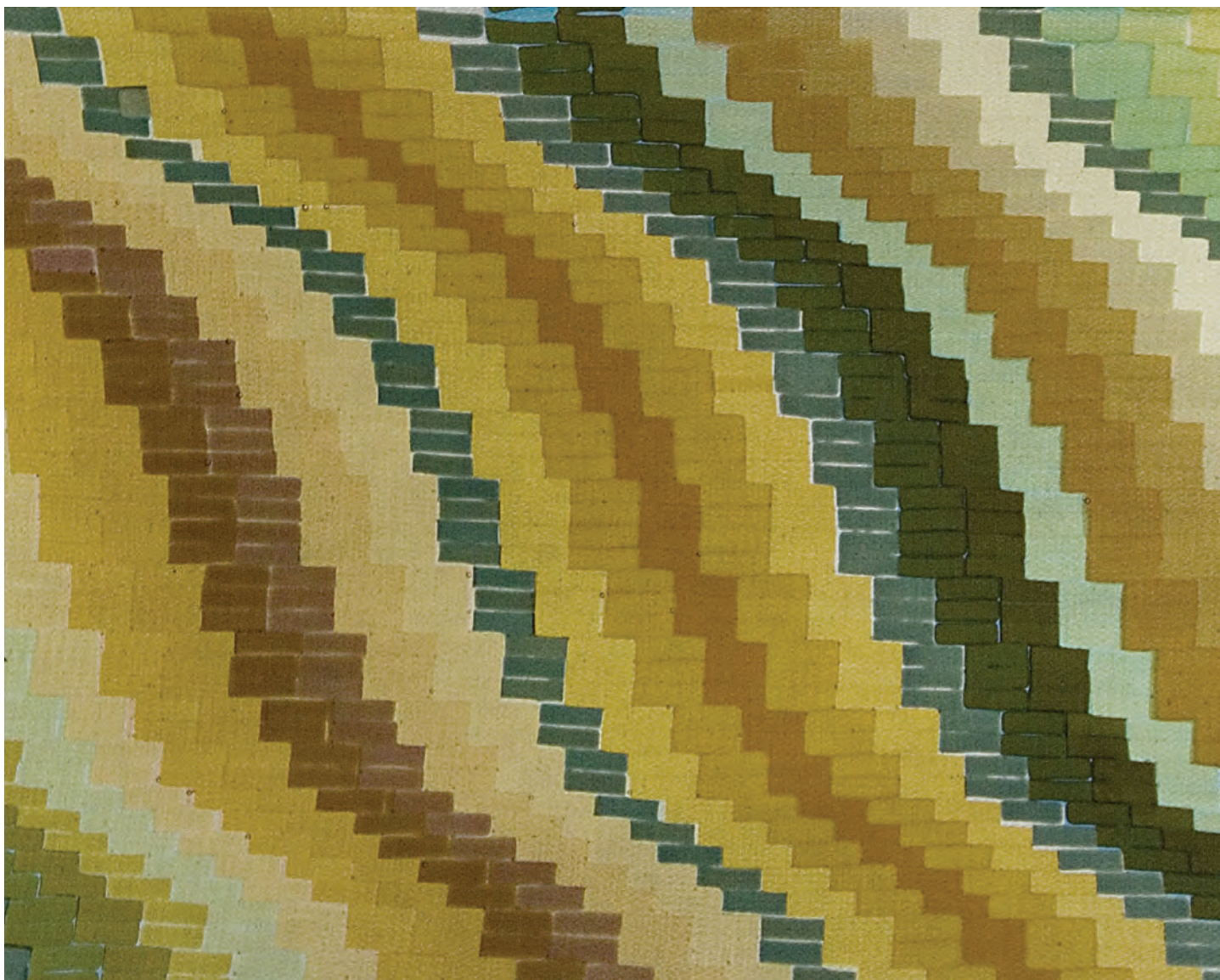


“Florentine - New York” 2005, Detail of fused - glass installation by Kevin Huang-Cruz, HIV-positive artist



# The Game Guide

Interactive Exercises for Trainers to Teach Quality Improvement in HIV Care

New York State Department of Health AIDS Institute  
Health Resources and Services Administration HIV/AIDS Bureau



**NATIONAL QUALITY CENTER**

# The Game Guide

## Interactive Exercises for Trainers to Teach Quality Improvement in HIV Care

Developed by the  
New York Department of Health  
AIDS Institute

For Health Resources and Services Administration  
HIV/AIDS Bureau

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# Introduction

## Why a Game Guide?

In the work the New York State Department of Health, AIDS Institute has done since 1998 to teach providers and support staff about quality improvement, we have had the most success when the teaching has been interactive and when it has been fun. Our experience is consistent with adult learning theory, which reminds us that adults learn by doing, not by merely listening.

In our teaching over the years we have used a number of games that do a good job of combining hands-on learning and a good time. Some of these are classics in the quality improvement field, some come from other disciplines and some we have made up ourselves to bring home an important point. The purpose of this guide is to make these games more broadly available by describing how they work and by clarifying the lessons they help to teach. We hope that you will use this guide as you work to involve more and more people in your program in the important, and ongoing, job of improving the quality of your services.

## How this Guide is Organized

We have organized this guide around five “critical concepts” for quality improvement, that is, five ideas that the people who work in your program will need to understand and be comfortable applying in your quality improvement work.

These five concepts come from a series of articles that appeared in the *Annals of Internal Medicine* in 1998. The series was edited by Donald M. Berwick, M.D. and Thomas W. Nolan, Ph.D., and we have included the source information in the Resources section at the end of this guide.

On the next page, we briefly describe each concept. The games we have chosen will each highlight an important element of the concept, one that we think will be important to your program and its quality improvement work. We tell you what these are when we describe each game. Remember, though, there is a lot more to each concept than what we are able to include in this guide. We urge you to explore them further.



## Descriptions of the Concepts

**Data and Measurement.** One of the key principles of quality improvement is that “you can’t improve what you can’t measure.” As clear as that sounds, the task of measuring performance can quickly get very complicated. Your program will need to decide what to measure, how to measure it, and how to react to the measurement once you have it. The games in this section are designed to help the people in your program understand the importance of, and become comfortable with, making decisions based on data.

**Systems.** No single process in health care stands alone. Each process is part of a larger system, and changes in one process will most likely affect another process in that system. Ultimately our goal is to improve the system of HIV care. The games in this section are designed to help the people in your program understand the relationship between processes and systems and become more comfortable with how systems work.

**Developing Changes.** “What changes can we make that will result in an improvement?” is one of the three questions of The Improvement Model (see the Resources section for more information on this model). Sometimes good ideas for change are obvious, sometimes they are not. There is a whole body of information, some from clinical research and some from operations research, about how to develop

changes that have a good chance of being successful for a specific issue faced by your program. The games in this section are designed to help the people in your program understand what this information is and become comfortable with putting it to use.

**Testing and Making Changes.** Having an idea is one thing, making it work in your setting is another. All ideas for change have to be tailored to fit the specific circumstances of the organization in which they will be made. The only way you can do this tailoring is by testing the change out, and adapting it based on what your test shows you. Many games in this section are designed to teach a method called the plan-do-study-act (PDSA) cycle for doing this testing and adaptation, and to help the people in your program become comfortable using it. Other games in this section teach participants how to help people be more open to change.

**Cooperation.** Health care is not a solo activity, it depends on people working together to share information and ideas. Because health care depends on teams, quality improvement does also. Making improvements requires cooperation among people across disciplines and departments. The games in this section require people to work together to solve puzzles, helping them to understand the value of cooperation and to become more comfortable working with their colleagues. The Game Content Matrix (page 13) gives more information on how the games apply to each of these concepts.

