

Putting it All Together: An Improvement Project Cycle

Participant training objectives:

- To review quality tools and concepts introduced in previous exercises
- To experience how quality tools and concepts may be integrated and applied during one project cycle

Target audience:

Quality committee members, quality team members, leaders, and staff involved in quality improvement projects, specifically in workplan development, process investigation, and pilot test selection.

Type of exercise:

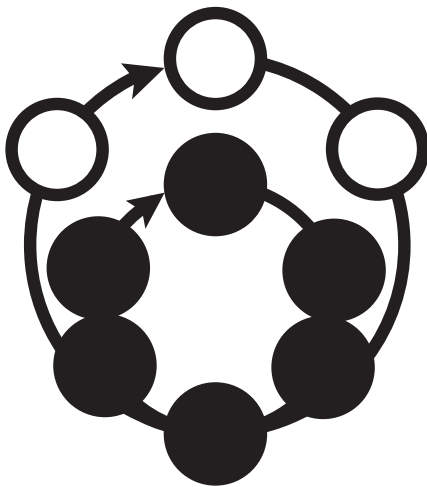
Scenario; series of 6 group exercises, 2.5 hours

Key concepts:

During a QI project, team members utilize a wide range of quality tools to help investigate quality problems and identify potential solutions, such as

- Improvement Project Memo
- Flowchart
- Brainstorming
- Cause-and-Effect Diagram
- Run Chart

Note: The following exercises should be completed before the Quality Tool Review Exercise: Improvement Project Memo Exercise, Brainstorming Exercise, Cause-and-Effect Diagram Exercise, Flowchart Exercise, and Data Presentation Exercise.



The Big Picture:

Quality tools provide a structured means to achieving the goals outlined in the improvement project memo. For example: Flowcharts help teams illustrate current process flow; Brainstorming helps team members generate ideas about the causes of, and solutions to, a particular quality problem; Cause-and-Effect Diagrams assist team members in mapping the potential causes of a quality problem; and Run Charts allow teams to visually track performance trends over time.

SESSION AT-A-GLANCE	WHO	HOW LONG
1. Welcome, Learning Objectives, Agenda	Facilitator	5 minutes
2. QI Background: Review of Quality Tools and Concepts	Facilitator	15 minutes
3. Group Exercise: Quality Tools Scenario	Participants	2 hours
4. Wrap-up	Participants	10 minutes
		2 hours 30 minutes

Materials

For this group learning session, you will need the following materials:

- Participant handouts:
 - Quality Tools Scenario (Group Exercise 1-6)
 - Copy of slide presentation
- Flipchart paper and markers
- Overhead projector/LCD panel (optional)
- Wipeboard/chalkboard (optional)

Preparation

To prepare for the group learning session, complete the following tasks:

Familiarize yourself with the session's structure and content:

- Read through the Group Exercise notes in their entirety, including the exercise answer key, presentation slides, and participant handouts.
- Practice the presentation outlined in the Group Exercise notes.

Photocopy the Quality Tool Scenario and slide presentation for each participant.

Prepare your presentation slides for display:

- Photocopy the slides, or write the slide content on transparencies or on flipchart paper.
- For display using an LCD panel, enter the content into a computer file.

Prepare the training room:

- Arrange the tables and chairs in a circle or square shape, if possible.
- Tear off flipchart paper and make sure you have enough markers for the group(s) to use during the exercise.
- Set up and test equipment (e.g. overhead projector), if applicable.
- Make sure you have enough chalk or wipeboard markers, if applicable.

Notes

Putting it All Together: Group Exercise

Welcome and Introductions

To begin the group learning session, welcome participants and thank them for their participation. If necessary, ask individuals to introduce themselves to the group.

Learning Objectives

Tell participants that by the end of the session they will have:

- Reviewed quality tools and concepts introduced in previous exercises
- Experienced how quality tools and concepts may be integrated and applied during one QI project cycle

Agenda

Provide a brief description of the session's primary components:

- Presentation to review key quality tools and concepts
- Group exercise designed to simulate the planning, investigation, and solution identification phases of a QI project cycle

Quality Improvement Background

Distribute a copy of the slides to each participant for note taking and/or future reference.

Introduce the concepts and tools that participants will apply during the exercise:

- Improvement Project Memo
- Flowchart
- Brainstorming
- Cause-and-Effect Diagram
- Run Chart





Review the concepts individually (see below). After each topic, pause to ask participants if they have any questions or need additional clarification.

