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PRENATAL – FIRST TRIMESTER CARE ACCESS

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**U. S. Department of Health and Human Services**  
**Health Resources and Services Administration**



## **Contents**

Quality Measure: PRENATAL—FIRST TRIMESTER CARE ACCESS .....	
Measure Description .....	1
Part 1: Introduction .....	1
Performance Measurement: Prenatal - First Trimester Care Access .....	2
Improvement Experience: Prenatal - First Trimester Care Access .....	3
Part 2: Characteristics for Success: Prenatal - First Trimester Care Access .....	4
Part 3: Implementation of Clinical Quality Measure: Prenatal - First Trimester Care Access .....	9
Critical Pathway for the Early Initiation of Prenatal Care .....	10
Walkthrough of the Idealized Critical Pathway .....	11
Factors That Impact the Critical Pathway .....	13
Data Infrastructure: Prenatal - First Trimester Care Access .....	15
Data Infrastructure to Monitor the Performance Measure—An Overview .....	16
Implementation: Prenatal - First Trimester Care Access .....	16
Part 4: Improvement Strategies: Prenatal - First Trimester Care Access .....	22
What Changes Can an Organization Make? .....	22
Changes That Work .....	28
How Can an Organization Make Those Changes? .....	29
How Can an Organization Know That Changes Caused an Improvement? .....	33
Part 5: Holding the Gains and Spreading Improvement .....	33
Holding the Gains .....	33
Spreading Improvement .....	34
Part 6: Supporting Information .....	35
Case Study .....	35
References .....	35
Additional Resources .....	36

## Quality Measures: PRENATAL - FIRST TRIMESTER CARE ACCESS

The goals of this module are to provide a detailed overview of the **Prenatal - First Trimester Care Access** clinical quality measure, outline the intended use for this measure, and highlight the benefits of implementing this measure into an organization’s quality improvement (QI) program.

### Measure Description

Name	Description	Numerator	Denominator	Source	Reference
<b>Prenatal - First Trimester Care Access</b>	Percentage of pregnant women beginning prenatal care in the first trimester of pregnancy	Number of pregnant women from the denominator who began prenatal care during the first trimester	Total number of pregnant women who entered prenatal care during the measurement year	<b>HEDIS NCQA 2008</b>	<a href="http://www.ncqa.org/Portals/0/HEDISQM/008/2008_Measures.pdf">http://www.ncqa.org/Portals/0/HEDISQM/008/2008_Measures.pdf</a>

### Part 1: Introduction

There are over four million births per year in the United States and nearly one third of them will have some kind of pregnancy-related complication. Almost three women die every day from pregnancy complications in the United States, according to the Association of Maternal and Child Health Programs. Pregnant women, who do not receive adequate prenatal care, run the risk that complications will go undetected or may not be managed in a timely manner, which increases the possibility of adverse outcomes for the mother and baby. (1)

A number of peer-reviewed studies reiterate that early and regular prenatal care is an accepted strategy to improve health outcomes of pregnancy for mothers and infants. (2 – 16) Two of the most significant benefits of early and ongoing prenatal care are improved birth weight and decreased risk of preterm delivery. The average cost of medical care for a premature or low birth-weight baby for its first year of life is about \$49,000, according to a new report from the March of Dimes Foundation. (17) By contrast, a newborn without complications costs \$4,551 for care in its first year of life. (18,19) Infants born to mothers who received no prenatal care have an infant mortality rate five times that of mothers who received appropriate prenatal care in the first trimester of pregnancy. (19)

These are compelling reasons to ensure that prenatal care delivery is timely and of high quality. It is important to document the performance of our health care system in providing timely and high quality prenatal care. It is also imperative to improve performance to optimize the health outcomes of pregnancy for mothers and infants as needed.

**Performance Measurement: Prenatal - First Trimester Care Access**

The **Prenatal - First Trimester Care Access** clinical quality measure is designed to measure enrollment of pregnant patients in the first trimester (i.e., first three months) and is an accepted way to assess the access to care for pregnant women. Enrollment in care during the first trimester of pregnancy is a reflection of timely initiation of prenatal care. Since early prenatal care is associated with positive pregnancy outcomes, increasing performance on this measure will contribute to positive health outcomes for mothers and babies. (20)

Consider the characteristics of a good performance measure and the IOM framework, *Envisioning the National Healthcare Quality Report*:

- *Relevance*: Does the performance measure relate to a frequently-occurring condition or have a great impact on patients at an organization’s facility?
- *Measurability*: Can the performance measure realistically and efficiently be quantified given the facility’s finite resources?
- *Accuracy*: Is the performance measure based on accepted guidelines or developed through formal group decision-making methods?
- *Feasibility*: Can the performance rate associated with the performance measure realistically be improved given the limitations of the clinical services and patient population?

To ensure that a performance measure has these characteristics, it is often based on, or aligned with, an organization’s existing and proven measures.

The **Prenatal - First Trimester Care Access** measure aligns with measures endorsed by the **National Committee for Quality Assurance (NCQA)** and similar performance metrics used by HRSA grantees and programs. The measure also aligns with those adapted by the **Office of Regional Operations (ORO)** and is similar to the one used by the **Bureau of Primary Health Care (BPHC)** in the clinical portion of its **Uniform Data Systems (UDS)** process. Similar measures also exist in the national measure set for **Healthy People 2020**.

*Clinical Quality Measure: Prenatal - First Trimester Care Access*

Name	Description	Numerator	Denominator	Source	Reference
<b>Prenatal - First Trimester Care Access</b>	Percentage of pregnant women beginning prenatal care in the first trimester of pregnancy	Number of pregnant women from the denominator who began prenatal care during the first trimester	Total number of pregnant women who entered prenatal care during the measurement year	<b>HEDIS NCQA 2008</b>	<a href="http://www.ncqa.org/Portals/0/HEDISQM/0/HEDISQM/2008/2008_008_Measures.pdf">http://www.ncqa.org/Portals/0/HEDISQM/0/HEDISQM/2008/2008_008_Measures.pdf</a>

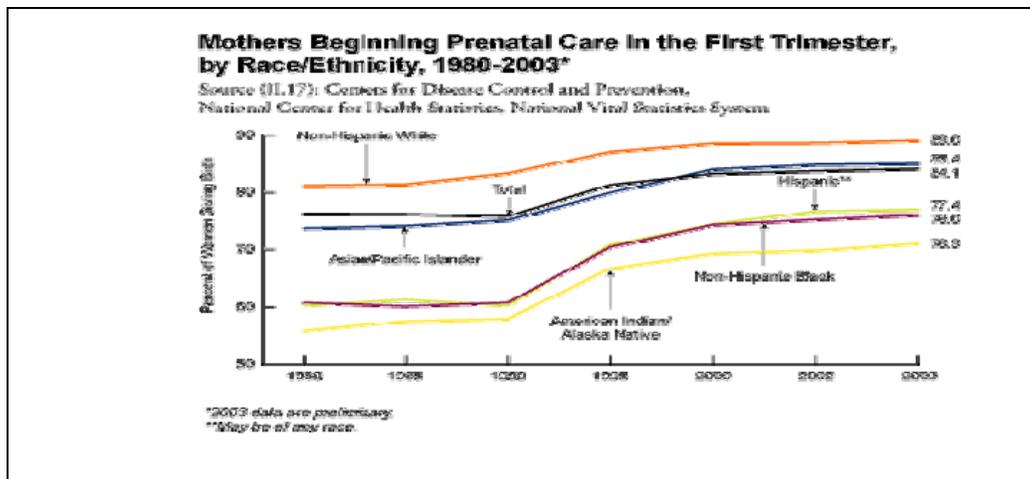
As with all performance measures, there are essential inclusions, exclusions, and clarifications that are required to ensure that an organization collects and reports data in the same way. This allows an organization using the measure to compare itself with others. Detailed specifications

for the measure, with descriptions of inclusion and exclusion criteria, are found in the section, [Part 3: Data Infrastructure: Prenatal - First Trimester Care Access](#).

### ***Improvement Experience: Prenatal - First Trimester Care Access***

The **Prenatal - First Trimester Care Access** measure was chosen to align with existing measures. The data demonstrating the experience with these measures is discussed briefly in this section.

Early entry into prenatal care has been monitored on a national level since 1998 and continues to be a target for improvement as a Healthy People 2020 goal. Although prenatal care use improved significantly in recent years, especially among non-Hispanic Black, Hispanic, and American Indian/Alaska Native women, significant disparities continue to exist. In 2005, non-Hispanic White women had an 88.7 percent rate of early prenatal care, but no group achieved the Healthy People 2010 goal of 90 percent. Rates defined by race and ethnicity are illustrated in the following graph: (21)



**Figure 1.1: Mothers Beginning Early Prenatal Care, by Race/Ethnicity**

In the Medicaid population, NCQA measured timeliness of prenatal care and reported improvements from 76.5 percent first-trimester entry into care in 2003 to 81.4 percent in 2007. Ten percent of those reported were able to achieve rates at or exceeding 91.4 percent. (22)

This experience emphasizes that, while there is work left to do, improvement in first trimester prenatal care access is possible. Information highlighting characteristics of organizations that achieved success to improve first trimester prenatal care access is provided in [Part 2: Characteristics for Success](#).