DEVELOPING CHANGES GAMES	
USE THIS GAME:	TO TEACH THIS CONCEPT:
“Think Inside the Box” Game	How to build on the creativity of others
Sudoku Game	What “change concepts ” are and how they work
Egg Ship Game	Involving both customers and teams in problem-solving
Reversals Game	How to break out of “stuck” thinking

SYSTEMS GAMES	
USE THIS GAME:	TO TEACH THIS CONCEPT:
Red Bead Game	Workers can only do so much; sometimes managers must change the system in order to get improvement
Paper Puppets Game	One part of a system affects the others
Peanut Butter and Jelly Game	Each system is perfectly designed to achieve the results it gets
Butterfly Effect Game	Making change can be powerful, but not always in ways you might predict
Win as Much as You Can Game	Focusing on maximizing individual performance will affect the organization as a whole

DATA AND MEASUREMENT GAMES	
USE THIS GAME:	TO TEACH THIS CONCEPT:
Red Bead Game	Data from a process can help you understand the type of variation you see in a process – and guide you in how to improve it
White Bead Game	Sampling works; you don’t have to measure every item
Deck of Cards Game	What “tampering” is, and why it can be harmful
Paper Puppets Game	Why processes matter and how to measure a process’s performance
Who’s Here? Game	Ways of effectively collecting and displaying simple data

## What We Tell You

Each game description contains:

- The “learning objectives” for the game, that is, what points it is designed to teach.
- Recommendations for a target audience.
- Where it comes from: who developed it and where you can read more about it, if you want.
- What you’ll need to play the game:
  - room set-up.
  - general and specific tools.
  - the time it will take.
- Background information you should give the players before the game starts.
- Instructions for playing the game.
- Tips on handling potential pitfalls.
- Key points to discuss when the game is over, to help make sure that the game’s learning objectives are met.

## What You Can Tell Us

Please let us know how you have used this guide, whether you have found it helpful and suggestions you may have on how it might be improved. Your comments can be sent to: [Info@NationalQualityCenter.org](mailto:Info@NationalQualityCenter.org) or visit us at our website at [NationalQualityCenter.org](http://NationalQualityCenter.org).

And if you have come up with games of your own that you are willing to share, please let us know so that we can include them in future additions of this guide!

## TESTING AND MAKING CHANGES GAMES

USE THIS GAME:	TO TEACH THIS CONCEPT:
Peg Game	The PDSA Cycle and how it works
Tennis Ball Game	Deciding which changes to make in a process
Zin Obelisk Game	Working as a team to solve a difficult problem by developing and testing hypotheses
Paper Airplane Game	Developing and expanding on pilot tests
Selling Spread Game	People vary in how they adopt changes
Model Kitchen Utensil Game	Understanding resistance to change

## COOPERATION GAMES

USE THIS GAME:	TO TEACH THIS CONCEPT:
Many Questions Game	Teams can get better results than individuals
Scavenger Hunt Game	The best teams use the skills of everyone on the team
Headliner Hunt Game	It's important to celebrate success!

# Game Content Matrix

	KEY CONCEPTS:	DATA & MEASUREMENT	SYSTEMS	DEVELOPING CHANGES	TESTING & MAKING CHANGES	COOPERATION
		Being able to measure: <ul style="list-style-type: none"> <li>• progress towards aims needs and status of patients and other consumers of care</li> <li>• local process characteristics that may be related to aims</li> </ul>	Being able to understand the processes of the system and their interactions	Being able to have "good ideas for change:" <ul style="list-style-type: none"> <li>• from the clinical evidence</li> <li>• from operations research</li> <li>• from creativity and innovation</li> </ul>	Being able to: <ul style="list-style-type: none"> <li>• test changes in action: PDSA cycle</li> <li>• create support structures for change (training, documentation, standardization) beyond the testing period</li> <li>• address resistance to change</li> </ul>	Being able to: <ul style="list-style-type: none"> <li>• understand that system performance is closely tied to interaction and interdependence</li> <li>• foster this interdependence</li> <li>• support teamwork and collaboration</li> </ul>
Red Bead	■	■				
White Bead	■					
Deck of Cards	■					
Paper Puppets	■	■				▲
"Who's Here?"	■					●
Peanut Butter & Jelly		■	▲			▲
"Butterfly Effect"		■				
Win As Much As You Can		■				■
"Think Inside the Box"				■		
Sudoku				■		●
Egg Ship	●	●	■	●	■	■
Reversals				■		▲
Peg	●				■	●
Tennis Ball		▲	●	■	■	▲
Zin Obelisk	●	▲			■	■
Paper Airplane				●	■	▲
"Selling Spread"					■	●
Paper Hat				▲	■	●
Many Questions				●		■
Scavenger Hunt						■
Headliner				●	▲	■
<b>KEY:</b> ■ = STRONG LINK            ● = SOME LINK            ▲ = WEAK LINK            BLANK= NO LINK						

Sources: Berwick and Nolan, "Physicians as Leaders in Improving Health Care," Annals of Internal Medicine, 2/15/98 Langley et. al. The Improvement Guide. Jossey-Bass, 1996

# Games to Teach Skills in Measurement

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, participants	25 minutes
Debrief and Discussion	Facilitator, participants, audience	30 minutes

# Red Bead Game

## Why Use This Game

- To teach that variation is to be expected any time you measure something.
- To teach that there are different causes of this variation.
- To show how different management and improvement strategies are needed, depending on the cause of the variation you are seeing.
- To help colleagues understand that the structure of a system determines how individuals perform within that system.

## Target Audience

Senior leaders, managers, quality improvement (QI) team members, and all others who will be acting on the results of data collection (patients and consumers may find it interesting as well).

## Type of Game

Demonstration with volunteers participating (requires 6-9 audience members to participate).

## Key Concepts

- Even with identical methods and tools, there will be variation in results. These variations in results may have little or nothing to do with any one worker's skill or willingness to work hard.
- Any process has a built-in capability that is determined by the way it is set up, not by a particular worker's actions.
- Real improvements to a process come from addressing the underlying way the process is set up.
- Management's job is to work "on" the process, to change the process design so the process works better.

## Source, History and Resources for More Information

The "Parable of the Red Beads" was developed by W. Edwards Deming, a pivotal figure in the field of QI. He used it as a teaching tool in hundreds of seminars he gave throughout the world until his death in 1993. Mary Walton's book, *"The Deming Management Method"* (Putnam, 1986) contains a lively description of Dr. Deming's conducting the game. A useful web site for additional information about Dr. Deming is <http://deming.eng.clemson.edu/pub/den/files/>



## Materials

For this game, you will need:

- A score sheet and a graph format on which to plot the results (see below for examples). These should either be projected (with a transparency or from a computer) or written large enough so everyone in the room can read them
- A “red bead kit.” This is a box with a mixture of red beads and beads of one other color (usually 1000 red beads and 4000 alternate color beads) and a paddle with 50 holes to pull beads out of the box
  - Red bead kits can be purchased at [www.redbead.com](http://www.redbead.com)
  - A simple variation on the kit can be made with glass marbles of two colors (keeping the 1:4 ratio) and a paddle from the game Boggle. While the small number of holes in this paddle may make the results less statistically sound, the key learning points still are clearly communicated

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs in a semi-circle or rows (depending on how many will be in your audience).
  - Set up a table in the front of the room.
  - Set up the equipment (e.g., flip chart, overhead projector, or LCD projector) you will use to project the chart of game results. Test the equipment to make sure it works.

## Playing the Red Bead Game

### *Welcome and Introductions*

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

### *Learning Objectives*

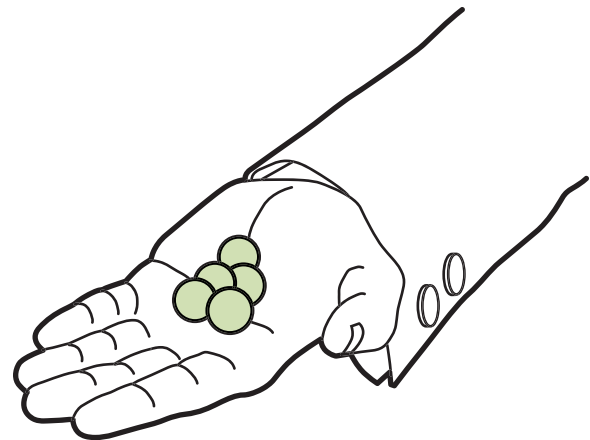
Tell participants that by the end of the session they will:

- Understand that variation is to be expected any time you measure something and that there are different causes of this variation.
- Recognize that different management and improvement strategies are needed, depending on the cause of the variation you are seeing.
- Appreciate that the structure of a system determines how individuals perform within the system.
- Begin to see how to apply these concepts to their HIV program.

### *Agenda*

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

1. Background to the Red Bead Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.



Attachment 1

Red Bead Game- Data Results Chart (5 workers)

NAME	DAY 1	DAY 2	DAY 3	DAY 4	TOTAL PER WORKER
TOTAL PER DAY					
AVERAGE PER DAY					

Red Bead Game

## Background to the Game

### *Facilitator's note*

In the Red Bead Game, workers produce beads in a flawed process that results in many defects: red beads. The manager – played by you – tries several “good” management interventions designed to improve individual’s performance. By doing this she/he assumes that the defects result from individual actions rather than a logical consequence of the way the process is designed. Through their frustration with the manager, the game participants and audience come to understand the importance of addressing the “common causes” of variation – the design of the system.