Improvement Project Memo. Review that a QI memo is a project blueprint that includes the following elements:

- Problem statement
- Improvement goal
- Project team members
- Project timelines
- Meeting resources
- Operational guidelines

Note: The Improvement Project Memo Exercise explains these concepts in detail.

Flowchart. Review that a flowchart is a picture of any process, whether it involves a sequence of events, steps, activities, or tasks. Flowcharts are drawn with a standard set of symbols:

-  Oval—shows the process' beginning and ending points.
-  Rectangle—shows any single step in the process.
-  Arrow—connects steps and shows direction of process flow.
-  Diamond—indicates a decision point.

Note: The Flowchart Exercise illustrates how the symbols are used in greater detail.



Brainstorming. Review that brainstorming is a technique to freely and uninhibitedly generate ideas using a group approach. The brainstorming process includes the following steps:

1. Write the topic statement or question in a central location
2. Review general rules for brainstorming
 - Go for quantity
 - Build on previous ideas
 - Do not edit ideas or debate their merits
3. Establish a time limit (about 10 minutes)
4. Generate ideas with the group until time is up
5. Review and refine ideas

Note: The Brainstorming Exercise explains the process in detail.



Cause-and-Effect Diagram. Review that a Cause-and-Effect Diagram is used to map variables that may influence a problem, outcome, or effect. The process for constructing a Cause-and-Effect Diagram includes the following steps:

1. Draw the diagram's skeleton
2. Write the problem or desired outcome in the box at the end of the arrow
3. Brainstorm potential causes and subcategories to fill in the skeleton
4. Review and refine causes

Note: The Cause-and-Effect Diagram Exercise explains the process in detail.

Run Chart. Review that a Run Chart is a line graph of data plotted over time which includes the following elements:

- Horizontal axis—time increments
- Vertical axis—measurement increments
- Marked points—measurement or quantity observed at one point in time, connected to help display upward or downward trends in performance

Note: The Data Presentation Exercise discusses the Run Chart in greater detail.

Getting Started

Divide the participants into teams of roughly equal size, 4-6 people per group. You can assign participants to teams yourself or ask them to count off by a given number and form teams with other participants who have the same number.



Exercise

Group Exercise

Distribute Group Exercise 1 and provide directions for completing the exercise:

- For the duration of the exercise, you and your team are staff members at the Best-in-Town HIV Clinic charged with helping to improve the facility's quality of care.
- There are 6 parts to the exercise, each of which you will complete with your team members. In between the exercises, report back to the facilitator to discuss your findings and receive the next exercise.
- Begin with Group Exercise 1. Read the instructions, complete the exercise, and let the facilitator know when your group is finished.

Assist teams who have problems getting started or become stuck on a particular point.

Reporting Back

When team members signal that they have finished each step, walk over to the group and ask for a report, taking care not to disrupt the other teams. Listen to the response, then share any points from the answer key that have not been addressed.

At the end of each discussion, ask participants what they would do next to proceed with the project. Then distribute the next exercise in the sequence. Briefly introduce the exercise and its goals.

A general timeline for the exercises is as follows:

- Group Exercise 1: 10 minutes
- Group Exercise 2: 10 minutes
- Group Exercise 3: 15 minutes
- Group Exercise 4: 15 minutes
- Group Exercise 5: 15 minutes
- Group Exercise 6: 15 minutes

Be aware that each team's pace will vary. For example, one group may labor over project selection and the improvement project memo, but work quickly through the Flowchart and Cause-and-Effect Diagram. Another group may have the opposite experience. Based on your knowledge of the participants, allow teams to work over—or under—the recommended timelines within reason.



Wrap-up

Ask participants to provide feedback on whether or not they have achieved the objectives introduced at the beginning of the group learning session:

- To review quality tools and concepts introduced in previous exercises
- To experience how quality tools and concepts may be integrated and applied during one QI project cycle

Schedule an informal follow-up session with any participant(s) who has not reached the objectives.

Putting it All Together: Scenario

Group Exercise 1 (10 minutes)

Instructions:

Review the background information and quality data below, then choose one project that represents the clinic's top improvement priority and write it on flipchart paper.

Background

The Quality Committee at the Best-in-Town HIV Clinic routinely meets to review certain quality measures and discuss the findings. Several results of those reports are printed below.