## **Part 2: Characteristics for Success: Prenatal - First Trimester Care Access**

Organizations that were successful in improving **Prenatal - First Trimester Care Access** for patients approached the issue in a systematic way, with careful attention to the factors that have an impact on timely prenatal care. Although clinics may differ in specific work flow, documentation, and staffing models, organizations that experienced successful improvement efforts shared these three fundamental characteristics:

1. Clear direction
2. Functional infrastructure for quality improvement
3. Commitment from leadership

### **1. Clear Direction**

Successful organizations found that it is important to define clearly what they are trying to accomplish. Most often in improvement work, leadership defines an aim that guides an organization's efforts. An aim is a written, measurable, and time-sensitive statement of the accomplishments a team expects to achieve from its improvement efforts. The aim statement contains a general description of the work, the system of focus, and numerical goals. The aim statement includes a very specific indication of what success looks like and may include guidance that further frames the work, including methodologies to be used and budgetary and staffing limitations. Examples of tools used by [QI teams](#) to create their aim statements include an [Aim Worksheet and Aim Statement Checklist](#).<sup>(23)</sup> Additional information, including tools and resources to assist an organization in developing its aim statement, can be found in the [Readiness Assessment and Developing Project Aims](#) module. A completed aim statement for the measure, **Prenatal - First Trimester Care Access**, is shown in **Example 2.1: Assessing the Aim Statement for Happy Health Care Organization (HHCO) Using the Aim Statement Checklist**.

The following is a hypothetical scenario with a fictional center named Happy Health Care Organization (HHCO). The example provides an aim statement created by the HHCO's QI team and the checklist the team used to assess its completed aim statement. Using the Checklist to assess the QI team's aim statement provides reassurance that the team included the necessary components of the aim statement for its improvement project.

**Example 2.1: Assessing the Aim Statement for Happy Health Care Organization (HHCO) Using the Aim Statement Checklist**

**Aim Statement:** *Over the next 12 months, we will redesign the care systems of Happy Health Care Organization to improve prenatal access to care. We will accomplish this so that 90 percent of our prenatal patients will access care within the first trimester (i.e., first 13 weeks) of pregnancy.*

**Guidance:**

- *No additional staffing will be required as a result of this improvement*
- *A key focus will be education of patients and families*

*\*Here is an example of how Happy Health Care Organization evaluated its aim statement using the Aim Statement Checklist*

**Aim Statement Checklist for Example 2.1: (23)**

- ✓ What is expected to happen?  
**HHCO:** Higher percentage of prenatal patients will access care during their first trimester
- ✓ Time period to achieve the aim?  
**HHCO:** 12 months
- ✓ Which system will be improved?  
**HHCO:** Care systems that improve prenatal access
- ✓ What is the target population?  
**HHCO:** Prenatal patients
- ✓ Specific numerical goals?  
**HHCO:** 90 percent of the prenatal population
- ✓ Guidance, such as, strategies for the effort and limitations?  
**HHCO:** As noted, no new staff plus focus on education of patients and families

Evaluating what others achieved provides appropriate context for choosing the numerical portion of an organization’s aim. (24) In some cases, data is available to show average performance for a group of practices that focused on a particular measure. For example, the [\*NCQA State of Healthcare Quality Report\*](#) shows an increase to 92 percent of patients with commercial insurance accessing timely prenatal care. This same report indicates an increase of the Medicaid population accessing prenatal care to 81.4 percent. While the goal of *100 percent of patients accessing timely prenatal care* is optimal, an organization can set an appropriate and realistic goal based on the data provided within this report after consideration of the payer mix of the patient population served. (25) For some measures, it may be possible to find examples of benchmark data, which demonstrates the performance of a best practice. It is important to consider an organization’s particular patient population when making comparisons to others’ achievements. An organization may consider socioeconomic status and/or race/ethnicity of the population served, organizational size, payer mix, and other criteria in an effort to achieve an accurate comparison. Reviewing what others accomplished may help an organization to understand what is feasible to

achieve. The numerical part of the aim should be obtainable, yet high enough to challenge the team to substantially and meaningfully improve. Additional guidance about setting aims can be found in the [Readiness Assessment and Developing Project Aims](#) module.

Sources to consider when choosing an aim or making performance comparisons for the measure, **Prenatal - First Trimester Care Access**, include the [Healthy People 2020](#). Another national source for comparison data is the [HRSA Maternal and Child Health Bureau](#). Sources of data for additional comparisons vary regionally but may include payers, State programs, and State or regional quality improvement programs.

## 2. **Functional Infrastructure for Quality Improvement**

Successful organizations found that improvement work requires a systematic approach to measuring performance, testing small changes, and tracking the impact of those changes over time. This section describes four essential components of an infrastructure to support quality improvement efforts, including:

- Quality improvement teams
- Tools and resources
- Organizing improvements
- Building on the efforts of others by using changes that worked

There is considerable variation in how this infrastructure is created and maintained. It is important that each component is addressed in a way that fits an organization.

### **Quality Improvement Teams**

Multidisciplinary QI teams are typically tasked to carry out this work. For improvement focused on **Prenatal – First Trimester Care Access**, it is important to include a provider who wants to focus on improving the rate of early prenatal care, i.e., a *provider champion* for improvement. (26) In addition to the provider champion, other appropriate members of a QI team may include:

- Nurses
- Case managers
- Patient outreach specialist
- Patient navigator
- Scheduling staff
- Information specialist
- Other staff involved in the patient care process, such as, receptionists, administrative staff, medical assistants, and health coaches

It should be noted that patients can add great value to the QI process when prepared to participate in a meaningful way. The reference manual by the [National Quality Center](#)

**(NQC), *A Guide to Consumer Involvement***, has practical ideas to assist an organization on how to involve patients in its QI process. (25)

There are no wrong answers here. Members of a team bring expert knowledge of the work they do for prenatal patients. Together, the team learns where and how its individual actions intersect and how each can have an impact on patients' entry into first trimester prenatal care. The ability to think from a systems perspective and the will to improve early access to prenatal care are the primary prerequisites that contribute to a successful improvement team. A more advanced discussion on forming an improvement team can be found in the [Improvement Teams](#) module.

### **Tools and Resources**

It is important that a QI team have the tools and resources necessary to achieve its established organizational aim. Some personnel may struggle shifting from the daily work of patient care to their roles on the quality improvement team. Those challenges can be straightforward, such as, coordinating meeting times or developing content for the meetings to support the team's quality improvement efforts. Successful QI teams learned that organizing meetings efficiently is essential in their improvement efforts. Tools such as [Tips for Effective Meetings](#) can help a QI team to structure meetings that focus its scheduled time on improvement efforts. Another useful tool includes one that displays data in a way that makes sense to the team members. Examples of templates and tools to track progress can be found in the module [Managing Data for Performance Improvement](#). These types of tools are commonly used by improvement teams to remain focused on the work of improvement. The most important resource needs are uninterrupted time to focus on quality improvement and autonomy to test changes responsibly. Additional team resources and tools can be found in the [Improvement Teams](#) module.

### **Organizing Improvements**

Successful organizations learned that planning an approach to change is essential. Change is, by nature, unsettling for some and presenting a clear direction and methodology can be reassuring. Most organizations with quality improvement experience adopted methodologies that help them organize their improvements.

As a QI team approaches improvement of prenatal access to care in the first trimester, it should use quality models already embraced by its organization. For example, many organizations adopted the [Care Model](#) to organize their approaches to implementing quality improvement changes. Others successfully embraced the [FOCUS PDSA](#) approach; both of these models provide a framework for a health care organization to plan and move toward implementing its improvement efforts. There is no single model that is considered correct. Organizational alignment of methodology makes sense from the perspective of efficient training. A consistent quality improvement approach and the sharing of improvement ideas among members of a quality team can facilitate the replication of QI activities across an organization and maximize the impact of the overall QI program.

Just as organizations that are experienced in quality improvement activities adopted quality models that guide their work, many embraced a change methodology. A change methodology guides the actual change process, which involves managing *how* changes are made as opposed to *what* changes are made.

For some organizations, all changes are approved by a decision leader and then implemented. Others use a committee structure to evaluate and implement changes. Again, there is no right or wrong methodology, but one change methodology has been found to be particularly helpful in quality improvement called the *Model for Improvement*. [The Model for Improvement](#), developed by Associates in Process Improvement, is a simple, yet powerful, tool for accelerating improvement. The model is not meant to replace a change model that an organization may already be using, but rather to accelerate improvement. This model has been used successfully by health care organizations to improve many different health care processes and outcomes.

The Model for Improvement encourages small, rapid-cycle tests of changes. In improvement, this has a distinct advantage in decreasing the time it takes for changes resulting in improvement to be implemented. This methodology also directly involves the individuals who do the work, which provides additional insights into how to rapidly improve care processes. Advance discussions on the Model for Improvement and rapid test cycles can be found in the [Testing for Improvement](#) module.

### **Building on the Efforts of Others by Using Changes that Worked**

One hallmark that successful organizations found beneficial in advancing their quality improvement programs is that everyone across the organization uses the same tools and language to make continuous improvements. A motto of many QI training leaders is "steal shamelessly." This is not the unethical, criminal intent, but instead the sense of "Why reinvent the wheel?" What does it mean to "steal shamelessly"? It means "stealing" or using what has worked in other organizations and "shamelessly" testing and implementing it to create rapid change in one's own organization.

