3. How do you usually get to your appointment? (Check all that apply)	• Drove yourself in a private vehicle • Ride from family member/friend in a private vehicle • Taxi or ride-sharing (E.g., Uber, Lyft) • Public transit (bus, streetcar, regional transit) • Para-transit services (dial-a-ride or medical taxi service) • Walk/bike • Health center transportation (E.g., vanpool) • Other, please specify:
4. On a scale of 1-10, how difficult is it for you to get to your appointment?	(Circle one): 1 = “not difficult at all” and 10 = “extremely difficult” 1 2 3 4 5 6 7 8 9 10

5. Within the last year, have you ever missed an appointment or been unable to obtain needed health care because of problems with your transportation?	(Check one): □ Yes □ No If yes, what was the reason(s) you could not get to the clinic? (Check all that apply): ● My private vehicle was not available ● Someone else drives me – they were not available ● Cost of transportation ● Problems riding transit ● Problems riding para-transit (dial-a-ride or medical taxi) ● Problems walking or biking ● Other, please specify
6. Do you own a car?	(Check one): □ Yes □ No
7. What is your sex?	● Male ● Female ● Choose not to disclose
8. What is your race or ethnicity?	(Check all that apply): ● Asian ● Native Hawaiian ● Other Pacific Islander ● African-American ● American Indian/Alaska Native ● White ● More than one race ● Other, please specify: ● Unreported/Choose not to disclose race
9. Check the box that describes your ethnicity.	● Hispanic/Latino ● Non-Hispanic Latino
10. What year were you born?	
11. Do you currently have health insurance?	(Check one): □ Yes □ No
12. Are you a Veteran?	(Check one): □ Yes □ No
13. In general, how would you rate your health?	(Circle one): Excellent Very Good Good Fair Poor
14. Do you have friends or family members who have difficulty getting to a health center because of problems with transportation?	(Check one): □ Yes □ No

Tool #5: Establishing Metrics

Metrics are an important way of establishing measures of effectiveness and success. Depending on the goal, metrics provide evidence that progress toward the goal is occurring.

1. Clearly define the goal of each practice or strategy related to addressing transportation barriers. To create a SMART goal, you need to identify the metrics. What is a SMART goal?

S.M.A.R.T.
● **Specific**: What services are you going to provide and for whom? ● **Measurable**: Can you measure what you are going to do? ● **Attainable**: Can you actually do what you set out to do within your environment and with the resources you have in the time frame planned? ● **Relevant:** Does what you are setting out to do make sense for your health center and for the populations you are trying to reach? Is it relevant to your goal? ● **Time bound:** By what date will you accomplish this objective?

2. Identify what metrics will be used to determine the effectiveness of the practice based on the defined goals. Key metrics to consider tracking include:

Goal	Metrics
Decrease the number of missed appointments due to transportation barriers	# of missed appointments due to transportation barriers # of late appointments due to transportation barriers # of rescheduled appointments due to transportation barriers
Increase patient knowledge about transportation options available	# of patients who receive information about transportation options # of patients who access care after receiving information about transportation options
Increase transportation assistance to patients	# of patients who use different modes of transportation after receiving information # of staff trained in providing assistance # of patients receiving assistance with transportation # of patients receiving specific types of assistance, including bus vouchers/tokens, taxi vouchers, Medicaid-reimbursable transit, and other

3. Determine how to track your metrics.

Specifically:

- How will the data be collected? (e.g., entered into Electronic Health Records, recorded in a spreadsheet or database, collected on a form, submitted through a satisfaction form, collected through a focus group)
- When will the data be collected? (e.g., during the registration process, after an encounter or patient visit, during a community event)
- Who will collect the data? (e.g., outreach workers, front desk staff, clinicians)

4. Identify when and how progress will be reviewed.

Should progress be reviewed weekly, monthly, quarterly, biannually, or some combination of these time frames? Will it be one individual or a team of staff members who will conduct the review?

5. Decide how the results will be used and shared.

Consider the following:

- Who needs to see the results?
- What is the intended outcome of sharing and reviewing the data?

Existing Strategies and Efforts

It is important to know what strategies are already in place and what transportation tools your patients are currently using. Maybe you can partner with local resources to further optimize their reach or efficacy.

Tool #6: Community Landscape Scan

After gathering information directly from patients, conducting a landscape scan of existing and available community resources can be useful.

