



# TRANSPORTATION & HEALTH ACCESS: A QUALITY IMPROVEMENT TOOLKIT

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

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# INTRODUCTION

## IN ANY GIVEN YEAR, 3.6 MILLION AMERICANS MISS AT A MINIMUM ONE MEDICAL APPOINTMENT DUE TO A LACK OF TRANSPORTATION.<sup>1</sup>

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 consist 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:

- ▲ 25% of patients missed an appointment due to transportation problems.<sup>2</sup>
- ▲ Of inner-city families, 21% of respondents cited transportation barriers as the reason for not bringing a child in for health care.<sup>3</sup>
- ▲ 35% of female Veterans over age 65 had transportation barriers to health care access.<sup>4</sup>
- ▲ Transportation barriers impact access to pharmacies as well, resulting in medications not filled.<sup>5</sup>

Health Outreach Partners' report, "Outreach Across Populations: 2013 National Needs Assessment of Health Outreach Programs", identified transportation as the second most prevalent barrier to accessing health care services among underserved populations served by outreach programs at health centers.<sup>6</sup> Respondents indicated that the top four barriers preventing access to transportation services consisted of: 1) living in a rural area; 2) cost; 3) limited or a lack of transportation options; and 4) the inability to obtain a driver's license.<sup>7</sup>

The purpose of this toolkit is to assist health centers in better understanding how transportation barriers are impacting their patient population and how to improve on their existing efforts to reduce barriers to health care access. This toolkit is grounded in the idea that there is no one-size-fits all approach to addressing transportation barriers. Rather, patient-centered solutions are designed around patients' needs, such as providing transportation services, shifting the point-of-care from on-site to an outreach setting, and addressing a patient's health and social needs all at the same time during one appointment.

## ABOUT THE TOOLKIT

The toolkit was created as an easy-to-use, practical guide to assist health centers with assessing the scope of the problem of missed medical appointments due to transportation barriers, and implementing the Plan-Do-Check-Act (PDCA) cycle, a continuous quality improvement (CQI) process, to find patient-centered solutions. The process described in the toolkit can help a health center do the following:

- ▲ Assess the stage of readiness to implement a PDCA cycle.
- ▲ Conduct a landscape scan of community resources, such as transit authorities and aging services access points, local organizations operating non-emergency medical transportation services, etc.
- ▲ Gather information directly from patients to determine the extent of the problem.

1 Wallace R., Hughes-Cromwick, P. & Mull, H. (2005). Access to health care and nonemergency medical transportation: Two missing links. *Transportation Research Record: Journal of the Transportation Research Board*, 1924.

2 Yang S, Zarr RL, Kass-Hout TA, Kourosh A, Kelly NR. (2006). Transportation barriers to accessing health care for urban children. *Journal of Health Care for the Poor and Underserved*. 17(4):928–943; Silver D, Blustein J, Weitzman BC. (2012). Transportation to clinic: Findings from a pilot clinic-based survey of low-income suburbanites. *Journal of Immigrant and Minority Health/Center for Minority Public Health*. 14(2):350–355.

3 Flores G, Abreu M, Olivar MA, Kastner B. (1998). Access barriers to health care for Latino children. *Archives of Pediatrics and Adolescent Medicine*. Nov; 152(11):1119-25.

4 Washington DL, Bean-Mayberry B, Riopelle D, Yano EM. (2011). Access to care for women veterans: delayed healthcare and unmet need. *Journal of General Internal Medicine*. Nov; 26 Suppl 2:655-61.

5 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.

6 The term "health center" refers to a Health Center Program grantee, Federally Qualified Health Center (FQHC) or FQHC Look-Alike.

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

- ▲ Calculate costs of missed appointments.
- ▲ Establish metrics to track missed appointment due to transportation.
- ▲ Implement a CQI process using the PDCA cycle to address transportation barriers.

This toolkit guides the user through the two key phases of the quality improvement process: Needs Assessment and PDCA Cycle. The needs assessment phase is designed to help health centers better understand the scope of the problem and their organizational capacity to address it. This phase is important for information gathering and laying the groundwork for the planning stage of the PDCA cycle, which provides a four-step method to develop and implement strategies for change.

Each section of the toolkit contains an overview of the concepts and sample tools. The tools are designed to be a starting point, and can be customized as needed to align with the specific context and resources of each health center.