Specific *change ideas* that worked for others to successfully improve prenatal care are detailed later in this module in the [Changes that Work](#) section. Additionally, an organization that has improvement experience in another measurement area, such as, diabetes, cancer screening, or immunizations, often adapts the successful tools to use with this measure.

### **3. Commitment from Leadership**

For quality improvement efforts to be effective and sustained, leaders must show commitment to them. Typically, leaders may make a commitment to specific target areas for improvement once they consider the overall needs of the organization, requirements of funders, and how the proposed efforts align with the organization's mission and strategic plan. Leaders that consider quality improvement efforts as an "add-on" may be unable to maintain QI as a priority as other realities compete for the organization's attention and

resources. Successful leaders in quality improvement integrate and align QI activities as part of their daily business operations.

A quality improvement team needs to have leadership commitment expressed in a tangible way. Often, it is an explicit dedication of resources, which may include team meeting time, data support, and specific planned opportunities that communicate actionable improvement suggestions to an organization's leadership. The authority of the improvement team and any constraining parameters should be clear. Detailed information highlighting the important role of leadership in a QI project can be found in the [Quality Improvement](#) module.

Below is a case story that is followed throughout the module and depicts the effort of a fictional QI team and health center as it focuses on improving the number of prenatal patients accessing early prenatal care in its organization. The hypothetical case story may be read in its entirety by clicking [here](#).

**The Problem:**

Happy Farms Health Center is an organization that provides full-scope primary care and inpatient services to a large sparsely-populated agricultural region. It has one main and two small satellite sites that are strategically located in different sectors of their service area. It is served by a provider staff of two family physicians, one physician's assistant, and one part-time certified nurse-midwife. Prenatal services are provided by the family physicians and nurse-midwife with assistance from an RN, four LPNs, and a social worker. A local private OB/GYN physician is also contracted to see high-risk pregnant women one half day per week in the main site and as needed in her office. Her practice group also serves as consultants to the family physicians and nurse-midwife for labor and delivery, and postpartum problems. In recent years, the area experienced a growing prenatal population, along with mounting unemployment, increased numbers of immigrant farm workers and uninsured patients. Happy Farms Health Center also noticed that an increasing number of patients arrive for prenatal care in their second or third trimester.

### **Part 3: Implementation of Clinical Quality Measure: Prenatal - First Trimester Care Access**

Before following the steps in Part 3, an organization should first make a commitment to improve access to first trimester prenatal care and complete the initial steps outlined in the previous section that include:

- Developing an aim statement
- Creating an infrastructure for improvement
- Gaining commitments from leadership

Performance on this measure indicates how effectively all the steps of the processes used to deliver care work together so that prenatal patients access care within the first 13 weeks of pregnancy. Because there are so many factors that can have an impact on the timing of the first prenatal visit, it helps to visualize how these steps are mapped. The next section defines *Critical*

*Pathway* and illustrates the application of this concept to implement the early initiation of prenatal care.

The case story continued...

**The Approach:**

Happy Farms' Quality Assurance program was asked by the State to report the rate of first trimester enrollment for its prenatal patients and was dismayed to find that for the previous year it was only 62 percent--significantly lower than the national and State averages.

The QA committee's initial steps in addressing this finding included:

1. Senior management and the Board of Directors approved focusing on improving early access to prenatal care for the pregnant women served by Happy Farms Health Center.
2. Research was done on the evidence supporting the measure and effective improvements adopted in other settings.
3. An improvement team of interested staff members with involvement in prenatal care was appointed under the direction of Dr. Mary, the family physician at the main site.
4. Time and staff support were allotted to allow the team to meet and proceed with its work and the team was asked to meet every two weeks and to report monthly to the QA committee.
5. It elected to focus improvement efforts on the prenatal patients cared for by Dr. Mary.

### **Critical Pathway for the Early Initiation of Prenatal Care**

A critical pathway, also known as a clinical pathway, is a visual depiction of the process steps that result in a particular service or care. The sequence and relationship among the steps are displayed, which reveals a *map* of the care process. Additional information, including tools and resources regarding the mapping of care processes, can be found in the [Redesigning a System of Care to Promote QI](#) module. In an ideal world, the care process is reflective of evidence-based medical guidelines. Evidence-based medicine aims to apply the best available evidence gained from the scientific method for medical decision making. (26) A map of the care process steps, that incorporates all of the known evidence and follows respected evidence-based medical guidelines, can be considered the *idealized critical pathway*.

While the needs of individual patients should always be considered, clinical guidelines synthesize the best evidence into a pragmatic set of action steps that strive to provide the optimum health care delivery system. It is important to emphasize that clinical evidence and guidelines could possibly evolve as knowledge progresses; therefore, the idealized critical pathway may evolve over time and not meet the needs of every individual.

Note: Please consider the following regarding critical pathways:

- It is important to note that there can be more than one way to depict the idealized critical pathway.
- Authorities vary on critical issues that have an impact on important decisions in medicine, and there is latitude within guidelines for variation related to less critical matters.
- It is important that an organization agrees on the guidelines with which to align. There are no specific guidelines that address processes to promote early access for prenatal care, but a number of references provide available evidence. An organization may interpret the evidence that has an impact on early prenatal care differently than illustrated in Figure 3.1. If so, creation of a different schematic that reflects its interpretation of the best evidence is encouraged. References are located in [Part 6: Supporting Information](#), which is included at the end of this module.

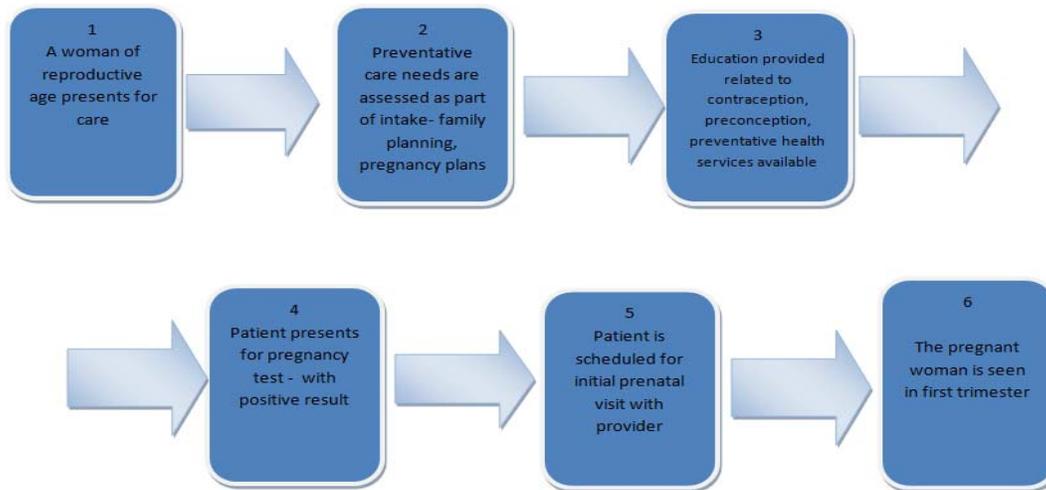


Figure 3.1: Critical Pathway for Prenatal - First Trimester Care Access

In **Figure 3.1**, the schematic for **Critical Pathway for Prenatal - First Trimester Care Access** incorporates available evidence and represents an idealized critical pathway for first trimester early prenatal care. The boxes represent typical steps in care delivery. If these steps happen reliably and well, effective care is delivered and women initiate care in their first trimester of pregnancy.

### *Walkthrough of the Idealized Critical Pathway*

This critical pathway exists both inside the clinic and beyond the clinic walls. In order to begin prenatal care during the first trimester, women must be aware of its importance and how to promptly access it. Since pregnancy begins outside the clinic, timely initiation of care depends largely on each patient’s commitment to present early for care. Personal, cultural, and societal beliefs influence these decisions, but the health care system should educate, support, and remove barriers so patients choose to seek care early. Successful practices, with high rates of early entry into prenatal care, indicate that several steps contribute to **First Trimester Care Access**:

1. The established care processes must help to prepare a woman for timely entry into prenatal care *before* pregnancy. Preventive care begins with the woman’s initial contact with the clinic, regardless of the reason for her visit.

2. By assessing the woman’s preventive health needs and pregnancy plans, the patient is more likely to have a planned pregnancy, and establish access to and a rapport with a care provider.
3. If prenatal care is provided in addition to other primary care services, the patient should be educated about the scope of services available. Women should be aware of the importance of early prenatal care to proactively prepare for pregnancy and seek care early. Additionally, women should be educated that early prenatal care is an important and routine aspect of preconception care. Women also benefit from understanding the signs of pregnancy, and where to access affordable diagnostic testing to confirm pregnancy early in the gestation.
4. When a woman presents for a pregnancy test and pregnancy is confirmed, counseling about her options for care is provided.
5. A high priority is placed on scheduling the newly-diagnosed pregnant woman for care. There must be an understanding on the part of the scheduling staff to expedite the initial visit.
6. Prenatal care does not begin until the woman is seen by the provider. If she does not keep her appointment, prompt follow up must take place.