What is a community landscape plan?

A landscape plan is a type of community needs assessment and a useful strategy to learn about a specific issue by reviewing relevant documents and data, taking stock of existing services, talking with leaders, experts, and service providers, and engaging partners and organizations in discussions. Some cities and regions have conducted their own transportation needs assessments and/or gap analyses that can help understand the local transportation system and identify the key leaders in this area. Collaborations across sectors may also have already been established, which can help provide ideas for solutions to transportation barriers. Consider the following questions when conducting a community landscape scan:

Questions for Consideration	Response
1. What are the existing transportation needs assessments or gap analyses for the community?	
2. What are the available local and regional transportation options (E.g., social service agencies, NEMT, aging services, public transit, churches) in the community, and what patient populations do they serve?	
3. What are the existing cross-sector collaborations that support transportation and health access?	
4. What formal or informal agreements with transportation service providers does your health center have?	

5. What are the identified gaps in transportation services (E.g., patient subgroups, geographic areas, scheduling, types of appointments – screening, therapy, support groups)?	
6. What are some potential considerations for collaboration (E.g., differing organizational regulations or policies, terminology)?	
7. What local interest groups or community coalitions are working on transportation issues? What information have they collected?	

Using the findings of the landscape scan, explore the possibility of formal or informal collaborations by meeting with key individuals and organizations to get input or identify broader transportation solutions. To start the conversations, some key points to cover include:

1. Present the issue: Clarify whether health and health care access fit within the transportation conversation.

2. Provide the data: Present the evidence on transportation barriers and their relation to health access and outcomes.

3. Know your ask: Come prepared with ideas proposing ways to be involved, including collaborations, providing resources, such as staff time, and material supports, such as vehicles.

Tracking Costs of Missed Appointments

It is important to collect information about how much it costs whenever a patient misses a medical appointment due to transportation barriers. This will help your health center understand the financial impact on resources, staffing, and overall efficiency. It can assist you in prioritizing your resources and can help you secure organizational buy-in by highlighting lost revenue and potential delays in care for other patients.

Tool #7: Cost Methodology of Missed Appointments

The following is a 9-step sample cost methodology to help you determine the cost of missed appointments due to transportation barriers. This method **does not** consider indirect costs, such as absenteeism from work or poorer health outcomes, but those costs are important to consider. Each step can help health centers track important information about costs, the financial impacts of missed appointments, and the specific impact of missed appointments due to transportation barriers.

FORMAT 1
To determine the average cost of an unused appointment, the following simple method can be used:

Step 1	Determine the total annual cost to operate the health center site.	*$*_____
Step 2	Determine the maximum number of scheduled appointments annually.	_____
Step 3	Determine the average cost of scheduled appointments: Divide the total annual cost by the maximum number of scheduled appointments. **Example:** (Step 1 / Step 2) Cost of Health Center - $5,000,000 # of scheduled appointments annually - 38,000 The average cost of scheduled appointments = $5,000,000 / 38000 = $131.58	*Average cost per appointment* *$*_____
Step 4	Determine the annual number of missed appointments that are not filled by other patients. **Example:** It is determined that 20% of all scheduled appointments are missed and not filled by other patients. The calculation is 38,000 x 0.20 = 7,600. Thus, 7,600 missed appointments were not refilled.	*# of missed appointments not filled* _____ *appointments*

Step 5	Calculate the annual cost to the health center of these missed appointments. **Example:** The calculation is 7,600 x $131.58 = $1,000,008. (Step 4 x Step 3)	*The annual cost to the health center* *$*_____
Step 6	Calculate the number of missed appointments due to transportation issues. **Example:** If 40% of all missed appointments are due to transportation barriers, then 7,600 x 0.40 = 3,040. Thus, there were 3,040 missed appointments.	*# of missed appointments due to transportation barriers* _____
Step 7	Calculate the cost of missed appointments due to transportation issues. **Example:** The calculation is 3,040 x $131.58 = $400,003.20 (Step 6 x Step 3)	*Cost of missed appointments due to transportation issues* *$*_____
Step 8	Establish a goal for reducing missed appointments due to transportation barriers. **Example:** Set a goal of reducing missed appointments to due to transportation barriers by half (1,520) with identified strategies. Calculate the potential savings: 1,520 x $131.58 = $200,001.60. Your health center will recoup $200,001.60 in costs if you are successfully able to reduce missed appointments.	*The savings if the goal is reached* *$*_____
Step 9	Estimating costs includes calculating the Return on Investment (ROI) for different strategies. **Example:** Your strategy to reduce missed appointments due to transportation barriers is to offer a shuttle service for patients who live more than 20 miles from the health center, at a cost of $100,000 annually. Subtract the $100,000 from the total amount you recouped to determine your ROI. In this example: $200,001.60 - $100,000 = $100,001.60. Even with the costs associated with providing a shuttle service, your health center would still recoup significant costs if it could reduce missed appointments due to transportation barriers by half.	*Estimated ROI* *$*_____