#### Toolkit Sections

##### 1. Needs Assessment

- Guiding Questions
- Community Landscape Scan
- Gathering Patient Input
- Health Center Readiness
- Calculating Costs

##### 2. PDCA Cycle

- Four-Step Process
- Implementation Steps

## 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 healthcare, 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 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-Check-Act Cycle (PDCA):** A specific CQI methodology that is used to establish goals, define the scope of the problem, determine metrics of success, and test effectiveness of implemented strategies. The PDCA cycle should be an on-going 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:** Transportation plays a vital role in an individual’s life and a critical role in one’s ability to sustain a healthy livelihood by determining one’s ability to get to and from work, access healthy food options, engage in social activities, and access healthcare services.<sup>8</sup>

<sup>8</sup> National Association of Community Health Centers (NACHC). The Protocol for Responding to and Assessing Patients’ Assets, Risks, and Experiences (PRAPARE) Implementation and Action Toolkit, Accessed September 8, 2016- <http://nachc.org/research-and-data/prapare/toolkit/>

# PHASE 1: NEEDS ASSESSMENT

A needs assessment is a critical component of delivering effective health services to underserved populations. It requires collecting information from a variety of sources in order to understand health and social needs, risk factors, barriers to care, and the types of health care and supportive services needed by patients and their communities. The aim of a needs assessment is to provide relevant information so that health centers can prioritize and take actions to respond to the needs of the communities in their service area.

The needs assessment phase is organized in the following areas:

1. Guiding Questions
2. Community Landscape Scan
3. Gathering Patient Input
4. Health Center Readiness
5. Calculating Costs

## 1. GUIDING QUESTIONS

Before a Plan-Do-Check-Act (PDCA) cycle is initiated, there is a need to understand the extent to which transportation is a problem for patients and communities served by the health center. The following set of guiding questions are intended for internal consideration by the health center:

Questions for Consideration	Response
1. Are missed appointments a problem at the health center? If yes, what is the nature and scope of the problem?	
2. Are there specific patient populations or groups for whom missed appointments are a problem? If yes, who are they?	
3. What mechanisms, if any, are there to track and analyze missed appointments?	
4. To what extent are missed appointments due to transportation barriers?	
5. What is the average cost of missed appointments due to transportation barriers?	
6. What are the available local and regional transportation options (e.g. public transit, transportation services for elders) in the community and what patient populations do they serve?	
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?	



## 2. COMMUNITY LANDSCAPE SCAN

After answering the guiding questions, it can be useful to conduct a landscape scan of existing and available community resources. A landscape scan is a type of community needs assessment and 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 into discussions. For example, some cities and regions have conducted their own transportation needs assessments and/or gap analyses that can be helpful for understanding the local transportation system and identifying the key leaders in this area. Additionally, collaborations across sectors may have already been established, which can help provide ideas for solutions to transportation barriers.

The following are questions to consider when conducting a community landscape scan for assessing transportation availability and potential gaps in the community.

Questions for Consideration	Response
1. What are the existing transportation needs assessments or gap analyses for the community?	
2. What transportation services are available to assist patients in accessing care? Examples: social service agencies, NEMT, aging services, public transit, churches.	
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 gaps in transportation services? Example: for any patient subgroups, geographic areas, scheduling.	
6. What are some potential considerations for collaboration? Example: differing organizational regulations or policies, terminology.	
7. What local advocacy groups or community coalitions are working on transportation issues? What information have they collected?	

Using the findings of the landscape scan, there are opportunities to delve further by exploring 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 healthcare access fit within the transportation conversation.
- 2. Provide the data:** Present the evidence on transportation barriers and its relation to health access and outcomes.
- 3. Ask:** Come prepared with ideas proposing ways to be involved, including collaborations, providing resources, such as staff time, and material supports, such as vehicles.

### 3. GATHERING PATIENT INPUT

Once completing the landscape scan, gathering input directly from health center patients can help to understand the nature and scope of transportation as a barrier to care. The following tool is a sample patient needs assessment survey that may be used to collect information about the problem of transportation. It is designed to help health centers target their efforts effectively, and it can be expanded or modified as needed by individual health centers depending on the information needed.