A few important notes:

- The idealized critical pathway for the first trimester is the initiation of care and begins well before pregnancy. A proactive approach reflects the evidence that describes the importance of women receiving preconception care, understanding the signs of pregnancy, and having ready access to pregnancy diagnosis and care.
- An organization may adopt additional prenatal guidelines that include important care parameters beyond early access. *The Institute for Clinical Systems Improvement*, by the National Guidelines Clearinghouse, describes guidelines for comprehensive prenatal care in routine prenatal care, including recommendations for care beginning with preconception care.(27)
- A critical pathway can also be constructed to illustrate ***how care is currently provided*** within an organization (the existing pathway). Understanding the gap between an organization’s *existing* critical pathway (how you provide care now), and the *idealized* critical pathway (how to provide reliable, evidence-based care aligned with current guidelines), form the basis for improvement efforts.

The schematic in **Figure 3.2** reflects a common scenario, as represented in Hill Center Health Services, where preconception information and counseling may exist, but is not systematically and reliably delivered. One of the first considerations to improve the rate of early initiation of prenatal care is to increase the awareness of its importance and standardize its processes to ensure women of child-bearing age are offered preconception care and pregnancy planning as part of their routine wellness care. By comparing what is currently being done with the evidence-based medical guidelines, opportunities for improvement sometimes become apparent.

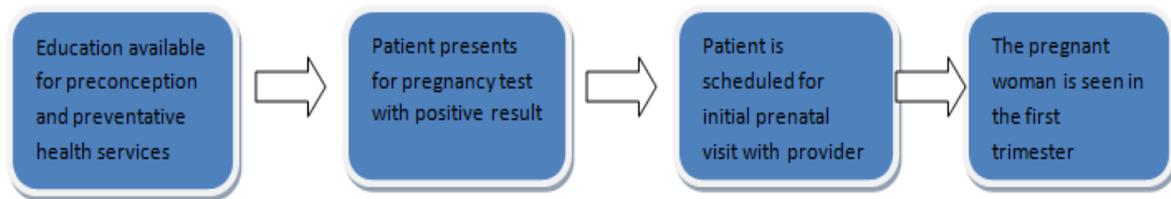


Figure 3.2: Critical Pathway for Hill Center Health Services for Prenatal Access to Care

### Factors That Impact the Critical Pathway

In addition to understanding the steps for providing timely prenatal care, factors that interfere with optimal care should be understood. As there may be several of these factors, a QI team may find it helpful to focus its attention on factors that interfere with ideal outcomes. This becomes especially useful as plans are developed to mitigate these factors.

Factors that have an impact on **Prenatal - First Trimester Care Access** can be organized into those that are patient-related, relative to the care team, and a result of the health system. Overlaps exist in these categorizations, but it is useful to consider factors that have an impact on care processes from each perspective to avoid overlooking important ones.

**Patient factors** are characteristics that patients possess, or have control over, that have an impact on care. Examples of patient factors are age, race, diet, and lifestyle choices. Common patient factors may need to be addressed more systematically, such as, a targeted approach to address a high teen-pregnancy rate, or a systematic approach to educate staff on the cultural norms of a new refugee population. Examples of how patient factors may influence an early entry into prenatal care include:

- **Age**—Teenagers are more likely to have unplanned or unwanted pregnancies and be less aware of the importance of beginning prenatal care, which may cause their delay in seeking care.
- **Cultural differences**—Immigrant women may have practices or beliefs in their native countries that do not view early prenatal care as a priority.
- **Health literacy**—Women unaware of the importance of positive health behaviors are less likely to enroll in early prenatal care. Literacy and language may be barriers to understanding health information.
- **Work status**—Women working in marginalized employment, with no flexibility for time off, may not make prenatal care a priority.
- **Comorbid diagnosis**—Homelessness, drug use, or mental health disease may negatively have an impact on the timing of entry into care.

- **Socioeconomic status**—Limited financial resources may be a barrier to accessing care.

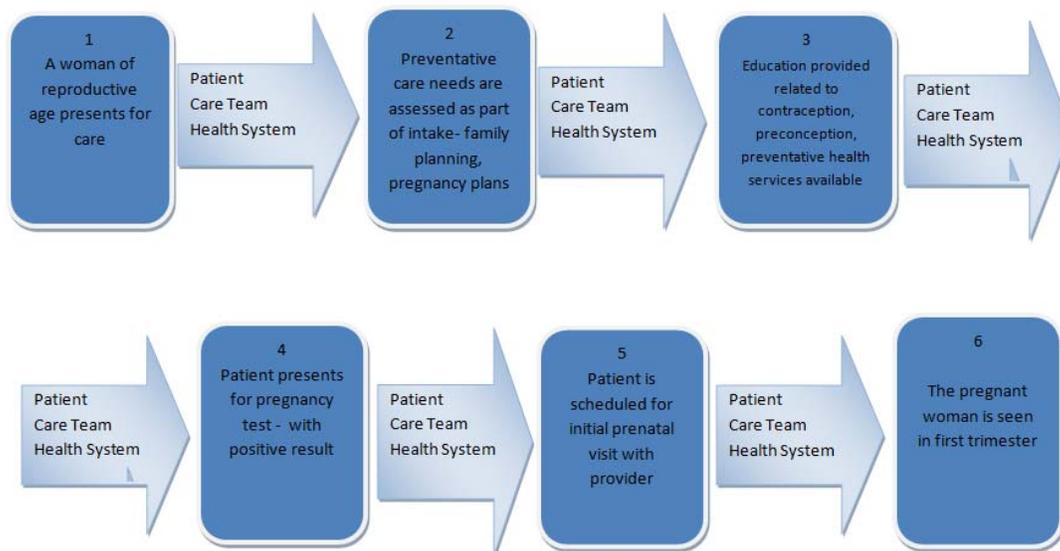
**Care team factors** are controlled by the care team. These types of factors may include care processes, workflows, how staff follows procedures, and how effectively the team works together. Care team factors that may influence early entry into prenatal care include the processes and procedures that:

- Staff use to handle "no-show" appointments and reschedule those appointments
- Provide culturally competent care to address the patient's cultural norms
- Provide planned care for women of child-bearing age, including attention to preconception care and preventive care

**Health system factors** are controlled at the *high level* of an organization and often involve finance and operational issues. Health system factors that may influence early entry into prenatal care include:

- **Cost**—uninsured or underinsured women may have difficulty finding a provider willing to provide care
- **Scheduling systems**—availability of evening and weekend appointments and wait time may have an impact on access
- **Location**—no transportation or an unsafe location may present barriers

These factors, when added to the critical pathway, create another dimension to the map as shown in **Figure 3.3**:



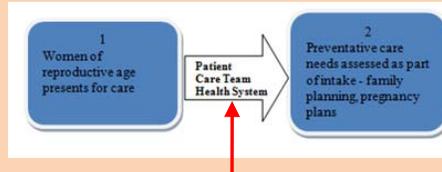
**Figure 3.3: Critical Pathway for First Trimester Prenatal Care Access with Potential Factors that Have an Impact on Access**

Next, a team may identify specific factors that pertain to the way care is provided for its patients. A team may look at Step 1: *Woman of reproductive age presents for care*, and Step 2:

Preventative care needs assessed as part of intake - family planning, pregnancy plans of the critical pathway. What factors have an impact on how effectively, timely, and reliably Step 2 follows Step 1? It is tempting to consider the first thoughts that come to mind, but a QI team is best served by systematically thinking through the potential impact of each category. In **Example 3.1: A Team’s Brainstorming Session**, it illustrates a QI team’s output.

**Example 3.1: A Team’s Brainstorming Session**

The team brainstorms on factors that have an impact on the arrow (or opportunity) between Steps 1 and 2 [link] of the Critical Pathway for First Trimester Prenatal Care (from Figure 3.3).



Factor Category	Factors Pertinent to our Organization—Steps 1 and 2
Patient	Hispanic population – cultural norms impede understanding need for early prenatal care; large teen population presents challenges to engage patients in planning
Care Team	No staff, workflows, or prompts dedicated to assessment of family planning needs; available educational materials are not culturally appropriate for the population
Health System	Additional co-pay for preconception visit and appointments for routine gynecological care are backed up eight weeks

The team continues to look at different parts of the pathway to identify relevant impacts for each part. Once it is able to evaluate where there are potential opportunities for improvement, it can use this information to target its efforts. Additional examples of strategies to improve care for the measure, **Prenatal – First Trimester Care Access**, are described in the **Improvement Strategies** section of this module.

Once the team visualizes the pathway and identifies opportunities for improved care, the next step is to collect and track data to test and document them. First, a QI team needs to determine *how* to collect data to support its improvement work. This step is essential for understanding the performance of its current care processes, before improvements are applied, and then monitoring its performance over time.

**Data Infrastructure: Prenatal - First Trimester Care Access**

This section begins to address the important role of data throughout the improvement process. It is important to recognize that different types of data are collected during the improvement project. First, data to calculate and monitor the **Prenatal – First Trimester Care Access** performance measure results is needed. Monitoring a performance measure involves calculating the measure over time and is used to track progress toward a numerical aim. This section provides an overview of what is needed. A detailed and stepwise approach follows to explain

the types of infrastructure elements needed to gather data to support improvement. Second, changes an organization is making to improve care processes and their effects must be tracked. Tracking the impact of changes reassures the team that the changes caused their intended effects.