### *Key points to explain to your audience:*

- Many organizations working in quality have long discussions about exactly which quality indicators they will use, what they will measure. As quality expert Paul Plsek says, however, “while deciding what to measure and how to measure it are important challenges, an equally important challenge lies in determining the appropriate reaction to the measurement once we have it.” The Red Bead Game illustrates why this challenge is so critical to quality improvement.
- All measurements show variation (if you see no variation, someone is probably “cooking” the data!). The time of your commute to work will vary every day, for example. Sometimes, this variation may be a result of an unusual, or “special” cause: a bad accident, perhaps, or an ice storm. Most of the time, however, the variation results from “common” causes that are built into the process: the number of people on the road, the way the traffic lights are timed, whether you get out the door a few minutes earlier or later than usual. You will have more impact on improving the performance of a process if you work on reducing the common cause variation.
- The Red Bead Game is a way of explaining why it is important to understand this difference.

## The Game Itself

(These instructions are based on background material for the Red Bead Game prepared by the Institute for Healthcare Improvement.)

1. Organize the company.
  - Recruit your work force from the audience.
    - 4-6 workers.
    - 1-2 quality inspectors.
    - A quality data analyst, who records the results.
  - Write each worker’s name on the data results chart that is on the flip chart or projected in the front of the room.
2. Hold your first staff training session.
  - Welcome your workers.
  - Explain that the purpose of the company is to make white (or blue, or whatever your dominant color is) beads. You have done research; that is what the customer wants.
  - Demonstrate the production process yourself. Make it complicated, and stress that it must be followed exactly. One possibility:
    - Stir the beads in the box with your right hand three times, clockwise, while holding the paddle in your left hand.
    - Transfer the paddle to your right hand. Insert it into the far side of the box, long side down. Move the paddle towards you while shaking it so a bead falls into each hole. Smooth off the excess beads with your left hand.
    - Present the paddle to the inspector.
  - Explain that the inspector now counts the red beads, because they are defects. The inspector reports the count of red beads to the quality data analyst, who records the number of defects on the data results chart.
  - Encourage your employees to work hard, do a good job, and not make red beads! You are relying on them not to make mistakes! This company has been your life-long dream, and you are counting on their hard work to make it a success!

3. Begin the production process.
  - Each worker “makes” one paddle’s worth of beads and their defects are counted by the inspector and recorded by the quality data analyst.
  - Praise workers who make few red beads. Be creative: use every positive-reinforcement management technique you know (for example, offer to make them employee of the month).
  - Criticize workers who make many red beads. Begin by being sympathetic (“everything OK at home?”) and move to criticism and threats to demote or fire them as “days” of work go on.
  - After two days, inform your workers that the company may go out of business if they don’t stop producing so many defective (red) beads.
  - Continue working for a total of four days, keeping up your management interventions. At the end of four days inform the workers that the company has folded, thank them and send them home.

## Debrief and Discussion

- Begin by asking the participants how it felt to work for the Bead Company. Ask whether your management interventions were helpful, whether they were surprised at the results, and what they would have done to improve the Bead Company’s production process.
  - Most of the time, participants answer that they felt frustrated and stupid. They are not surprised by the results because of the set number of red beads in the box, and to improve the results they would have removed the red beads at the start.
- Point to the data results chart. Note the variation in performance. Ask why it is occurring.
- Remind your audience of your presentation on special cause and common cause variation. Ask them what they see in the Red Bead Game results (answer: common cause variation).

- Ask your audience if they can recognize “red bead” situations in their own HIV programs. If they need prompting, ask about responses to their quality data. What happens if a number – the number of visits, for example goes up or down in a given month. Do they react just to that number (treating it as if it is the result of a special cause) or look at the pattern over several months? Then probe further:
  - Are they workers or managers in these situations?
  - What is the result of reacting to data in this way?
  - What changes would they like to make to how data are used in their program?
  - How can they make these changes? What suggestions do others have to help?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience, especially those who participated in the game.

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	5 minutes
The Game	Facilitator, participants	10 minutes
Debrief and Discussion	Facilitator, participants, audience	10 minutes

## White Bead Game

### Why Use This Game

- To teach the concept of sampling, that you can get a good estimate of performance by looking at a sub-set of results rather than at your entire population.

### Target Audience

Senior leaders, managers, QI team members, and all others who will design data collection strategies.

### Type of Game

A competition among teams.

### Key Concepts:

- Sampling is a good strategy for data collection: it is possible to determine how large a subset of existing data we need in order to answer the question we have about these data, with a prescribed amount of error.

### Source, History and Resources for More Information

The concepts behind this game are taken from the publication “*Sampling Techniques*,” developed by Wai Cho Yee for the New York City Health and Hospitals Corporation in 1995. Yee based his work on two sources:

- Plsek, Paul E., “*Tutorial: Planning for Data Collection Part III: Sample Size*,” *Quality Management in Health Care*, 3:1, Fall 1994, pages 78-92.
- Babbie, Earl, “*The Practice of Social Research*,” Sixth Edition, Belmont, CA: Wadsworth Publishing Company, 1992.
- Cochran, William G., “*Sampling Techniques*,” John Wiley, 1977.

## Materials

For this game, you will need:

- A “red bead kit.” This is a box with a mixture of red beads and beads of one other color (usually 1000 red beads and 4000 alternate color beads) and a paddle with 50 holes to pull beads out of the box
  - Red bead kits can be purchased at: [www.redbead.com](http://www.redbead.com)
- If you don’t have a red bead kit, you can use any container with two types of objects in it: a box of both large and small paper clips, for example, or with two types of rubber bands. You will need to count how many of each type are in the box
- A pad of paper and pens for each team to record its results
- A flip chart and markers to record the key points of the discussion

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teachingpoints in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around a table. The participants will work in 4 small teams but they will use the same box of beads (or paperclips, or rubber bands) so they need to be close to each other.
  - Give each team a pad of paper and pen.
  - Set up the flip chart so you can record the key points of the discussion after the game.

## Playing the White Bead Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand how useful it can be to take a sample of data rather than to count every item (for example, every patient, every visit, every screening).
- Begin to see how to apply this concept to the use of data in their HIV program.

### *Agenda*

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

1. Background to the White Bead Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator’s note*

Managing data is time-consuming and can be expensive. Programs can have several hundred patients or clients and conducting a review of every chart to determine, for example, how many received referrals to a dentist is a daunting task. The field of statistics comes to the rescue by providing a way to select a sample of charts that will still give you a valid picture of your dental visit referral rate, or any other measure you are looking at.

This game is designed to help you show your colleagues just how useful sampling can be. Sometimes, people who have not worked with statistics don’t quite trust that counting a small number of charts (carefully selected, of course) can be

as accurate as looking at every single one. This game introduces the concept of sampling, to help people become more comfortable with it.

Selecting your actual sample is more difficult, as there are rules you must follow and decisions you must make on how precise you want the estimate provided by the sample to be. The National Quality Center can provide additional resources on sample selection, or take a look at the sources mentioned earlier in this game description.

Remember that sampling gives you a result within a predictable margin of error, and the value of using sampling is that the margin of error is predictable. In the White Bead Game, one team bases its estimate of the number of white beads by selecting a sample of 20, while another selects a sample of 100. There is always a chance that the sample of 20 may provide a more accurate estimate of the number of white beads than the sample of 100. If this happens, asks Team C and Team D to try several more times. You will see that the sample of 100 (which has a margin of error of plus or minus 8%) provides a more consistent estimate than the smaller sample size, whose margin of error is much larger.

*Key points to explain to your audience:*

- Sampling provides a way to measure, with a prescribed amount of error, the performance of our program without having to count every single item or review every single chart.