Quality Data

WAITING TIME IN CLINIC	
MONTH-YEAR	TIME (IN MINUTES)
January-05	17
February-05	19
March-05	16
April-05	15
May-05	21
June-05	17
July-05	18
August-05	13
September-05	21
October-05	15
November-05	16
December-05	21
January-06	32

AVERAGE LENGTH OF STAY	
MONTH-YEAR	TIME (IN DAYS)
January-05	8.2
February-05	7.9
March-05	9.1
April-05	8.6
May-05	7.6
June-05	6.5
July-05	8.5
August-05	9.1
September-05	8.6
October-05	7.5
November-05	8.2
December-05	9.8
January-06	6.5

PATIENT SURVEY STATEMENT	PERCENTAGE OF PATIENTS		
	JANUARY-05	JULY-05	JANUARY-06
Doctors have time for me.	12%	16%	13%
Staff answers my questions.	15%	18%	16%
Waiting time is too long.	19%	18%	34%
Clerical staff is professional.	21%	21%	15%
Waiting area is clean.	15%	16%	14%
I received the information I need.	18%	11%	8%
Total	100%	100%	100%

STAFF SURVEY STATEMENT	PERCENTAGE OF STAFF MEMBERS		
	JANUARY-05	JULY-05	JANUARY-06
Supervisor sets clear goals.	17%	19%	18%
Staff meetings are effective.	17%	17%	17%
Working environment is clean.	15%	16%	16%
There are adequate training opportunities.	16%	18%	15%
Communication among staff is open.	18%	15%	19%
There are opportunities for job promotion.	17%	15%	15%
Total	100%	100%	100%

Report back to the facilitator and ask for the next exercise.

Group Exercise 2 (10 minutes)

Instructions: Complete an Improvement Project Memo for the “Patient Waiting Time” project selected by the quality committee.

Improvement Project Memo

Date: _____

Indicator: _____

Problem Statement: _____

Improvement Goal: _____

Team members: Clinician, primary care
Nurse, clinic
Administrator, clinic
Receptionist
Case Manager, clinic

Other: (resources, authority, frequency of reporting)

- Team will be given time to meet
- There's money for supplies or other similar expenses, but not for additional staff
- Team members will report back to the Quality Committee by August 31, 2006.

Report back to the facilitator and ask for the next exercise.

Group Exercise 3 (15 minutes)

Instructions: An interview is conducted to help team members better understand the patient sign-in process. Create a flowchart on flipchart paper using information from the interview dialogue, below. Make sure your flowchart reflects the process as it is presented in the interview. The chart should begin with the patient entering the room and end when the patient is seen by the physician.

Interview Dialogue

Clinic Manager: I would define the waiting time from the time a patient enters the clinic to the time until the patient is seen by the provider. First the patient's chart gets pulled.

Registration Clerk: No, not really. The first thing that we do is sign in the patient in the computer system. It takes only a few seconds if no other patients are at the counter.

Patient: Sometimes I come early to the clinic and I am not seen by the physician on time because he comes in late.

Staff Nurse: We do the vital signs and then put the charts back on the cart for the doctor to see the patient. Sometimes it takes quite a long time to get the charts in our cart.

Registration Clerk: I forgot to tell you that we also get the chart after the computer sign-in and place them on the cart for the nurses.

Staff Nurse: Sometimes we see the patients before the chart is prepped if we see the patient in the waiting room.

Clinic Manager: Does it happen that the provider does see the patient without a chart?

Staff Nurse: Sometimes and then they usually come and ask everyone where the chart is. It keeps us from taking the vital signs of patients.

Registration Clerk: At the end, the patient is seen by the physician and the physician places the chart for us in the sign-out area.

Report back to the facilitator and ask for the next exercise.

Group Exercise 4 (15 minutes)

As process investigation continues, a team member gathers waiting time data for each step in the admitting process:

PROCESS STEPS	TIME BETWEEN (IN MINUTES)	
	JANUARY-05	JANUARY-06
1. Patient enters—Clerk signs patient in.	1.9	2.4
2. Clerk signs patient in—Clerk puts chart in nursing cart.	3.1	4.2
3. Clerk puts chart in nursing cart—Nurse takes patient vital signs.	5.1	5.5
4. Nurse takes patient vital signs—Nurse returns chart to cart.	3.4	6.0
5. Nurse returns chart to cart—Physician sees patient.	3.5	13.9
Total	17.0	32.0

Instructions:

Brainstorm possible causes of the increased waiting time between the tasks in Step 5: Nurse returns chart to cart—Physician sees patient, and use them to create a Cause-and-Effect Diagram on flipchart paper.