TOOL #1: Patient Needs Assessment Survey	
1. How did you get to the health center today? (Check all that apply)	<input type="checkbox"/> Drive self in private vehicle <input type="checkbox"/> Ride from family member/friend in private vehicle <input type="checkbox"/> Taxi or ride sharing (e.g. Uber) <input type="checkbox"/> Public transit (bus, streetcar, regional transit) <input type="checkbox"/> Para-transit services (dial-a-ride or medical taxi service) <input type="checkbox"/> Walk/bike <input type="checkbox"/> Health center transportation, e.g. vanpool <input type="checkbox"/> Other, please specify:
2. How long (in minutes) did it take you to get to the health center today?	
3. How do you usually get to the health center? (Check all that apply)	<input type="checkbox"/> Drive self in private vehicle <input type="checkbox"/> Ride from family member/friend in private vehicle <input type="checkbox"/> Taxi or ride sharing (e.g. Uber) <input type="checkbox"/> Public transit (bus, streetcar, regional transit) <input type="checkbox"/> Para-transit services (dial-a-ride or medical taxi service) <input type="checkbox"/> Walk/bike <input type="checkbox"/> Health center transportation, e.g. vanpool <input type="checkbox"/> Other, please specify:
4. On a scale of 1-10, how difficult is it for you to get to the health center?	(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): <input type="checkbox"/> Yes <input type="checkbox"/> No  If yes, what was the reason(s) you could not get to the clinic? (Check all that apply): <input type="checkbox"/> My private vehicle was not available <input type="checkbox"/> Someone else drives me – they were not available <input type="checkbox"/> Cost of transportation <input type="checkbox"/> Problems riding transit <input type="checkbox"/> Problems riding para-transit (dial-a-ride or medical taxi) <input type="checkbox"/> Problems walking or biking <input type="checkbox"/> Other, please specify



**TOOL #1: Patient Needs Assessment Survey**

6. Do you own a car?	(Check one): <input type="checkbox"/> Yes <input type="checkbox"/> No
7. Do you think of yourself as? <sup>1</sup>	(Check all that apply): <sup>2</sup> <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Transgender Male/Female-to-Male <input type="checkbox"/> Transgender Female/Male-to-Female <input type="checkbox"/> Other <input type="checkbox"/> Choose not to disclose
8. What is your race or ethnicity?	(Check all that apply): <input type="checkbox"/> Asian <input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Other Pacific Islander <input type="checkbox"/> Black/African-American <input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> White <input type="checkbox"/> More than one race <input type="checkbox"/> Other, please specify: <input type="checkbox"/> Unreported/Choose not to disclose race
9. Check the box that describes your ethnicity.	<input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> Non-Hispanic Latino
10. What year were you born?	
11. Do you currently have health insurance?	(Check one): <input type="checkbox"/> Yes <input type="checkbox"/> No
12. Are you a Veteran?	(Check one): <input type="checkbox"/> Yes <input type="checkbox"/> 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): <input type="checkbox"/> Yes <input type="checkbox"/> No

<sup>1</sup> National LGBT Health Education Center. Collecting Sexual Orientation and Gender Identity Data in Electronic Health Records. <http://www.lgbthealtheducation.org/wp-content/uploads/Collecting-SOGI-Data-in-EHRs-COM2111.pdf>

<sup>2</sup> Health Resources and Services Administration (HRSA). Program Assistance Letter (PAL) 2016-02. <http://www.bphc.hrsa.gov/datareporting/pdf/pal201602.pdf>

## 4. HEALTH CENTER READINESS

After identifying the scope of the problem, health centers can determine their level of readiness to engage in the PDCA cycle around missed appointments due to transportation barriers. The following is a sample Organizational Readiness Assessment that can help understand the current state of resources and capacity of the health center and in identifying potential challenges that may arise when implementing new structures, processes, or procedures. The target audience for this tool are individuals at a Director/C-Suite level who can determine leadership buy-in.

TOOL #2: Organizational Readiness Assessment			
<b>1. Structure and Buy-in:</b> Ensure your health center has the organizational capacity and support to initiate a Continuous Quality Improvement (CQI) process.	Yes	No	Comments
Is there organizational buy-in for addressing transportation barriers?			
Is there willingness to integrate the PDCA cycle on transportation into the health center's quality improvement process?			
Do we have the organizational capacity to initiate a PDCA process?			
<b>ACTION STEP:</b> 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.			
<b>2. Data Collection and Analysis:</b> Ensure your health center can collect and analyze information about transportation and missed appointments.	Yes	No	Comments
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?			
<b>ACTION STEPS:</b> 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. Additionally, consider including transportation-related questions in the patient intake process, and train staff on how to collect this information.			