## The Game Itself

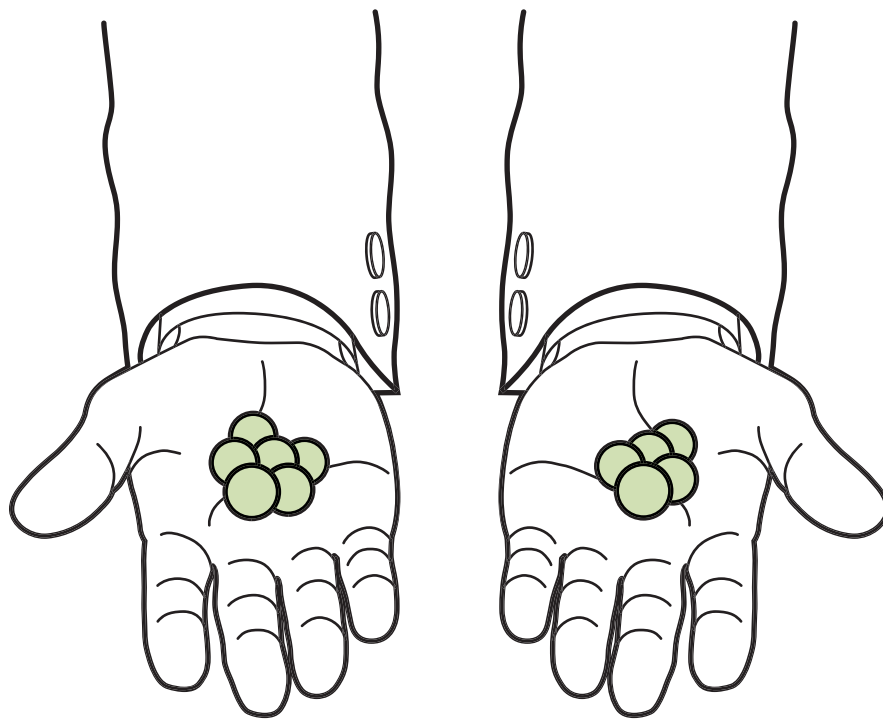
- Divide your group into four teams. The teams will work sequentially, and each team will have five minutes to determine the number of white beads in the box of the red bead kit. Each team follows a different approach:
  - Team A tries to count every bead in the box.
  - Team B creates an estimate without doing any counting.
  - Team C pulls 20 beads at random from the box and estimates the total number of white beads based on this sample. Team C could repeat this process if needed (see Facilitator's Note).
  - Team D randomly selects 100 beads from the box and estimates the total number of white beads based on this sample. The number 100 is chosen as it should give a result that, with a 95% confidence level, is within the true percentage of white beads plus or minus 8% (for a box containing 4000 white and 1000 red beads). Team D could repeat this process if necessary (see Facilitator's Note).
  - Note that these samples must be randomly chosen. Be sure to mix the beads in the box thoroughly before selecting Team C's or Team D's samples.
- Ask each team to report its result.
- Report the actual percentage and number of white beads (80%, or 4000) and see which team came the closest.

## Debrief and Discussion

- Discuss the results. Which method do the participants prefer, and why?
- If you are familiar with statistical sampling, briefly explain how the Team D's sample size was determined.
- Discuss current data collection in your HIV program:
  - Do we sample anything? If so, what?
  - What other data do we collect that we could sample, rather than counting every item? (Anything involving chart review is a likely candidate.)
  - How can we create a sampling plan?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work.





SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	15 minutes
The Game	Facilitator, participants	20 minutes
Debrief and Discussion	Facilitator, participants, audience	20 minutes

## Deck of Cards Game

### Why Use This Game

- To show the problems that can result from making the wrong kind of changes in a process.
- To demonstrate a “stable” process.
- To show how to how to make a stable process better.

### Target Audience

Managers and leaders of organizations. This game is geared towards people who will be leaders of improvement efforts and to those who frequently review performance data, such as QI committee members.

### Type of Game

A demonstration with everyone participating.

### Key Concepts

- The first thing to do to improve a process is to make it more stable and predictable.
- It is easy to overcompensate and over adjust as you try to improve a process, and by doing this you make the process less stable and predictable.
- Some management approaches can result in extremely unstable processes!

### Source, History and Resources for More Information

This game was developed by Kristin J. Arnold, president of Quality Process Consultants, Inc. in Fairfax, VA. Arnold based this game on W. Edwards Deming’s funnel experiment, and published her description of the game in the October, 2001 issue of Quality Progress (page 112).

### Materials

For this game, you will need:

- A room with enough empty floor space that four groups (of 2-8 people) can work without running into each other
- Four sets of 12 playing cards each
- Three tape measures
- Four “targets” that will stick to the floor (sticky colored dots work well)
- Twelve colored dots of a different color for Team B
- One “rule card” for each team
- A flip chart and markers to record the key points of the discussion

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content.
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room.
  - If necessary, move out chairs and other furniture so there is ample playing space for 4 teams in the room.
  - Place one colored dot on the floor for each of the 4 teams; this will be the target for each team. Make sure the targets are away from the walls and each other; it’s important to keep each group’s work separate!
  - Prepare the “rule cards” (samples are given in Attachment 1):
    - Team A: drop every card over the target.
    - Team B: After each drop, measure the distance ( $z$ ) from the target to the spot where the card landed. Set the next drop position over the point  $-z$  from the last targeted position, which is the last spot you aimed at (same distance, but opposite direction). Use a colored dot to mark the last targeted position.
    - Team C: After each drop, measure the distance ( $z$ ) from the target to the spot where the card landed. Set the next drop position over the point  $-z$  from the original target.
    - Team D: Set the next drop position right over the spot where the last card landed.

## Playing the Deck of Cards Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand how making the wrong changes in a process can hinder the process.
- Understand how making these types of changes can be demoralizing to the staff who work in the process.
- Begin to see how to apply these concepts to their HIV program.

### *Agenda*

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

1. Background to the Deck of Cards Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator’s note*

Deming developed his funnel experiment, on which Arnold based this game, to illustrate the concept he called “tampering.” Formally, tampering is taking action on a process assuming that the cause of a problem is a one-time, unusual, special cause, rather than understanding that the cause is something inherent in the structure of the process (see our description of The Red Bead Game for more information on these two types of causes). A more general description of tampering is “making changes or adjustments in a process when such changes are not warranted” (Paul Plsek).

Deming points out that the unwarranted changes involved in tampering make processes work less well because they introduce new components every time the process is run. When you measure the results, they end up all over the place. Any process that produces unpredictable results is much harder to manage well.

Tampering and its results can be difficult concepts to convey. The Deck of Cards Game provides a clear picture of what tampering looks like and will help the participants see why it is so harmful. The game can then start a discussion of examples of tampering the participants have experienced, especially in their HIV programs.

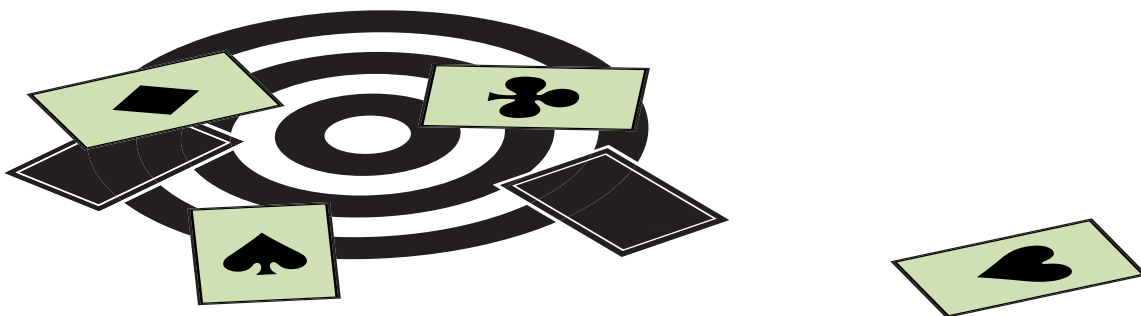
Key points to explain to your audience:

- In deciding how to improve a process, we need to be aware that some changes can make the process worse rather than better.
- Most of the time, when something goes wrong in a process our instinct is to react to what we think is the immediate cause. We “tweak” the process and hope it works out.
- A better approach is to study the process to see if the results it produces are basically stable and predictable. If so, it will be better to work on the process as a whole.

## The Game Itself

(These instructions are taken from Kristin Arnold’s Quality Progress article cited above.)

- Divide the participants into four teams. Tell each team to gather around one of the target dots on the floor.
- Tell each team the objective is to produce as many products as close to the target as possible, while following a particular rule. Hold up the four rule cards for all to see.
- Explain that each team produces a product by standing up and dropping one playing card from shoulder height. The playing card should be held perpendicular to the target on the floor, NOT parallel to the floor.
- Review the rules for each team and distribute the rule cards. Give each team its stack of playing cards. Teams B, C and D also each get a tape measure, and team B gets a page of colored dots.
- Make sure each team understands its rule, and allow each team to work collaboratively to produce 12 products. Teams A and D will finish quickly, teams B and C take longer.