Report back to the facilitator and ask for the next exercise.

Group Exercise 5 (15 minutes)

Instructions:

Create a Run Chart on flipchart paper using the September waiting-time data below. The data was collected to help team members focus on the wait time between nurses returning patient charts to the cart and physicians seeing their patients.

Report back to the facilitator and ask for the next exercise.

WAITING TIME IN CLINIC (between nurse returning patient chart to cart and physician seeing patient)	
DAY, MONTH/DAY/YEAR	TIME (IN MINUTES)
Monday, 9/3/05	41
Tuesday, 9/4/05	17
Wednesday, 9/5/05	18
Thursday, 9/6/05	23
Friday, 9/7/05	22
Monday, 9/10/05	39
Tuesday, 9/11/05	20
Wednesday, 9/12/05	23
Thursday, 9/13/05	18
Friday, 9/14/05	19
Monday, 9/17/05	45
Tuesday, 9/18/05	16
Wednesday, 9/19/05	20
Thursday, 9/20/05	20
Friday, 9/21/05	12
Monday, 9/24/05	42
Tuesday, 9/25/05	17
Wednesday, 9/26/05	25
Thursday, 9/27/05	32
Friday, 9/28/05	22

Group Exercise 6 (15 minutes)

The team collected the following data to examine what happened that may have contributed to the increased waiting time on Mondays in September:

EVENT	NUMBER OF OCCURRENCES	
	SEPTEMBER-05	SEPTEMBER-06
Staff member was on vacation.	5	12
Staff member was sick.	6	5
Provider came in late.	5	4
There was an electrical failure.	1	1
An exam room was being renovated.	1	2
Front desk staff did not sign a patient in.	3	2
The patient left and came back again.	1	3

Instructions:

Discuss the findings and select the event that is most likely to be a root cause of the problem. Brainstorm possible solutions to the problem on flipchart paper.

Report back to the facilitator.

Congratulations! You are finished with the exercise.

Putting it All Together: Answer Key

The sample response does not reflect how the facility necessarily should or would complete the project steps, but rather one way the steps could be completed.

Group Exercise 1

Top improvement priority: Patient Waiting Time

Rationale: Of the data presented, patient waiting time shows the greatest variation—over 50% between January 2005 and January 2006—and registers the greatest percentage of patient complaints.