**TOOL #2: Organizational Readiness Assessment**

<b>3. Existing Efforts and/or Strategies:</b> Ensure your health center has identified and implemented strategies to address transportation barriers.	<b>Yes</b>	<b>No</b>	<b>Comments</b>
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?			
<b>ACTION STEPS:</b> For current strategies, consider evaluating the effectiveness of existing efforts before embarking on a new PDCA cycle of quality improvement. If you answered “No” to one or more of these questions, analyze the information gathered during the needs assessment phase to identify the reasons for not addressing transportation barriers. Consider initiating the PDCA cycle.			
<b>4. Tracking Costs of Missed Appointments:</b> Ensure your health center has a good understanding of the financial impact of missed appointments.	<b>Yes</b>	<b>No</b>	<b>Comments</b>
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?			
<b>ACTION STEPS:</b> Establishing the average cost of a scheduled appointment and the financial impact of missed appointments can help provide justification for a PDCA cycle to mitigate missed appointments due to transportation barriers. Determining who is responsible, or can be assigned the role of estimating costs is an important step.			
<b>5. Other</b>	<b>Comments</b>		
<ul style="list-style-type: none"> <li>What additional information does your health center need to have in order to initiate a CQI process on missed appointments due to transportation barriers?</li> </ul>			

## 5. CALCULATING COSTS

The following is a sample cost methodology for helping health centers determine the cost of missed appointments due to transportation barriers. This methodology does not take into account 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, financial impacts of missed appointments, and the specific impact of missed appointments due to transportation barriers.

### TOOL #3: Cost Methodology of Missed Appointments and the Financial Impact to Health Centers

To determine the average cost of an unused appointment, the following simple methodology 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:** Divide the total annual cost by the maximum number of scheduled appointments.

**Example:**

Cost of Health Center	Number of Scheduled Appointments	Average Cost of Scheduled Appointments
\$5,000,000	38,000	\$131.58

After determining the average cost of scheduled appointments, you can determine the annual cost of missed appointments.

**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  $38,000 \times 0.20 = 7,600$ . Thus, there were 7,600 missed appointments that were not refilled.

**Step 5:** Calculate the annual cost to the health center of these missed appointments.

**Example:** The calculation is  $7,600 \times \$131.58 = \$1,000,008$ .

**Step 6:** Calculate the number of missed appointments due to transportation issues.

**Example:** If you determine that 40% of all missed appointments are due to transportation barriers, then the calculation is  $7,600 \times 0.40 = 3,040$ . Thus, there were 3,040 missed appointments.

**Step 7:** Calculate the cost of missed appointments due to transportation issues.

**Example:** The calculation is  $3,040 \times \$131.58 = \$400,003.20$

**Step 8:** Establish a goal for reducing missed appointments due to transportation barriers.

**Example:** Set a goal of reducing missed appointments due to transportation barriers by half (1,520) with identified strategies. Calculate the potential savings:  $1,520 \times \$131.58 = \$200,001.60$ . Your health center will recoup \$200,001.60 in costs if you are successfully able to reduce missed appointments.

**Step 9:** Estimating costs includes calculating the Return on Investment (ROI) for different strategies.

**Example:** Your strategy to reduce missed appointment 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 is able to reduce missed appointment due to transportation barriers by half.

## PHASE #2: PDCA CYCLE

Once you have determined the nature and scope of the problem and assessed your health center's readiness to address missed appointments due to transportation barriers, the Plan-Do-Check-Act (PDCA) Cycle can help provide a structured way of developing, implementing, and testing the effectiveness of strategies. The PDCA Cycle is a method often used by health centers in their Continuous Quality Improvement (CQI) process.



### THE FOUR-STEP PROCESS

The PDCA 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 components of the plan are implemented. At this stage, the health center will have identified the strategies or actions they will take to address the problem.
3. **CHECK:** During this step, outcomes are monitored to evaluate the plan for signs of success and areas for improvement. See Tool #4 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 what lessons were learned throughout the process. The findings can be used to adjust the goal and modify the strategies or actions. The four steps are repeated over and over as part of a continuous quality improvement cycle.

**TOOL #4: Establishing Metrics: A Tip Sheet for Health Centers**

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.