## Debrief and Discussion

Review the distribution of cards with the entire group.

- Ask the team to share the rule it followed and the results and to speculate about what happened to the process:
  - Team A: The cards will probably cluster around the target. The distribution is stable and shows minimal variation from the target. Even if you have a bad process, your result will be predictable and manageable. This is a stable process and the best choice.
  - Team B: The distribution of cards fans out and is unstable but symmetrical around the target. The team knows where the standard is, but adjusts it based on the last piece produced.
  - Team C: The distribution explodes in opposite directions because the team overcompensates for its errors. This is how most processes become over-adjusted from where the operation was during the last process run.
  - Team D: The cards will tend to drift because the distribution is unstable and moves away from the target in one direction. This is the kind of process drift that can occur when a process uses the last piece produced as the standard for the next piece, instead of using a universal product standard.
- Have each team come up with an example of rules B, C and D in their HIV program. Examples of C and D are most common.

- One clinic, for example, saw a few weeks of low visits and started scheduling lots more patients. The clinic quickly became overcrowded and so the staff scaled back the number of scheduled visits, leading to complaints about lack of access. This would be an example of actions like those taken by team C.
- Team D's experience shows what happens when, for example, you don't have a consistent training program for new employees. If one employee trains another, and so on, the message will change over time as will your performance results. Ask the participants, what has been the result to their program of these types of changes?
- If time permits, start a second round where the teams can make process improvements. Have each team identify one improvement to make, test it and then compare. For example, one process improvement might be to drop the card parallel to the floor. If rule A is used, almost every card will settle on top of the target.
- Discuss how organizations can take a stable process and try to make it better.

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work.

## Attachment 1

### Sample Rule Cards

Objective: to produce as many products as close to the target as possible while following a particular rule.

#### TEAM A's RULE

Drop every card over the target.

#### TEAM B's RULE

- After your first drop, measure the distance from the target to the spot where the card landed. For example, your card may have landed 3" to the right of the target.
- Set the next drop point over the point the same distance from the target, but in the opposite direction (e.g., 3" to the left of the target).
- Mark this point with a blue dot.
- Drop again. This time, measure your distance from your current target (i.e., the blue dot).
- Set your new target that distance, but in the opposite direction, from the blue dot.
- Mark this new target with another blue dot.
- Continue.

#### TEAM C's RULE

- After your first drop, measure the distance from the target to the spot where the card landed.
- Your new drop point is this distance from the original target, but in the opposite direction (e.g., if the card landed 3" to the right of the target, your new drop point is 3" to the left of the target).
- Drop again. Measure the distance from the target to the second spot where the card landed (e.g., now the card is 6" below the target).
- Your new drop point is this distance from the original target, but in the opposite direction (e.g., 6" above the target).

#### TEAM D's RULE

Set the next drop position right over the spot where the last card landed.

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, participants	25 minutes
Debrief and Discussion	Facilitator, participants, audience	15 minutes

# Paper Puppets Game

## Why Use This Game

- To explain what a process is, a series of steps that turns a set of “inputs” into an “output.”
- To show how to measure the different parts of a process.
- To introduce some of the tools used in analyzing data about a process.

## Target Audience

Clinical and administrative staff and anyone who will be involved with measuring and evaluating your program’s quality of care.

## Type of Game

Demonstration with volunteers participating (requires 6 audience members to participate plus volunteer timekeepers).

## Key Concepts

- All work takes place in processes (a process is a series of steps that produces an output).
- The quality of a process can be measured at many points in the process.
- Simple tools can help you analyze data.

## Source, History and Resources for More Information

This game is taken from a more complex version developed by Janelle Heineke of Boston University. Heineke uses her version as a first class for her students in her Operations Management course. See: Heineke, Janelle, “*Enhancing Learning Using Classroom Games and Exercises*,” *Quality Management Journal*, 1997,4:4, 32-42.

## Materials

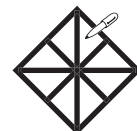
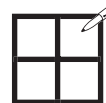
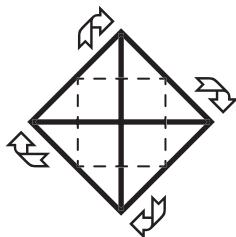
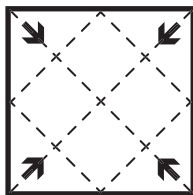
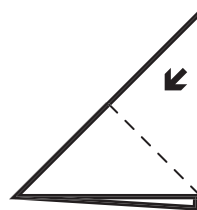
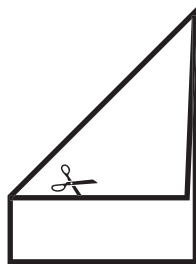
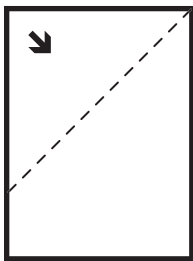
For this game, you will need:

- Colored paper, at least 25 sheets
- White paper, a few sheets
- Blue or black marker
- Red marker
- Scissors
- Ruler
- A flip chart and felt-tipped marker for displaying graphs and charts
- 5 task time sheets (Attachment 1)
- 5 throughput time sheets (Attachment 2)
- 1 quality control form (Attachment 3)

## Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Set up a long table at the front of the room with five chairs along one long side (one for each "workstation").
  - Seats for the rest of the audience should be set up auditorium style or in a semi-circle.
  - Place the stacks of colored and white paper at the first workstation, the scissors at the second, the blue marker at the fourth, and the red marker at the fifth. Also place a partially completed unit at each workstation to show each worker exactly what his or her output should look like.
  - Add a sixth chair at the short end for the Quality Inspector.
  - Prepare a sample puppet to use as a model and demonstration.



## Playing the Paper Puppets Game

### Welcome and Introductions

To begin the game, 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:

- Understand what a process is and how the design of the process affects quality.
- Have experience using tools for measuring a process.
- Have experience analyzing data about a process.

### Agenda

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

1. Background to the Paper Puppets Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

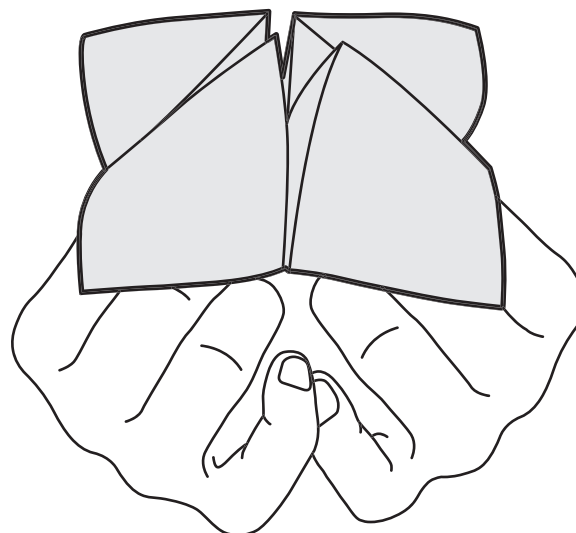
### *Facilitator's note*

“Processes, not people” is one of the first concepts taught about quality improvement. Most people in health care will be familiar with this idea, and most people believe it. The purpose of this game is to give people a chance to see just how the structure of a process can affect quality, and to give them experience with measuring and analyzing the process's function.

This version of the game focuses on two data analysis tools: pareto diagrams and run charts. Pareto diagrams allow you to analyze causes by category, and run charts show the variation in data over time. By looking at causes by category you can make a data-driven decision about which part of a process to address, and by looking at variation over time you can begin to develop hypotheses about why a process may not be working well. For example, you might look at appointment no-show rates by age or sex of the clients, and see that women in their twenties are most likely to miss their appointments. These women are likely to have young children, so perhaps your program could consider offering support in this area. Other exercises exist to teach these tools more intensely; the purpose of this game is to illustrate how they might be useful.

### *Key points to explain to your audience:*

- Improvement comes from addressing the processes of work.
- One step in a process affects another; each step can't be viewed in isolation.
- Developing and tracking good process measures is critical to being able to improve the process.
- Simple tools can help analyze what these measures show you.



## The Game Itself

- Tell participants that their job is to produce a “complex toy product” and that their pay will be based on the number of products that they complete.
- Instruct workers in the 5 tasks of the production process:
  - The task 1 worker folds the bottom of a piece of 8 1/2 x 11 paper to align with the right side to define a square.
  - Task 2 is designed to be the bottleneck task. The worker must cut off the excess paper with a scissors, fold the second diagonal of the square, then fold each corner in to the center of the square to form a smaller square.
  - The worker at task 3 again folds each corner of square inward toward the center to form a still smaller square.
  - The task 4 worker flips the small square over and draws a pair of eyes, one eye on each of 2 neighboring squares, with the black marker.
  - Task 5 requires the worker to flip the square over again and draw in the tongue with the red marker.
  - The puppet is made by flipping the square once again and inserting a finger under each of the four squares on this side and folding each side of the square together.