Advanced

Refining Strategies and Implementing a Plan-Do-Study-Act (PDSA) Cycle

Purpose of a PDSA Quality Improvement Cycle

We treat this section of the toolkit as "Advanced", as it is meant to be used once you have gone through the planning process, identified a desired transportation solution or intervention, and have either begun to plan your efforts, or you already have transportation solutions underway. This allows you to assess your results, if any, to this point; take stock of your dedicated resources and staffing; and identify areas to eliminate, augment, or alter.

A PDSA (Plan-Do-Study-Act) Cycle is vital in helping your health center systematically test new transportation strategies and refine current solutions. It allows your team to identify what works, make necessary adjustments, and continuously improve strategies to reduce patient transportation barriers. Using this structured approach, you can ensure that their efforts are effective, data-driven, and responsive to community needs.

The Four-Step Process:

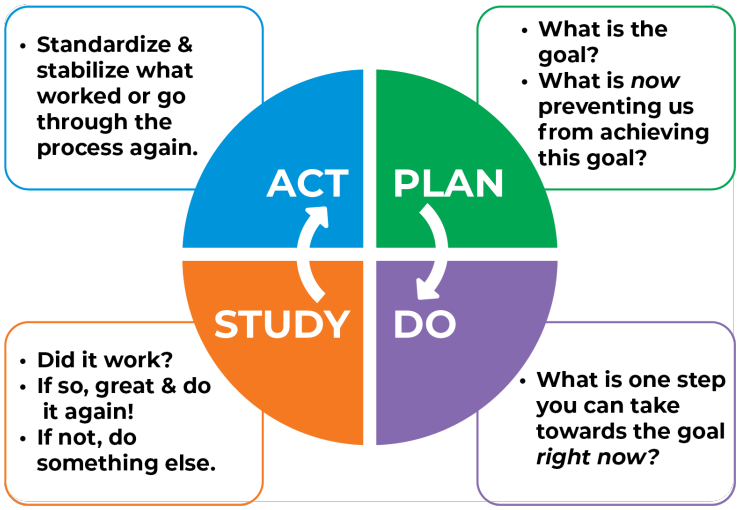
The PDSA Cycle follows a four-step, continuous process for identifying and tracking the improvement of a problem or a process.

1. PLAN: This step involves identifying a goal or a purpose, formulating a theory, defining success metrics, and putting a plan into action. The planning usually starts after it is determined that missed appointments due to transportation barriers are an organizational priority. Further, the tools in the Needs Assessment phase should be referenced to inform this stage of the cycle.

2. DO: This is the step where the plan's components are implemented. At this stage, the health center will have identified the strategies or actions it will take to address the problem.

3. STUDY: During this step, outcomes are monitored to evaluate the plan for signs of success and areas for improvement. See Tool #5 on "Establishing Metrics" (on page 14) to help determine the measures to be used during this step.

4. ACT: This step closes out the initial cycle and integrates the lessons learned throughout the process. The findings can be used to adjust the goal and modify the strategies or actions. The four steps are repeated as part of a continuous quality improvement cycle



Implementation Steps

To implement the PDSA Cycle, use the following steps:

- **Set objectives:** This step answers the question: *What are we trying to accomplish?* Take the time to establish objectives for the PDSA cycle, as they will provide parameters for designing your activities. Each objective should directly support your primary question and be SMART (Specific, Measurable, Attainable, Relevant, and Time-bound).

S.M.A.R.T.
● **Specific**: What services are you going to provide and for whom? ● **Measurable**: Can you measure what you are going to do? ● **Attainable**: Can you actually do what you set out to do within your environment and with the resources you have in the time frame planned? ● **Relevant:** Does what you are setting out to do make sense for your health center and for the populations you are trying to reach? Is it relevant to your goal? ● **Time bound:** By what date will we accomplish this objective?