**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
Increase patient knowledge about transportation options available	# of missed appointments due to transportation barriers # of late appointments due to transportation barriers
Increase transportation assistance to patients	# of rescheduled appointments due to transportation barriers # of patients who receive information about transportation options # 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, 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 survey, 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 who will conduct the review or a team of staff members?

**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?



## IMPLEMENTATION STEPS

To implement the PDCA Cycle, use the following steps:

- ▲ **Form the team.** This step answers the question: Who are the key staff that need to be involved to make this effort successful? Including the appropriate people on a quality improvement team is critical. Health center staff are the experts at what works well and what needs to be improved. Include them in identifying and planning the implementation of the PDCA cycle.

PDCA Cycle Team		
Name	Title/Dept	Role and Responsibilities

- ▲ **Set objectives.** This step answers the question: What are we trying to accomplish? Take the time to establish objectives for the PDCA 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.
<ul style="list-style-type: none"> <li>▲ Specific: What services are you going to provide and for whom?</li> <li>▲ Measurable: Can you measure what you are going to do?</li> <li>▲ 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?</li> <li>▲ 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?</li> <li>▲ Time bound: By what date will we accomplish this objective?</li> </ul>

- ▲ **Establish measures.** This step answers the question: How will we know that our efforts have had the intended impact? Outcome measures should be identified to evaluate if objectives are met. Refer to Tool #4 (on page 14) to establish metrics.
- ▲ **Select changes.** This step answers the question: What changes can we make that will result in improvement for our desired outcomes? Be sure to reserve the 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 the changes we made strengthen our efforts? Establish 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 changes.** 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 PDCA 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 successful implementation of a change(s) for a pilot sub-population or the entire patient population, health centers can integrate the changes to other parts of the organization.

**Tool #5: PDCA Worksheet**

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

<b>Date:</b>		<b>PDCA Cycle #</b>		
<b>Outcome Measure:</b> (Project Goal)				
<b>PDCA Cycle Aim:</b>				
<b>Evaluation Metrics</b>				
<b>Measure</b>	<b>Description</b>	<b>Data Source</b>	<b>Target Performance</b>	<b>Current Performance</b>
<b>PLAN:</b> Identify objectives and put the plan into action				
<b>Objective:</b>				
<b>Activities</b>	<b>Responsible</b>		<b>Timeline</b>	
<b>DO:</b> Describe what actually happened when you implemented the strategies or change				
<b>Objective:</b>				
<b>Activities</b>	<b>Responsible</b>		<b>Timeline</b>	

**Tool #5: PDCA Worksheet**

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

**CHECK:** Describe the measured results and how they compared to the predictions

**Objective:**

Activities	Responsible	Timeline

**ACT:** Describe what modifications to the plan will be made for the next cycle from what was learned

**Objective:**

Activities	Responsible	Timeline

## CONCLUSION

For too many, the lack of affordable, safe and reliable transportation limits access to jobs, childcare, and critical healthcare and social services. The intersection of health and transportation is taking a toll on the health and well-being of underserved populations nationwide. Health centers and other health organizations are responding by providing a wide range of 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 framework for health centers to assess the specific needs and barriers of their patient population and implement a PDCA 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 underserved populations. 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/](http://www.outreach-partners.org/)

## HOP's Transportation Resources:

- ▲ **Overview:** Transportation Initiative  
<http://outreach-partners.org/about-hop/transportation-initiative/>
- ▲ **Report:** Overcoming Barriers to Care: Transportation Models That Work  
<http://outreach-partners.org/2014/06/04/overcoming-obstacles-to-health-care-transportation-models-that-work/>
- ▲ **Report:** Outreach Across Populations: 2013 National Needs Assessment of Health Outreach Programs  
[http://outreach-partners.org/wp-content/uploads/2015/09/2014\\_nna.pdf](http://outreach-partners.org/wp-content/uploads/2015/09/2014_nna.pdf)
- ▲ **Case Study:** Providing Transportation Services to Seniors by Investing in Collaborations and Community Resources  
<http://outreach-partners.org/2014/03/01/providing-transportation-services-to-seniors-by-investing-in-collaborations-and-community-resources/>
- ▲ **Case Study:** Using Volunteer Drivers and Partnerships to Provide Transportation Services  
<http://outreach-partners.org/2014/03/01/using-volunteer-drivers-and-partnerships-to-provide-transportation-services/>

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