- After the tasks have been explained to the workers, give them a few sheets of the white paper to practice their tasks before the actual simulation.
- Ask for volunteers from the audience to act as timers. Five task timers measure, in seconds, how long it takes each worker to do his or her task (from the time a worker picks up a unit until he or she is finished with that unit). One throughput timer measures the time it takes to complete a single unit. Note: this can be difficult as bottlenecks can make it hard to keep track of an individual unit. Use alternating colors of paper so the timer can keep the different units straight.
- Ask for one more volunteer to be the quality inspector who reviews and accepts or rejects each finished puppet. Keep the criteria the inspector should use purposefully vague.
- Let the system of production produce 20 items.

## Debrief and Discussion

- Review results. Ask the participants, what did they observe? Most common responses are:
  - Task 2 was the longest task.
  - Task 4 (or sometimes 5) was the shortest task.
  - The worker at task 2 was never idle.
  - The workers at tasks 3, 4, and 5 were idle most of the time.
  - The workers at tasks 3, 4, and 5 slowed down after a few units had been produced.
  - The worker at task 1 ran out of space to send units to task 2.
  - The worker at task 2 exhibited signs of frustration: flushing, rushing, making comments about being overworked.
  - Work-in-process (WIP) inventory only built up at task 2.
  - Workers didn't communicate much with each other.
  - The quality inspector didn't communicate back to the other workers. The quality inspector rejected (or didn't reject) many units.
- Ask for their conclusions about this process. Most will answer:
  - The bottleneck at step 2 limits the process's capability.
  - The workers didn't communicate because they were not told to; workers often will not do something unless they are told it is OK.
  - Some may give suggestions on how to improve the process: providing square paper to start, for example, or a template for the eyes and tongue or for the folds needed in the paper.

## Feedback and Close

- Introduce the quantitative analysis.
  - Ask one group of participants to look at the quality inspector's data and identify categories of defects. Have them draw a bar graph, with the types of defects on the horizontal axis and the number of puppets showing such defects on the vertical axis, with the highest number in the left hand bar and the rest in descending order (see Attachment 4 for an example). This is a rough Pareto diagram, designed to show the relative influence of different causes to an overall result (in this case, poor quality puppets). The diagram helps identify which part of the process should be looked at in order to provide puppets of higher quality.
  - Additional groups of participants can draw run charts – line graphs – based on the task time sheets and throughput time sheets. The horizontal axis is numbered for each unit, from 1-20. The vertical axis is labeled with “number of seconds” and the time each unit took is recorded, with the points for each unit connected with a line (see Attachment 5). Ask about the conclusions they can draw from the charts. Why does the throughput time increase? Which task takes the longest and increases the most? How does this relate to their initial response to the process?
- Ask about processes in their HIV programs:
  - Which work well? Which seem to have bottlenecks?
  - Which do we measure now? Which should we measure? How?
  - If we measure process performance, how will we organize ourselves to act on the results?
- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

## Attachment 1

## Task Time Sheet

Record the time from start of work on unit to end of work on unit.

Task: \_\_\_\_\_

UNIT	TIME IN SECONDS
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
Average	

Attachment 2

# Throughput Time Sheet

Record the time from start of work on a unit at Task 1 to the completion of work on that unit at Task 5 to end of work on unit.

UNIT	TIME IN SECONDS
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
Average	

## Attachment 3

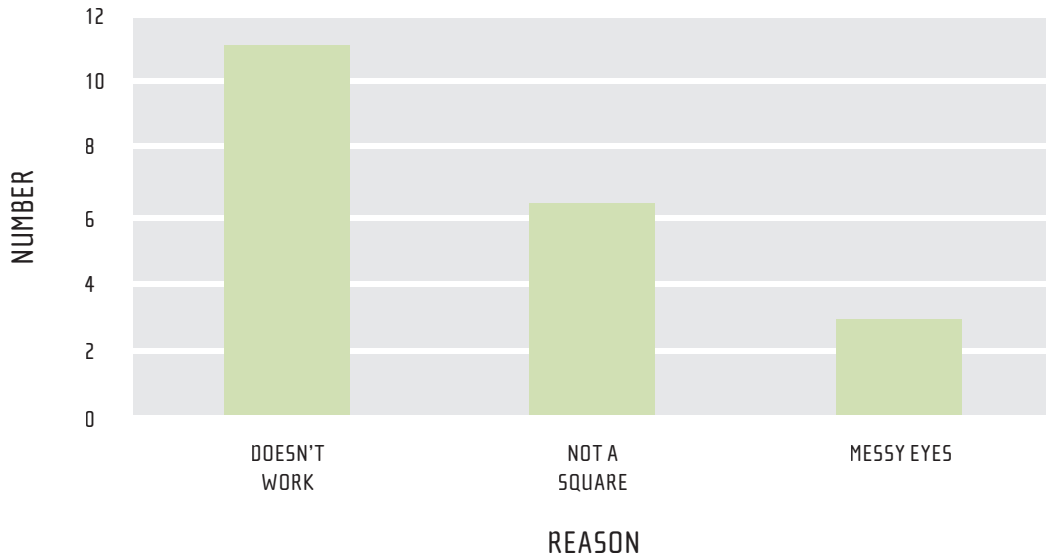
## Quality Control Form

UNIT	ACCEPT OR REJECT?	COMMENTS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Acceptance Rate		

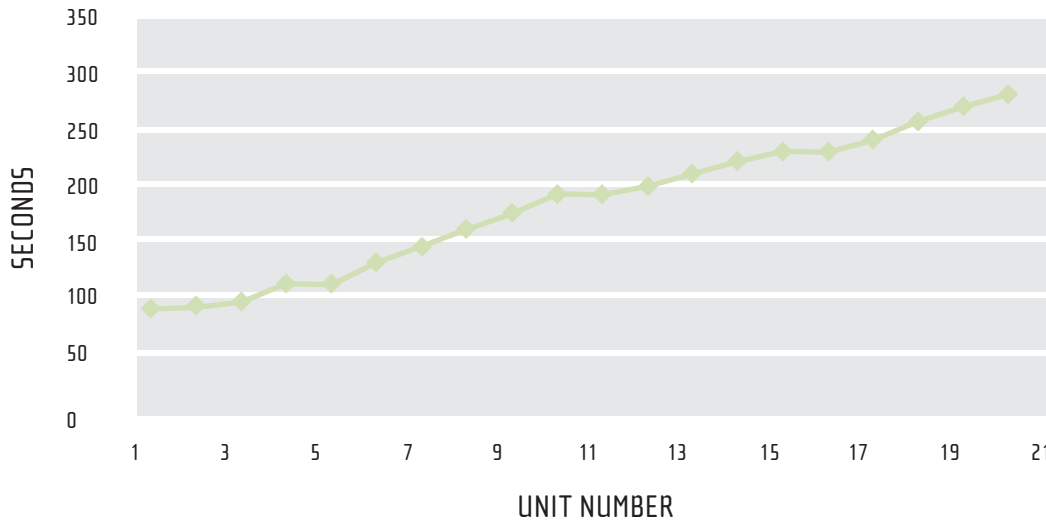
Attachment 4

Sample Pareto Diagram and Sample Run Chart

Pareto Diagram: Reasons for Rejects



Run Chart: Throughput Time



SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	30 minutes
Debrief and Discussion	Facilitator, audience	20 minutes

## Who's Here? Game

### Why Use This Game

- To give teams experience in designing indicators and data collection methods.
- To show different ways of graphically displaying data.
- To start a discussion about data stratification, mean and range.

### Target Audience

Senior staff, team members, and anyone else who will be involved in collecting and analyzing data. This game works best if it is part of an introduction to data display tools.

### Type of Game

A competition among teams.

### Key Concepts

- Data should give you the answers to useful questions.
- Displaying these data graphically make them easier to understand.
- A good data tool will also tell you about the distribution of the data you have collected.

### Source, History and Resources for More Information

The source for this game is “*The Big Book of Six Sigma Training Games*,” by Chris Chen and Hadley Roth, New York: McGraw-Hill, 2005 (pages 91-94).