### **Data Infrastructure to Monitor the Performance Measure—An Overview**

There are three major purposes for maintaining a data infrastructure for quality improvement work:

- To know the starting baseline
- To track and monitor performance as changes are implemented
- To perform systematic analysis and interpretation of data in preparation for action

The first step to creating a data infrastructure for monitoring the performance measure is to determine the baseline. A baseline is the calculation of a measure before a quality improvement project is initiated. It is later used as the basis for comparison as changes are made throughout the improvement process. For the **Prenatal - First Trimester Care Access** measure, an organization can determine the percentage of prenatal patients that access care within the first trimester as a result of established systems of care. Systems of care reflect the current organizational infrastructure and the patient's interactions with existing care processes and the care team.

Baseline data is compared to subsequent data calculated similarly to monitor the impact of quality improvement efforts. The details of how to calculate the data must be determined to ensure that the calculation is accurate and reproducible. The difference between how an organization provides care now (baseline) and how it wants to provide care (aim) is the gap that must be closed by the improvement work.

The next step of data infrastructure development involves a process in place to calculate the measure over time as improvements are tested. A QI team's work is to make changes, and it is prudent to monitor that those changes result in achieving the stated aim. This involves deciding how often to calculate the measure and adhering to the calculation methodology.

Finally, an organization's data infrastructure must include systematic processes that allow analysis, interpretation, and action on the data collected. An organization that knows its performance is insufficient for improvement. It is important for an organization to understand why performance is measured and to predict which changes will improve **Prenatal - First Trimester Care Access** based on an organization's specific situation. Collecting data related to specific changes and overall progress related to achieving an organization's specified aim are important to improvement work. The next section describes in more detail how to develop a data infrastructure to support improvement.

### **Implementation: Prenatal - First Trimester Care Access**

This section explores each step to create the data infrastructure used to improve performance on the measure, **Prenatal – First Trimester Care Access**.

**Note:** *If an organization is currently funded by HRSA, some clinical quality performance measures*

*Web site for more information and links to Bureau and Office required guidelines and measures:*

[BPHC](#)   [MCHB](#)   [HAB](#)   [BHP](#)   [ORHP](#)   [ORO](#)   [HSB](#)   [BCRS](#)

*General information on HRSA grants including searchable guidelines, are available and accessible at the [HRSA Grants Web site](#).*

*\*\* Grantees are encouraged to contact their project officer with questions regarding program requirements \*\**

## 1. Step 1 - Determine and Evaluate the Baseline

As discussed above, a *baseline for improvement* is a calculation that provides a snapshot of the performance of the *systems* of care for a measure before improvements are applied. The baseline is determined by calculating the measure and collecting the information for the numerator and denominator.

The following figure depicts a decision algorithm for the measure, **Prenatal - First Trimester Access**. The algorithm outlines the steps that an organization follows to determine its baseline and monitor improvements for **Prenatal - First Trimester Care Access**.

Prenatal First Trimester - Decision Algorithm-

(Denominator)

1) Find all women with pregnancy related services or diagnosis codes ⇒

(Numerator Eligible)

2) Using administrative data, determine date of delivery ⇒ delivery date found?

⇒ No ⇒ Go to Patient Chart step 3

⇒ Yes ⇒ identify first qualified prenatal visit using admin data?

⇒ Yes first trimester visit found using admin data ⇒ **Numerator Eligible**

⇒ No first trimester visit found ⇒ Proceed to Patient Chart step 3

Chart review

3) Determine by EDD, LMP or provider documentation if a prenatal visit to a qualified Obstetric Provider occurred before week 13, in the First Trimester. (see Table C decision rules 1, 2, or 3\_

⇒ YES... **Numerator Eligible**

⇒ NO.... No visit confirmed before week 13 Go to step 4

4) Through continued chart review determine if the patient reached her 13th week of pregnancy prior to Dec 31 of the measurement year

⇒ YES... - capture data... maintain chart in the denominator and record **NON-eligible** for the numerator.

⇒ NO... discard chart from sampling frame and proceed to the next chart (numerator exclusion)

**Figure 3.4: Prenatal First Trimester Decision Algorithm**

**Evaluate the baseline.** Initially, a team compares its baseline to the performance it hopes to achieve. It is important to remember this gap in performance is defined as the difference between how the care processes work now (baseline) and how an organization wants them to work (aim). An organization may often modify its aim or timeline after analyzing its baseline measurement and considering the patient population and organizational constraints.

As an organization moves forward, the baseline is used to monitor and compare improvements in care over time. While it is important for an organization to stay focused on its aim, it is equally significant to periodically celebrate the interim successes.

**2. Step 2: Create a reliable way to monitor performance over time as improvements are tested. An organization should:**

- a. Standardize its processes and workflows to ensure the team collects and calculates performance data the same way over time. An organization should document exactly how the data is captured so staff turnover does not interfere with the methodology.
- b. Determine the frequency that performance will be calculated. Frequent data collection is often associated with higher levels of improvement. Monthly measurement is recommended if feasible, as it is associated with a higher level of team engagement and success. If it is infeasible, quarterly measurements may be

obtained. Less frequent performance measurements are adequate for reporting purposes, but do not adequately support improvement efforts. An advanced discussion can be found in the [Managing Data for Performance Improvement](#) module.

- c. Chart and display results. A simple **chart audit form** is appropriate for manual audits and can be repeated frequently as desired. Results of multiple audits can be presented in a graphic format to demonstrate trends. Refer to [Managing Data for Performance Improvement](#) module for more information and examples of data displays that have been used to communicate information about improvement efforts to a variety of stakeholders.

*Note: The frequency of team meetings is not necessarily prescribed for success. Many successful teams meet once a week while others may meet bi-weekly when focusing their improvement efforts on any given measure. Success of these meetings is rather the output of the team members' active engagement in the meeting and being prepared to report on recent improvement findings. More information, including resources and tools supporting developing and implementing effective team meetings, can be found in the [Improvement Teams](#) module.*

### 3. Step 3: Create systematic processes that allow organizations to analyze, interpret, and act on the data collected.

Having the data is not enough. Improvement work involves thinking about the data and deciding what to do based on that analysis. A QI team needs to put processes in place – team meetings, scheduled reports, and periodic meetings with senior leaders, to use the data tracked. This section describes how a QI team may accomplish the work of creating actionable plans based on the data collected. In **Example 3.2: QI at Team Excelsior Health**, the hypothetical scenario illustrates how a team may use these concepts to act on its data.

- a. **Analyze: What are the data trends?** Tracking performance over time for the measure, **Prenatal - First Trimester Care Access**, is critical to successful improvement, but calculation of performance is not enough. It is important for a team to meet to analyze the data on a regular basis. QI teams that are experienced in looking at data recognize these common patterns:
  - Performance is improving
  - Performance is decreasing
  - Performance is flat
  - Performance has no recognizable pattern

Additional examples of common data patterns are provided with further explanation in the [Managing Data for Performance Improvement](#) module. It is typical for a team to see little movement in its data over the first several months. If a team has

chosen to monitor an associated process measure, such as, the percent of no-show prenatal patients who are rescheduled, performance improvement may be evident more quickly. Regardless, it is important that a QI team review performance progress regularly. A QI team that meets regularly and calculates performance monthly should spend part of one meeting each month reviewing its progress to date.

- b. **Interpret: What do these data trends mean?** A QI team needs to then interpret what these data trends mean within the context of its own organization. If performance is increasing, but has not yet reached the numerical aim, perhaps the changes in place are having the desired effect and the aim will be reached over time. If performance is decreasing, what has changed? Are there new care process changes, a failure of registry data input, or a large increase in those patients included in the registry? If performance is flat, did the organization maximize the benefits from changes implemented or was there some regression to the former way of doing things? Improvement trends that have reached a plateau may indicate that an organization needs to think differently about future changes. A few suggestions that an organization may consider when experiencing a plateau in improving **Prenatal - First Trimester Care Access** are listed below:
- i. Consider looking at outliers that may create barriers to patients accessing timely prenatal care, for example, lack of insurance, transportation, or language and cultural differences.
  - ii. Consider changes in a different part of the framework to get improvement back on track. If using a critical pathway approach, an organization may look at the steps prior to where the problem seems to be. If an Care Model approach is used and the team worked hard on delivery system design issues, opportunities to better leverage the clinical information systems or engage the community may be considered.

Interpretation of data over time is critical in determining where a team will target its efforts. Additional tools that can assist a team in understanding underlying causes for data trends are beyond the scope of this manual but are discussed in detail in a monograph that was published by the NQC, **A Modern Paradigm for Improving Healthcare Quality**.

- c. **Act: Make decisions based on data.** Once a QI team has a better understanding of what the data means, efforts should be targeted to further advance the performance toward the aim. Often the decisions are made at the team level about what to tackle first. Then small tests of change can be accomplished to determine what improvements could be implemented to enhance performance. The practice of using small tests of change actually allows multiple changes to be tested simultaneously.