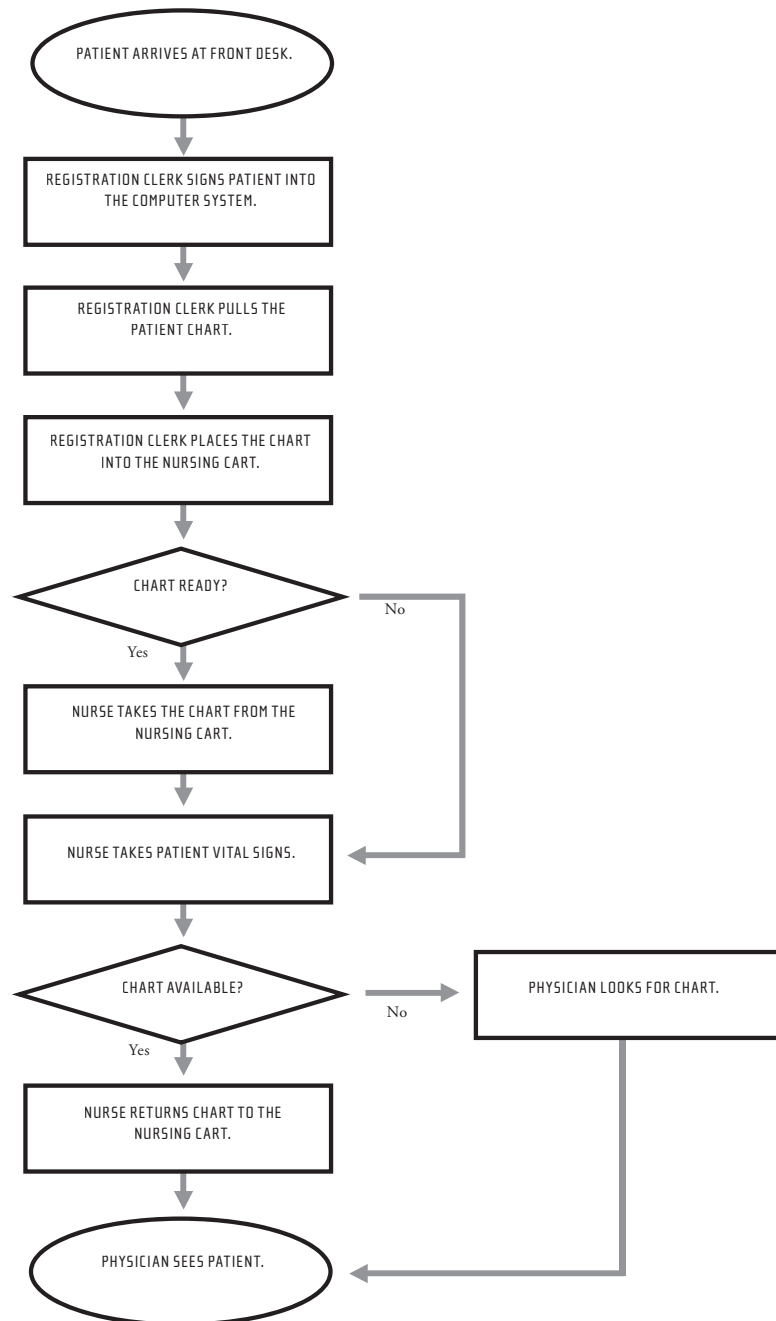
Group Exercise 2

Improvement Project Memo

- **Indicator:** Patient waiting time
- **Problem statement:** Currently, average patient waiting time is 32 minutes, an increase of 53% from this time last year.
- **Improvement goal:** The team will work to improve the clinic's performance on patient waiting time. The team should focus on decreasing the average time patients must wait between entering the clinic and seeing a physician. The team should aim to decrease the average waiting time to 17 minutes, a 53% reduction from current levels.