### Materials

For this game, you will need:

- Flip chart and different colored marking pens for each team
- One instruction sheet for each team (see Attachment 1)

### Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around a table or tables, set up to make it easy for the participants to work in small groups.
  - Set up an additional flip chart in the front of the room so you can capture key points of the discussion after the game.

## Playing the Who's Here? Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand the relationship between collecting data and answering useful questions.
- Have experience creating data display tools.
- Have experience analyzing data displayed in graphs and charts.

### *Agenda*

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

1. Background to the Who's Here? Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

The purpose of this game is to give participants experience in creating and using data displays. Unlike data display exercises that give you a data set and ask you to graph it, this game requires each participating team to, first, create the "indicator" they will use (that is, a question they will ask of their fellow participants) and then display the results graphically. This game illustrates the data collection and analysis process, rather than the mechanics of a particular tool.

You may need to give the participants a quick refresher in creating and using pie charts, histograms, line graphs, etc., although most people in health care settings have some familiarity with these. The authors of the game point out that

some teams may need help to structure a question that will give them data that can then be put into a graph.

The discussion at the end of the game can lead to concrete plans to make data more available in the clinic or program. Most programs have data reporting requirements and some collect additional data that interests the management or staff. Consider making a plan to graph and distribute dental referral rates, for example, if your program is not already doing so.

### *Key points to explain to your audience:*

- Discuss the purpose of collecting data. Remind them that randomly collecting lots of numbers is useless. You want data that lead to information, that give you answers to your questions. Any good data collection activity should begin with the questions you want to answer.
- Review the basic data display tools:
  - Line graphs, showing data change over time.
  - Histograms (frequency distributions) or bar charts that show how many units have a particular characteristic
  - Pie charts, that show the percentage of each contribution to the whole.
  - Scatter diagrams, that show the relationship of one variable to another.
- Review the concept of stratification: will we want to know if the answer to our question varies due to a specific element: day of the week, season of the year, age or sex of the participant, etc.? Talk about how teams should consider how to design their data collection strategy so these questions can be answered, if they are important.



## The Game Itself

- Ask participants to divide up into groups of 3 to 6 with the people most like themselves with no more than 6 groups total. If asked what you mean by “most like themselves,” provide no more information.
- Give each group a copy of the instructions (Attachment 1).
- Each group gathers around its flip chart and gives itself a name, writing it on the flip chart.
- Each team composes a question it will ask each of the other participants to determine how the groups have been formed.
- After all teams have composed questions, instruct the participants to gather data from all the participants, including their own team. Team members should record each person’s name and his/her answer.
- Each team then creates a graphical display of their information.
- Teams then quickly present their findings and show their charts/graphs.
- The facilitator selects the winning team.

## Debrief and Discussion

- Review results.
- Ask the teams to describe their work: how did each team decide on its questions?
- Look at the graphs and analyze the data more deeply:
  - What do they show about the make-up of the group of participants?
    - Can you stratify the data in a useful way?
    - What about the mean of the data and the range? What conclusions can you draw about the nature of the participants in this game?
  - How useful are these graphics? How could they be improved?
- Discuss the application of what they have learned to their own HIV program.
  - Do the data they have access to provide answers to useful questions? Why or why not?
  - Do they get any data results in graphical format?
- If so, are these graphs useful?
- If not, what would they like to see? How could they go about getting such graphs?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

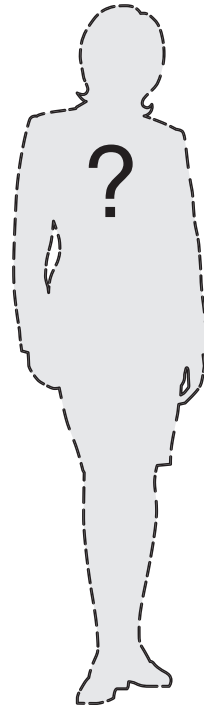
## Attachment 1

## Who's Here? Team Instructions Sheet

- Work only within your group.
- Develop a single question that will be asked of each member of each team, including your own. The purpose of this question is to help your team determine how the other teams formed themselves.
  - The question must ask for information that can be displayed graphically – in a line graph, bar chart, histogram, pie chart or other graph or chart.
  - Use only your visual observation, the team names, and your existing knowledge of the people in the room in developing your question.
  - Do not ask a question that is too personal to be discussed in public.
  - Do not use the team names in your question.
- The purpose of your graphical presentation is to characterize how people decided to form groups “most like themselves.”

*Sample questions:*

- How tall are you in inches?
- How many miles do you drive to work each day?
- What department do you work for?



# Games to Teach System Skills

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	25 minutes
Debrief and Discussion	Facilitator, audience	10 minutes

# Peanut Butter and Jelly Game

## Why Use This Game

- To teach that systems only work as well as they are designed.
- To teach the importance of error-proofing design.
- To show the importance of clearly documenting your process.

## Target Audience

Senior staff, team members, and anyone else who will be involved in creating a new process or altering an existing process.

## Type of Game

A demonstration with everyone participating.

## Key Concepts

- Each system is perfectly designed to achieve the results it gets.
- Clear instructions to one person may not be clear instructions to another.
- Steps early in a process may have an unforeseen impact later in that process or system.

## Source, History and Resources for More Information

Information about this game comes from Qualis Health, the QIO for Washington State, and its Performance Improvement Support Center.

## Materials

For this game, you will need:

- Ingredients for a peanut butter and jelly sandwich (bread, peanut butter, jelly, knife)
- A pad of paper and pens for each team
- Flip chart and markers to record the key points of the discussion

## Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around a table or tables, set up to make it easy for the participants to work in small groups.
  - Set up a small desk or table in the front of the room and place the sandwich ingredients on the table.
  - Set up the flip chart so you can capture key points of the discussion after the game.

## Playing the Peanut Butter and Jelly Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand that systems and processes only work as well as they are designed.
- Understand what is involved in error-proofing a design.
- Appreciate the importance of clear documentation of process steps.

### *Agenda*

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

1. Background to the Peanut Butter and Jelly Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

"A system is defined as a collection of interdependent elements that interact to achieve a common purpose." It is the interaction of systems that makes them tricky to manage – something that affects one part of a system may have an unforeseen impact later on another part of the system. In thinking about making improvement, we have to understand that each system is perfectly set up to achieve the results it gets. If we want to change the results, we need to change the system. For example, the number of women getting gynecology consults will not improve unless you do something to change the link between the processes in your program and those in the gynecology service.

The purpose of this game is to teach the link between design and results, and to stress that decisions that make sense when taken in isolation (like how to put peanut butter and jelly on bread) can have an unexpected impact on the result. As you play your role, stick strictly to the instructions as given, and "play up" the result. Participants will quickly grasp the relationship between clear documentation of the process and the resulting sandwich, but may need help from you to make the link to thinking about health care systems.

### *Key points to explain to your audience:*

- Explain the definition of "process" and "system." A process is a series of steps that turns an input into an output. A system is a group of processes with a common aim. A patient visit is a process. Treating HIV is a system.
- Mention that improving one process in a system may have an unforeseen impact on another process in a system. Most people will understand this easily; if you have time, discuss some examples of this that you or participants have encountered.
- Explain that this game will help illustrate some of the issues involved in improving processes and systems.

## The Game Itself

- Divide the participants into small groups. Aim for 3 or 4 groups.
- Tell each group to prepare, write down and submit the process for making a peanut butter and jelly sandwich.
- Reconvene as a large group. You, as facilitator, demonstrate each set of instructions for making the sandwich. Follow these instructions exactly as written – for example, if the instructions don't tell you to take the peanut butter out of the jar, don't take it out of the jar.
- Ask the group: do we adopt, adapt or abandon this process? Discuss why.
- If time permits, try one round of adaptation of the instructions.