*Note: An advanced discussion on how to use the data collected to advance an organization's improvement, including resources and tools to support improvement, can be found in the [Managing Data for Performance Improvement](#) module.*

**Example 3.2: QI Team at Excelsior Health**

The Quality Improvement (QI) Team at Excelsior Health worked diligently to improve access for prenatal patients increasing their first trimester enrollment from 50 to 75 percent over the last

### Example 3.2: QI Team at Excelsior Health

several months. They focused on staff education and scheduling issues and had streamlined those processes. But during the last three months, the performance remained the same, which was below their aim of 90 percent.

***Analysis:** The team noted improvement initially. Registry input, care processes and patient volumes seemed to be stable but performance was flat for the last four months.*

The team leader asked for a list of those patients who initiated prenatal care after their first trimester—outliers for the measure. Further study of these specific cases found that, 90 percent of the time, patients who presented for care after the first trimester were diagnosed as pregnant during their second trimester.

***Interpretation:** Because there was initial improvement followed by several months of flat performance, the team leader looked for obvious changes in processes that would have an impact on performance, but found none. The team leader interpreted the data to mean that initial changes provided some improvement, but not enough to achieve their aim and have a positive impact. More work was needed. The team leader employed a common strategy to find additional opportunities; i.e., looked at the population not in compliance (the outliers) for a common cause to be addressed. In this case, a common thread was that patients, who were coming in late for care, were not diagnosed as pregnant until the second trimester.*

This information allowed the team to consider ways to encourage patients to present earlier for pregnancy diagnosis. It looked at **Changes that Worked** for ideas and then added suggestions based on its own patient population. The team decided to increase focus on patient outreach, education about early signs of pregnancy, and ways to improve access to pregnancy testing. To accelerate these improvements, some members of the improvement team led an ad-hoc group to develop outreach materials, promoting the importance of early prenatal care, to be distributed at community venues. Another small group employed the Plan-Do-Study-Act (PDSA) cycle by working with the front desk staff and a few willing patient volunteers to make pregnancy testing more accessible. The improvement team will continue to monitor its performance to determine if these changes are effective for achieving its aim statement goals.

***Act:** The information gathered from the analysis and interpretation of the data allowed the team to focus their next efforts. Since patients were not diagnosed until the second trimester, they targeted their efforts on supporting patients to recognize signs and symptoms of early pregnancy and assuring clinic systems did not have barriers to pregnancy testing. This enabled the team to focus on PDSAs to test changes specific to these areas and monitor their progress.*

A QI team leader needs to monitor the pace of the progress over time. If there is insufficient progress to meet the specified aim, reasons should be analyzed and addressed. One organization may choose to accelerate its improvement efforts; another may decide to extend its initial allotment of time to achieve its aim and consider other constraints within the organization.

## Part 4: Improvement Strategies: Prenatal - First Trimester Care Access

The actual improvement process is composed of three steps that respond to the following questions:

1. What changes can an organization make?
2. How can an organization make those changes?
3. How can an organization know the changes caused an improvement?

### What Changes Can an Organization Make?

It is important to understand that improvement requires change, but not all change results in improvement. Considering all of the possible changes that can be made to health care systems, considerable effort has been dedicated to creating various quality improvement strategies providing a framework that organizes possible changes into logical categories. Frameworks for change in health care quality improvement are known as *quality models* and have been tested to guide change. In fact, considering that there are limited resources to dedicate to improvement, most organizations adopt one or more quality models to guide their improvement efforts. There is not a right or wrong approach, and there are many areas of overlap in quality models. Experienced quality improvement teams often use multiple strategies to overcome challenges as they progress. Two approaches often used by teams that are working to improve **Prenatal - First Trimester Care Access** are the *Care Model* approach and the *Critical Pathway* approach

The case story continued...

#### The Improvement Journey:

The team began its work by using the Care Model as an improvement approach. This involved considering the various aspects of care relevant to the measure (as outlined in the table above). Some of the team member's concerns were:

1. The observation that many of its Hispanic patients did not seem to understand the importance of beginning prenatal care early and attending regular visits.
2. Pregnant women were usually scheduled for an initial visit with the nurse for education and history and at that time were scheduled with a provider.
3. Schedulers complained that many pregnant patients worked or depended on a working person for transportation and there was a shortage of evening and weekend appointment times.
4. Uninsured patients had difficulty paying for ultrasounds and other prenatal testing.
5. Providers were frustrated that visits with non-English-speaking patients were time-consuming.

The team brainstormed some improvement ideas and strategies and decided to begin with the following:

1. Set a goal of a 75 percent first trimester enrollment for Dr. Mary's patients by the end of a year of improvement testing.
2. Conduct a chart audit of Dr. Mary's initial prenatal visits for the past month (only 15 patients) to determine her baseline, detect any problems with documentation, and review charts of those who began care after the first trimester.
3. Distribute a survey to all prenatal patients seen in the next week to ask for their input on the issue.

1. **Care Model Approach:** Implementing the changes described in the Care Model is a proven method to improve care delivery. The Care Model is an organizational framework for change and is organized into six domains:
  - a. Organization of Health Care
  - b. Clinical Information Systems
  - c. Delivery System Design
  - d. Decision Support
  - e. Community
  - f. Self-Management Support

Changes within these domains can effectively leverage transformation of a current reactive care system to one that better supports care for preventative health measures, such as, **Prenatal - First Trimester Care Access** and chronic disease conditions. The Care Model recognizes that care for pregnant women is ongoing and requires more proactive care than the health care system often provides. The Care Model is implemented to improve care by working in six domains, defined below, that transform the way care is delivered:

**Community**—To improve the health of the population, a health care organization reaches out to form powerful alliances and partnerships with State programs, local agencies, schools, faith organizations, businesses, and clubs.

**Organization of Health Care**—A health care system can create an environment in which organized efforts to improve the care of people with chronic illness take hold and flourish.

**Self Management**—Effective self management is very different from telling patients what to do. Patients have a central role in determining their care and one that fosters a sense of responsibility for their own health.

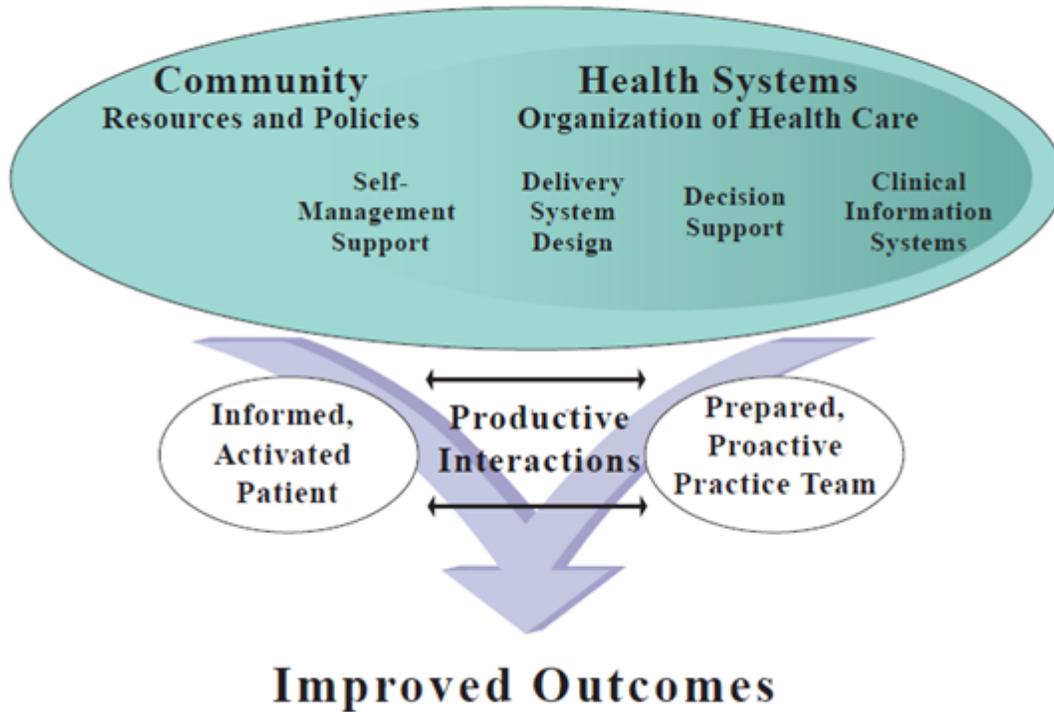
**Delivery System Design**—Delivery of patient care requires not only to determine what care is needed, but to clarify roles and tasks to ensure the patient receives the care; that all of the clinicians, who take care of a patient, have centralized, up-to-date information about the patient’s status, and make follow-up a part of their standard procedures.

**Decision Support**—Treatment decisions need to be based on explicit, proven guidelines supported by at least one defining study. A health care organization integrates explicit, proven guidelines into the day-to-day practice of primary care providers in an accessible and easy-to-use manner.

**Clinical Information System**—A registry, that is, an information system that can track individual patients and populations of patients, is a necessity when managing chronic illness or preventive care.

*Definitions above adapted from the Institute for Healthcare Improvement Web site (27)*

## Care Model



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**Figure 4.1: The Care Model**

In **Table 4.1: Care Model Key Changes**, key changes are presented that have been used successfully to improve prenatal care within the Care Model framework.