- **Establish measures:** This step answers the question: *How will you know your efforts have had the intended impact?* Identify what outcomes measures you want to evaluate if your objectives are met. Refer to Tool #5 (on page 16) to establish metrics if you have not already done so.

- **Select changes:** This step answers the question: *What changes can you make that will result in improvement for your desired outcomes?* Reserve time to review the evaluation findings and lessons learned to inform any changes that will strengthen efforts, gain organizational buy-in, and set priorities. Ideally, your health center has learned a few new things and has the data to guide your actions.

- **Test changes:** The step answers the question: *Did our changes strengthen your efforts?* Use the established metrics to test your changes and assess whether they had the desired outcomes or outputs. Once the changes are implemented, analyze the results so that lessons learned and tested practices can be used to drive future changes.

- **Implement change:** This step answers the question: *How will our changes extend to a broader population?* After testing a change on a small scale, learning from each test, and refining the change through several PDSA cycles, health centers can implement the change on a broader scale - for example, for a pilot sub-population or the entire patient population.

- **Spread changes:** This step answers the question: *How will our changes be integrated into our organizational system and structure?* After successfully

implementing a change(s) for a pilot subpopulation or the entire patient population, health centers can integrate the changes to other parts of the organization.

Tool #8: PDSA Worksheet

Tool #8: PDSA Worksheet
This worksheet can be used as a sample project management tool to support the team responsible for implementing the PDSA cycle. As with all of the tools in this toolkit, it can be customized to meet the specific needs of the health center.

PDSA Goal:	
The Problem:	
Date:	Cycle:
Cycle Aim (SMART):	
Evaluation Metrics	

Measure	Description	Data Source	Target Performance	Current Performance

PLAN: Identify the steps needed to implement the strategy or change

Activities	Person Responsible	Timeline

DO: Describe what actually happened when you implemented the strategies or change		
STUDY: Describe the measured results and how they compared to the predictions		
ACT: Describe what modifications to the plan will be made for the next cycle from what was learned		

Conclusion

The lack of affordable, safe, and reliable transportation limits access to jobs, childcare, and critical health care and social services for too many. The intersection of health and transportation is taking a toll on the health and well-being of disadvantaged populations nationwide. Health centers are responding by providing various enabling services, including transportation. However, this can prove challenging due to limited resources and the diverse needs of patients and their communities.

There is no one-size-fits-all approach to addressing transportation barriers to care. Rather, patient-centered transportation solutions are needed. This toolkit was designed to provide a resource for health centers to assess the specific needs and barriers of their patient populations and implement a PDSA Cycle to address transportation barriers by taking action and improving health outcomes.

About Health Outreach Partners

Who We Are

Health Outreach Partners (HOP) is a national organization providing training and technical assistance (T/TA) and key resources to health centers and other community-based organizations striving to improve the quality of life of low-income, vulnerable, and disadvantaged populations.

Our mission is to respond to community needs by equipping health partners with relevant, strategic knowledge and tools to transform communities from the ground up, resulting in a healthy society and improved access to care.

HOP has over 45 years of experience in the field of outreach and offers support to organizations interested in exploring a more customized application of these ideas. Learn more at HOP's website: www.outreach-partners.org/.

HOP's Transportation Resources:

▲ **Fact Sheet:** Improving Health Outcomes for Transportation
https://outreach-partners.org/2025/02/improving-health-outcomes-for-transportation/

▲ **Fact Sheet:** Improving Health Outcomes for Transportation (Spanish) https://outreach-partners.org/2024/09/improve-health-outcomes-for-transportation-spanish/

▲ **Overview:** Transportation Initiative
http://outreach-partners.org/about-hop/transportation-initiative/

▲ **Report:** Outreach Across Populations: 2013 National Needs Assessment of Health Outreach Programs
http://outreach-partners.org/wp-content/uploads/2015/09/2014_nna.pdf

▲ **Report:** Rides to Wellness Community Scan
https://outreach-partners.org/2017/06/rides-wellness-community-scan-project/

▲ **Report:** Overcoming Barriers to Care: Transportation Models That Work
https://outreach-partners.org/wp-content/uploads/2015/09/Kresge-Report-Web.pdf

This publication is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling $847,285, with 0% financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, HRSA, HHS, or the U.S. Government. For more information, please visit HRSA.gov

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