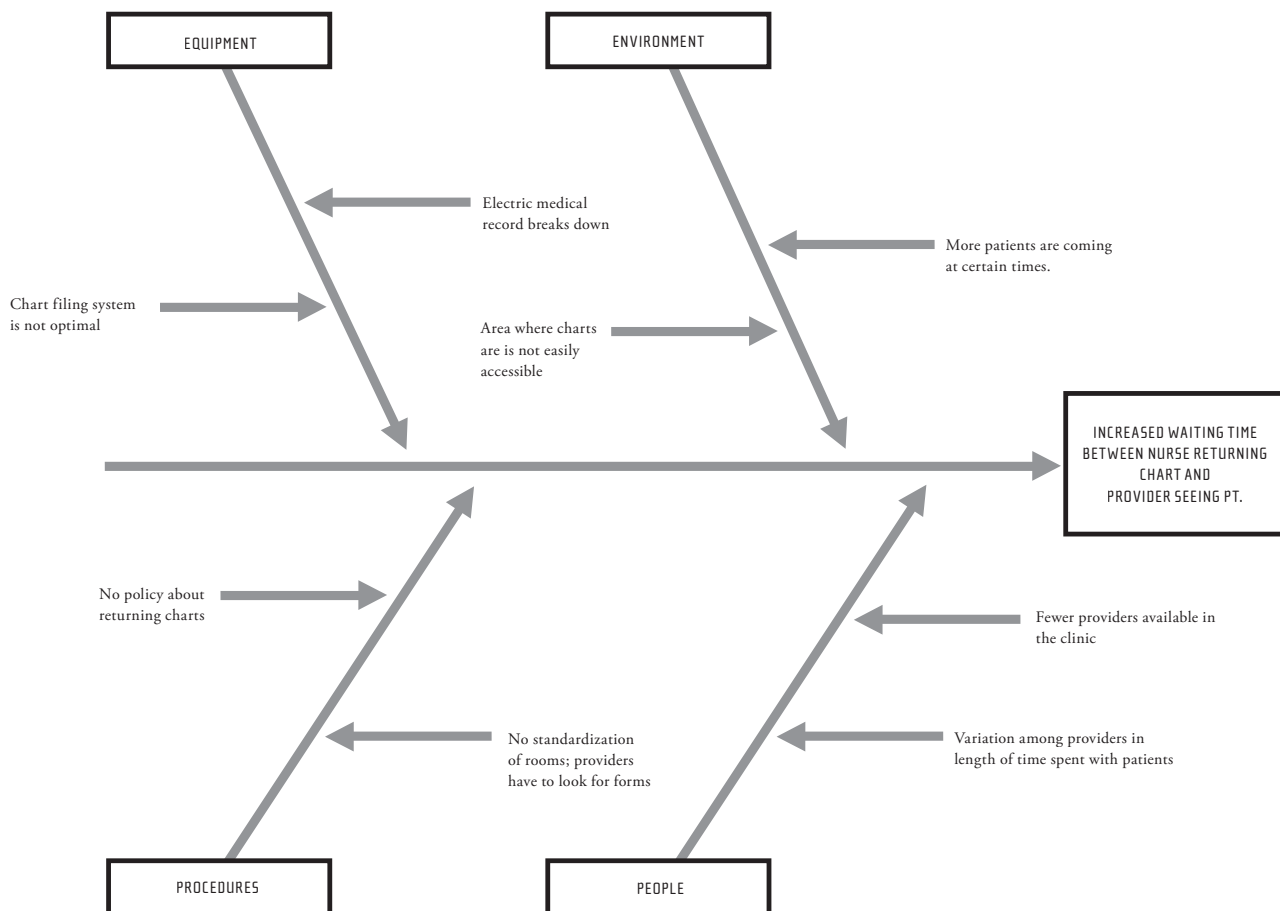
Group Exercise 3

Flowchart: Sign-In Process



Group Exercise 4

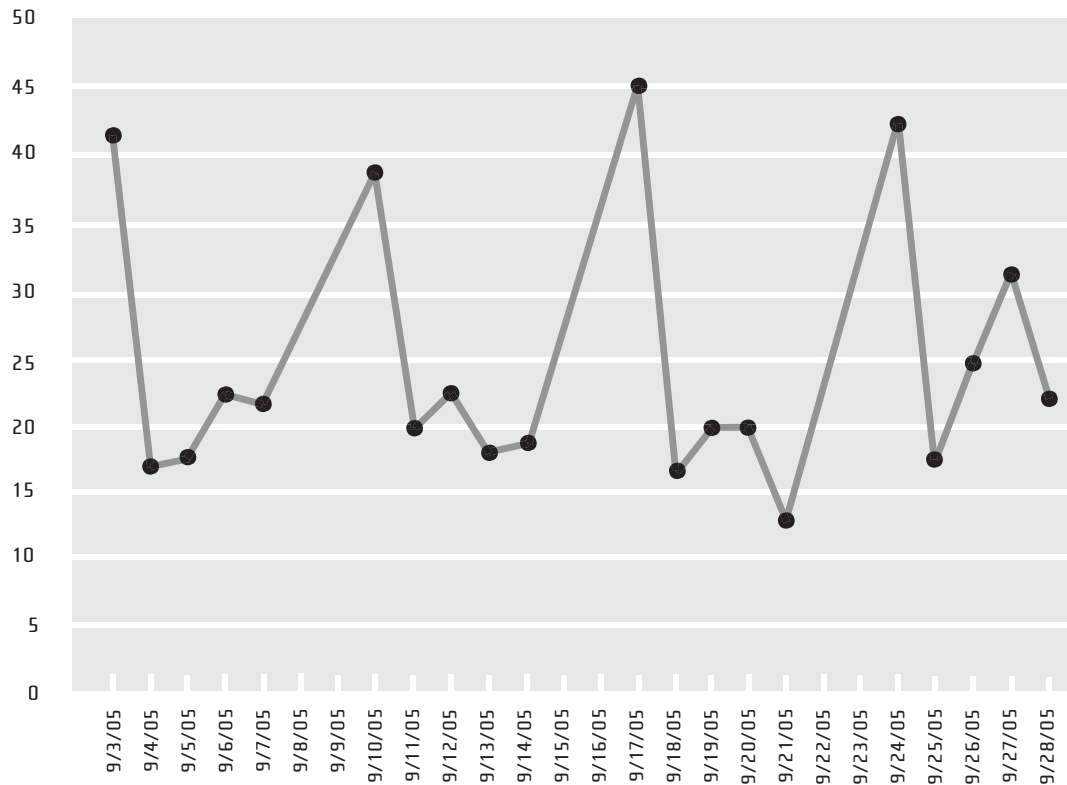
Cause-and-Effect Diagram: Patient Sign-In Process



Putting It All Together

Group Exercise 5

Run Chart: Waiting Time



Group Exercise 6

Brainstorming: How can we eliminate the impact of staff vacation on patient waiting time?

- Jointly plan vacation time so that vacation days do not overlap
- Review policies for vacation approval
- Assign days of the week on which staff members may take vacation
- Organize a pool of temporary staff to use on high vacation days
- Reduce the number of patient appointments on high vacation days