**Table 4.1: Care Model Key Changes**

Community	Organization of Health Care	Self-Management Support	Delivery System Design	Decision Support	Clinical Information Systems
					Use clinical information systems to accurately identify prenatal patients
Provide access via mobile services to provide prenatal screening and services	Integrate attainment of early prenatal care into business,	Use all staff interactions with patients as opportunities to assist in self-			Establish a process for obtaining records from other providers

		management goal setting and practices			

*This toolkit is meant as a guide to help organize ideas, but is also designed to allow flexibility for creative planning.*

**Note:** Improvement strategies are not “one-size-fits-all.” An organization may choose to adapt and refine an existing tool to assist improvement for the measure, **Prenatal - First Trimester Care Access**. Testing the measure before fully implementing it offers a way to try something new and modify it before additional resources are spent.

The case story continued....

**The QI Team:**

The review of Dr. Mary’s initial prenatal charts from the previous month revealed that:

1. Nine of the fifteen (60 percent) were first seen by her before the end of thirteen weeks. Those who were not seen included one teenager, two Hispanic women, three who were uninsured, and one who moved to the area in her third trimester and had received care elsewhere.
2. The nurse who did the chart audits also reported that prenatal forms were not organized uniformly in the charts and one chart had no LMP or EDD documentation.

A patient satisfaction survey asked about ease of contacting the clinic, scheduling an appointment, and treatment at the time of visits. Questions about the importance of prenatal care and testing were also asked.

The team decided its first improvement test should focus on delivery system design, and it planned to meet with the scheduling staff to revise its scheduling procedure for initial prenatal patients by:

1. Scheduling the initial nurse visit on the same day as the provider visit, or at least not waiting until the nurse visited to schedule the provider visit.
2. Teaching them how to calculate gestational age so they would know when the first visit should occur.
3. Asking for their input on other possible improvements.

The scheduling procedure would be implemented immediately for Dr. Mary’s patients and a chart audit would be repeated one month later.

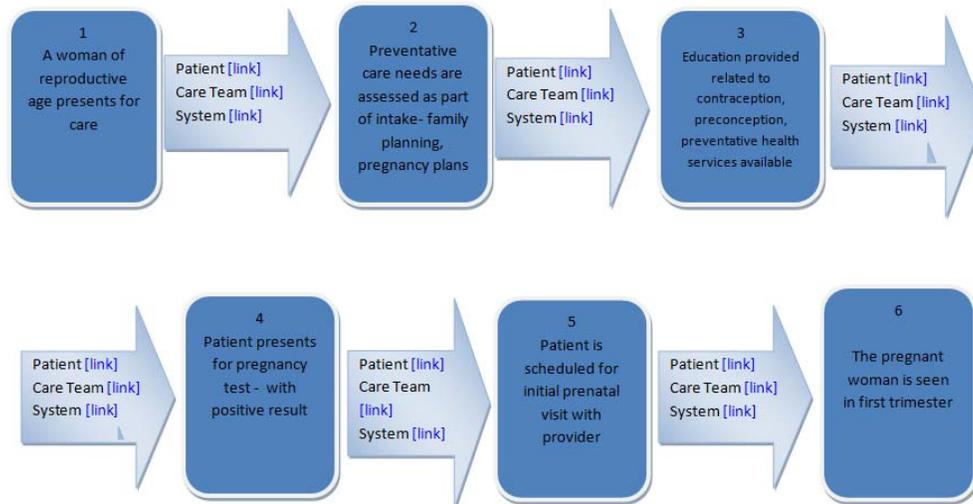


Figure 4.2: Critical Pathway Approach

2. **Critical Pathway Approach:** As with all critical pathways, good performance relies on many different systems and processes working together efficiently. An organization is encouraged to map its own critical pathway for **Prenatal - First Trimester Care Access** or refer to the schematic in **Figure 4.2**. Often when a QI team maps its pathways, it readily can see how complex each step is. It is common for different team members to do the same step differently. Workflow inefficiencies become clear when an organization visualizes how each step is completed and the interdependencies among the steps. Some teams are overwhelmed by the possibilities of changes that can be made in their systems; others focus only on a specific group of factors.

One way to organize the factors that have an impact on the systems is to consider that some are controlled by the patient, others are primarily controlled by the care team, and still others are inherent in the system of care delivery. All three sets of changes must be considered to improve systems of care. In general, these categories can be defined as follows:

- **Patient changes**—efforts to support self management efforts, patient engagement, and navigation of the care system
- **Care team changes**—changes in job duties or work flow that assist to retain patients in care and assure timely evidence-based prenatal care
- **Health system changes**—changes that have an impact on how care is delivered, independent of who does it

A team should use the steps along the critical pathway to target improvements. For this measure, **Prenatal - First Trimester Care Access**, influences on performance begin prior to the pregnancy, as indicated by the first step in the critical pathway: *A woman of reproductive age presents for care.*

An organization should ensure that visits for women of childbearing age include opportunities to discuss all issues relating to pregnancy and childbirth, within the context of overall health care. These issues can be addressed systematically and periodically with

appropriate sensitivity to cultural norms, regardless if the woman is planning a pregnancy in the immediate future. Promoting education and open dialogue for preconception and perinatal care as an important part of health care for women, encourages women to seek appropriate care when planning a pregnancy and early in the gestation.

An organization can think through each part of the critical pathway in turn, teasing out what happens and what could be improved. In **Table 4.2**, changes that have worked for other QI teams are matched with the part of the system on which they have the most impact. These ideas are not meant to be inclusive, but to start a dialogue of what may improve each part of the critical pathway in an organization, and thus improve it overall.

*This toolkit is meant as a guide to help organize ideas, but is also designed to allow flexibility for creative planning.*

**Note:** *Improvement strategies are not “one-size-fits-all.” An organization may choose to adapt and refine an existing tool to assist improvement for the measure, **Prenatal - First Trimester Care Access**. Testing the measure before fully implementing it offers a way to try something new and modify it before additional resources are spent.*

### Changes That Work

**Table 4.2: Sample Changes That Work Are Linked to the Critical Pathway for Prenatal - First Trimester Care Access**

A woman of reproductive age presents for care	<p>Patient educational resources regarding importance of early prenatal care routinely given</p> <p>Create expectation that patient must take responsibility to assure early prenatal care</p>	Care team members knowledgeable about importance of early prenatal care and can reinforce with messaging and materials during well-woman exams	Health system understands importance of early prenatal care
Preventive care needs are assessed as part of intake family planning, pregnancy plans	<p>Educational materials are available regarding signs of pregnancy</p> <p>Education materials regarding the importance of good health before pregnancy</p>	Care team knowledgeable regarding clinical guidelines for preventive care	Clinical guidelines for preventive care embedded in health system
Education provided related to contraception, pre-conception, and preventative health service	Education provided regarding contraception, preconception, and preventative care	Care team knowledgeable regarding clinical guidelines and understanding of latest contraceptive methods, including risk assessments for contraception, etc.	
Patient presents for pregnancy test with positive result	Patient educated on signs of pregnancy and the importance of early prenatal care	Care team members knowledgeable about importance of early prenatal care	
Patient is scheduled for initial prenatal visit with provider	Patient understands importance of early prenatal care	Care team members knowledgeable about importance of early prenatal care	Health System understands the need for early prenatal care
<b>The pregnant woman is seen during her first trimester</b>			

## How Can an Organization Make Those Changes?

Earlier in this module, examples are provided of changes (Critical Pathway and Care Model) that have led to improved organizational systems of care and better patient health outcomes. Because every change is not necessarily an improvement, changes must be tested and studied to determine whether the change improves the quality of care. This concept is addressed in detail in the [Testing for Improvement](#) module.

It is important that these changes be tested in the context of an organization’s staff, current processes, and patients. The goal is that the change results in lasting improvements within an organization.

- Organizations commonly use tools to manage change as they work to improve their systems. For more discussion about change management, refer to the [Testing for Improvement](#) and [Redesigning a System of Care to Promote QI](#) modules. Here are a couple of tools that are worth mentioning in the context of this measure:
  1. Small tests of change – [Model for Improvement and PDSA](#) (Plan-Do-Study-Act)
  2. [Process mapping](#)

### 1. *Model for Improvement*

The *Model for Improvement* (28) identifies aim, measure, and change strategies by asking three questions:

<b>AIM</b>	What are we trying to accomplish?
<b>MEASURE</b>	How will we know that a change is an improvement?
<b>CHANGE</b>	What changes can we make that will result in improvement?

These questions are followed by the use of learning cycles to plan and test changes in systems and processes. These are referred to as PDSA (Plan-Do-Study-Act) cycles. The PDSA Cycle is a test-and-learning method for discovering effective and efficient ways to change a current process. In **Figure 4.3: The PDSA Cycle**, the graphic provides a visual of the PDSA process:



Figure 4.3: The PDSA Cycle

An organization focusing its improvement efforts on its patients' first trimester care access benefits from implementing PDSAs to test change processes that have an impact on access to care in the first trimester. Those organizational processes tested may focus on outreach, operational procedures, or patient education interventions ensuring that patients have timely access to care. A few examples of such processes relating to **Prenatal - First Trimester Care Access** are listed below:

- What is the recall system in place if a prenatal patient *no-shows* for a first appointment?
- What is the timeframe until the next available appointment for a first prenatal appointment?
- A portion of the population may not see pregnancy as a condition needing medical care. Is there an opportunity for education prior to pregnancy confirmation?
- Is there an opportunity to educate the community on the importance of early prenatal care at a community health fair?
- Are there cultural, linguistic, and literacy barriers that the organization may need to address?

As an organization plans to test a change, it should specify the *who, what, where, and when* so that all staff know their roles clearly. Careful planning results in successful tests of change. Documentation of what happened – the *S* or study part of the PDSA – is also important. This can help a team to understand the impact of changes to a process as unanticipated consequences may occur.

The case story continued...

**PDSA Cycles in Action:**

The change in scheduling procedure was the team's initial PDSA. At the end of the month, a repeat chart audit showed that 13 out of 18 (72 percent) of Dr. Mary's initial prenatal patients had been seen by her before 13 weeks. The group decided to continue with that procedure and tried other improvements.

The patient survey showed that Hispanic women did not want to use a family member as an interpreter when

there was not one available at the clinic. The team assigned a Spanish-speaking LPN to work routinely with Dr. Mary and researched the cost of subscribing to a phone-based interpretation service or hiring an interpreter.

Other strategies directed at Spanish-speaking patients included contracting a local Hispanic resource center to assist with outreach and health education activities, improving written educational materials for pregnant Spanish-speaking women, and offering transportation services. Chart audits were repeated periodically and, based on the results, decisions were made whether to revise the intervention, discard it, or continue it.

### **Tips for Testing Changes**

- Keep the changes small and continue testing
- Involve care teams that have a strong interest in improving prenatal care
- Study the results after each change. All changes are not improvements; do not continue testing something that does not work!
- If challenged, involve others who do the work even if they are not on the improvement team
- Make sure that overall aims are improving; changes in one part of a complex system sometimes have an adverse effect in another

## **2. Process Mapping**

*Process mapping* is another valuable tool that an organization focused on improvement often uses. A process map provides a visual diagram of a sequence of events that result in a particular outcome. Many organizations use this tool to evaluate a current process and again when restructuring a process.

The purpose of process mapping is to use diagramming to understand the current process; i.e., how a process currently works within the organization. By looking at the steps, their sequence, who performs each step, and how efficiently the process works, a team can often visualize opportunities for improvement.

Process mapping can be used before or in conjunction with a PDSA cycle. Often, mapping out the current process uncovers unwanted variation. In other words, different staff may perform the process differently, or the process is changed on certain days or by specific providers. By looking at the process map, a team may be able to identify gaps and variation in the process that have an impact on first trimester access to care for prenatal patients.

Both of these improvement strategies are illustrated in **Example 4.1:**

#### **Example 4.1: Illustrations of Improvement Strategies**

##### **Improving recall for patients who “no-showed” for their first prenatal visit**

At a small clinic in the Southwest, about 42 percent of prenatal patients in the last year were Hispanic and only 62 percent of them were seen in the first trimester of their pregnancy. Further investigation revealed that at least 40 percent of those patients who delayed entering care were a *no*

#### Example 4.1: Illustrations of Improvement Strategies

*show* for their first appointments. The improvement team decided to look at the process of how women, newly diagnosed as pregnant, were scheduled and received their first prenatal visits. The current process mapped by the improvement team was:

1. Pregnancy diagnosed (nurse visit per protocol)
2. First available appointment given (front desk)
3. Routine no-show policy followed; patient called and given next available appointment (front desk)

The improvement team immediately noticed that no attention was paid to the *estimated gestational age* (EGA) of the pregnant women in the appointment and follow-up process. An important part of the protocol for pregnancy diagnosis is dating the pregnancy, but that information was not passed to the front desk staff, and they were given no guidance about scheduling first prenatal appointments.

The QI team called the nurse and front desk personnel together to train them about the importance of early prenatal care and to guide them on the significance of EGA. The goal was for the prenatal patients to be scheduled for their first appointments before 13 weeks EGA or as soon as possible after the pregnancy diagnosis. They brainstormed ideas on how to accomplish this. The first idea was tested the next day; the nurse gave EGA and patient demographic information to the front desk for a woman seen for pregnancy diagnosis. The front desk staff realized that the patient was already 10 weeks along, but the providers' schedules were full for the next three weeks. She consulted her supervisor, and they decided to schedule the patient, but also made a note to speak to operations about a rule to accommodate this new activity into overall scheduling procedures. Over the next few weeks, the nurse and front desk staff worked together to test "handoff" strategies to ensure patients were seen as soon as possible. The scheduling procedure was changed to allow priority for first prenatal care visits. In a similar manner, the team led tests to improve the recall policy, again recognizing the urgency and need to get women into care.

The team strategy was successful. By choosing an improvement to link the appointment and follow up to EGA, and then "testing" the best ways to make it operational in the clinic, the team improved first trimester entry time to 71 percent. They were also successful in rescheduling patients, who *no-showed* that first visit prior to 13 weeks EGA, to more than 90 percent of the time.

Process mapping, when used effectively, can identify opportunities for improvement, supporting the testing of changes in the current system of care. Additional information, including tools and resources to assist an organization in adapting process mapping as an improvement strategy within its organization, can be found in the [Redesigning a System of Care to Promote QI](#) module.

## How Can an Organization Know That Changes Caused an Improvement?

Measures and data are necessary to answer this question. Data is needed to assess and understand the impact of changes designed to meet an organization's specified aim. Measurement is essential in order to be convinced that changes are leading to improvement. Organizations that have experienced successful improvement efforts found that data, when shared with staff and patients outside the core improvement team, led to the *spread of improvement* strategies, in turn generating interest and excitement in the overall quality improvement process.

Measures are collected prior to beginning the improvement process and continue on a regularly scheduled basis throughout the improvement program. Once an organization reaches its specified goal, frequency of data collection may be reduced. Additional information regarding frequency of data collection, tracking, and analyzing data can be found in the [Managing Data for Performance Improvement](#) module.

## Part 5: Holding the Gains and Spreading Improvement

### Holding the Gains

Once an organization has redesigned the process for prenatal patients accessing care in the first trimester, it can be tempting to move on to other issues and stop monitoring the process. Ongoing monitoring ensures that an organization *holds the gains* over time.

Although an organization may be able to reduce the frequency of monitoring the process, some ongoing assessment of the measure is necessary to ensure an organization continues to meet its intended goal. Processes that work well now may need to change as the environment shifts. For example, if a new immigrant population moves to the community, processes and strategies may need adjustment to engage that population in first trimester prenatal care. Often organizations designate a staff member(s) to be responsible for monitoring these issues, updating protocols/order sets, and revising the frequency of measurement based on the outcomes reported.

Because all systems are dynamic, they change unless efforts are made to ensure that the improvements continue. Organizations often do a few simple things to ensure that successful changes are embedded in the daily work. Examples include:

1. Change the procedure book to reflect the new care process.
2. Include key tasks in the new process as part of job descriptions.
3. Adjust the expectations for performance to include attention to quality improvement and teamwork to improve care.
4. Re-align hiring procedures to recruit individuals who are flexible and committed to quality improvement.

The case story continued...

**Sustaining Improvements:**

A year later, the team achieved an 82 percent first trimester enrollment rate for the last month, but was at 70 percent for the year. It made significant strides in its improvement project and learned how to design trials efficiently, involve relevant staff and patients, and communicate the results. Successful changes included:

1. Hiring an interpreter who also functioned as a prenatal case manager.
2. Prenatal education classes.
3. A protocol for preconception counseling that included providing information about the importance of early prenatal care.
4. Scheduling efficiency had improved.
5. A follow-up system was developed for contacting patients who missed appointments.

The team planned to continue its efforts in the coming year and include the patients of the nurse-midwife at one of the satellite sites. The nurse-midwife planned to attend a course to learn how to provide group prenatal visits. Also, an incentive program to provide points for prenatal visit attendance that could be “spent” at a baby supply “store” was under discussion with the region’s March of Dimes chapter.

**Spreading Improvement**

Spread can be defined differently based on an organization’s defined target population for the improvement effort. An organization often begins an improvement intervention on a smaller scale, possibly focusing on one site or one provider’s patient panel, and then increases POF or the number of providers. Spread can mean spreading improvements to another area of an organization. An organization can still focus on prenatal patients accessing care in the first trimester but also include other or all providers that provide prenatal care. Ideally, others can learn from the initial improvement experience and implement the interventions of the improvement team in their own environments. Spread of this kind is often at an accelerated pace as there is experience about changes that work within the organization.

If an organization has a small number of prenatal patients, it may focus its initial improvement efforts on care for its entire prenatal population. Once it has successfully reached its goal for **Prenatal - First Trimester Care Access**, it may choose another measure to improve other aspects of prenatal care. Another option is to target a different topic or another population of patients. An organization may evaluate organizational priorities as it did when initially choosing the **Prenatal - First Trimester Care Access** measure and begin to plan for its next improvement effort.

Additional information on  *Holding the Gains*  and  *Spreading Improvements* , including specific resources and tools to support an organization’s improvement program, can be found in the  [\*\*Redesigning a System of Care to Promote QI\*\*](#)  module.

## Part 6: Supporting Information

### Case Story

To gain insight into how one QI team approached this measure, review a case story highlighting Happy Farms' Quality Assurance Program and its approach to improving **Prenatal-First Trimester Care Access**.

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