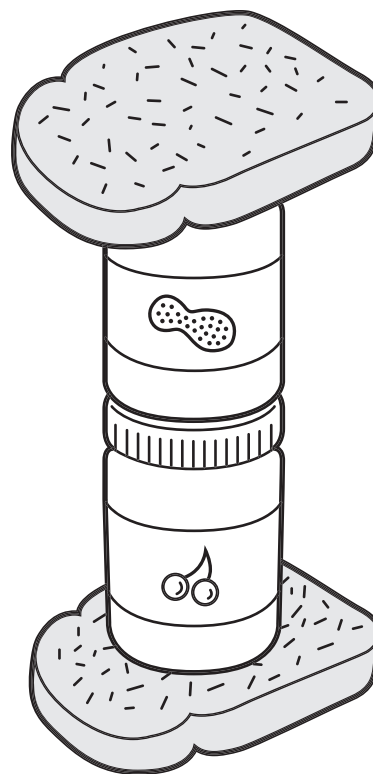
## Debrief and Discussion

- Review results.
- Ask the group to describe what happened:
  - Aim for comments that the instructions assumed people would know to do certain things, even if they were not stated.
  - Ask if this situation ever occurs in their organization, and discuss.
- Ask for feedback on your role as a sandwich-maker:
  - Did you follow directions?
  - Did your result reflect what the instructions contained? (Aim to get participants to see that the results perfectly matched the instructions.)
  - What therefore needed to be changed, to achieve the expected result? (The underlying way of doing work – the core instructions for making the sandwich.)
- Discuss the application of what they have learned to their own HIV program:
  - What is the link between the current design of their HIV care system and the results it achieves?
  - What about existing process instructions? Are they clear and well understood?

- Have they made improvements that have had unforeseen consequences? How have they handled these? What might they do differently? (This can be a place to bring up the concept of PDSA: testing changes on a small scale can reveal these problems early.)

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.
- Provide sandwiches to those who want them.



SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	10 minutes
Debrief and Discussion	Facilitator, audience	10 minutes

# Butterfly Effect Game

## Why Use This Game

- To show how a change in one part of a system can “ripple through” other parts of the system.

## Target Audience

Senior staff, team members, and anyone else who will be involved in creating a new process or altering an existing process.

## Type of Game

A demonstration with everyone participating.

## Key Concepts

- Systems are complex and their parts are interrelated.
- Changes in one part of a system affect other parts of the system.
- It’s important to make changes carefully so these unexpected consequences can be accounted for.

## Source, History and Resources for More Information

Information about this game comes from Qualis Health, the QIO for Washington State, and its Performance Improvement Support Center; the Ohio QIO provided information about this game to Qualis Health.

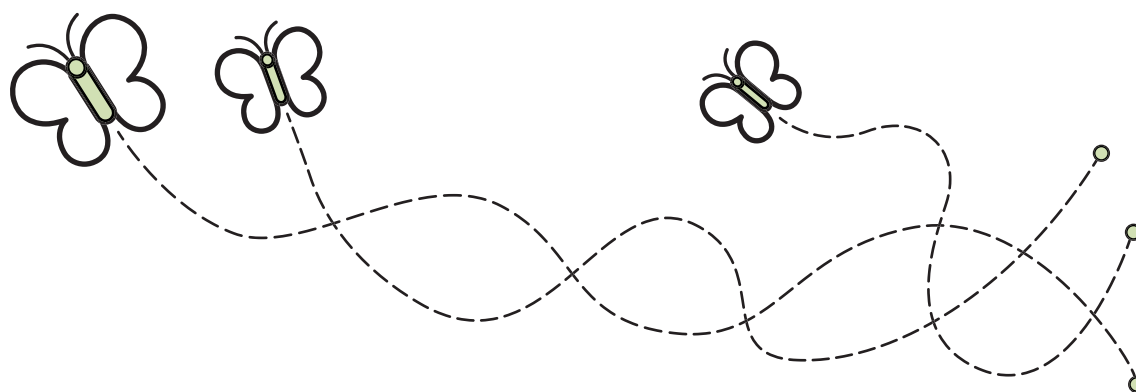
## Materials

- Flip chart and markers to record the key points of the discussion

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs in a circle around the outside of the room. You will need a large open space for people to walk around in.



## Playing the Butterfly Effect Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand that systems are complex.
- Appreciate how the parts of a system are interrelated.
- Understand the importance of pilot-testing planned changes in a process or system.

### *Agenda*

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

1. Background to the Butterfly Effect Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

"A system is defined as a collection of interdependent elements that interact to achieve a common purpose." It is the interaction of systems that makes them tricky to manage – something that affects one part of a system may have an unforeseen impact later on another part of the system.

In many cases, people can understand this concept intuitively. Sometimes, however, it helps to demonstrate the concept in an unmistakable way. That is what this game is designed to do. One simple change – the facilitator taking one or two steps – causes the whole design of people in the room to change. Making change can be powerful, but not always in easily predictable ways.

### *Key points to explain to your audience:*

- Explain the definition of "process" and "system." A process is a series of steps that turns an input into an output. A system is a group of processes with a common aim. A patient visit is a process. Treating HIV is a system.
- Mention that making changes in one part of a system may have an unforeseen impact on another part of the system. Explain that this game will help illustrate this characteristic of systems in a visual way.



## The Game Itself

- Ask all participants to stand in the center of the room.
  - Tell each participant to select two other people in the room, but keep the names of these two people to themselves.
  - Tell participants that they must now stay equidistant between the two people they have chosen.
  - As facilitator, move slowly through the room. Many of the participants will have chosen you as one of their people, and will need to move as you do. As they move, others will need to move, and the configuration of the room will keep changing.
    - The facilitator can also move in stops and starts to clarify the effect.
  - Keep it up until people dissolve in laughter or express frustration.
- What has happened when changes have been made in their system? Did they “ripple through” the system? When and why? Often, focusing on one part of the care process (improving PPD testing rates, for example) can pull attention from another part – other types of referrals, perhaps. Has this happened in your program?
  - Could this “rippling” have been prevented? What might they do differently? (This can be a place to bring up the concept of PDSA: testing changes on a small scale can reveal these problems early.)

## Debrief and Discussion

- Reconvene as a large group and review results.
  - Ask the group to describe what happened:
    - You can jump-start the discussion by asking one person to identify their two chosen people, and to tell how and why they moved around (this works best if you can identify one of the people who chose you).
  - Ask whether the movement of people in the room was a system (try to get participants to see that it was a system).
  - Discuss the application of what they have learned to their own HIV program.
    - What are the key components of their HIV care system?
    - Which parts of the system affect other parts of the system? This could be a very rich discussion. Press participants to think about this carefully and to share their conclusions.
- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
  - Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
  - Thank your audience and congratulate them on their hard work and success.

## Feedback and Close

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	25 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

# Win as Much as You Can Game

## Why Use This Game

- To give teams experience in designing indicators and data collection methods.
- To show different ways of graphically displaying data.
- To start a discussion about data stratification, mean and range.

## Target Audience

Senior staff, team members, and anyone else who will be involved in collecting and analyzing data. This game works best if it is part of an introduction to data display tools.

## Type of Game

A competition among teams.

## Key Concepts

- Data should give you the answers to useful questions.
- Displaying these data graphically make them easier to understand.
- A good data tool will also tell you about the distribution of the data you have collected.

## Source, History and Resources for More Information

The source for this game is “*The Big Book of Six Sigma Training Games*,” by Chris Chen and Hadley Roth, New York: McGraw-Hill, 2005 (pages 91-94).

## Materials

For this game, you will need:

- Flip chart and different colored marking pens for each team
- One instruction sheet for each team (see Attachment 1)

## Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around a table or tables, set up to make it easy for the participants to work in small groups.
  - Set up an additional flip chart in the front of the room so you can capture key points of the discussion after the game.

## Playing the Win as Much As You Can Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand the relationship between collecting data and answering useful questions.
- Have experience creating data display tools.
- Have experience analyzing data displayed in graphs and charts.

### *Agenda*

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

1. Background to the Win as Much as You Can Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

The purpose of this game is to give participants experience in creating and using data displays. Unlike data display exercises that give you a data set and ask you to graph it, this game requires each participating team to, first, create the “indicator” they will use (that is, a question they will ask of their fellow participants) and then display the results graphically. This game illustrates the data collection and analysis process, rather than the mechanics of a particular tool.

You may need to give the participants a quick refresher in creating and using pie charts, histograms, line graphs, etc., although most people in health care settings have some familiarity with these. The authors of the game point out that some teams may need help to structure a question that will give them data that can then be put into a graph.

The discussion at the end of the game can lead to concrete plans to make data more available in the clinic or program. Most programs have data reporting requirements and some collect additional data that interests the management or staff. Consider making a plan to graph and distribute dental referral rates, for example, if your program is not already doing so.

### *Key points to explain to your audience:*

- Discuss the purpose of collecting data. Remind them that randomly collecting lots of numbers is useless. You want data that lead to information, that give you answers to your questions. Any good data collection activity should begin with the questions you want to answer.
- Review the basic data display tools:
  - Line graphs, showing data change over time.
  - Histograms (frequency distributions) or bar charts that show how many units have a particular characteristic.
  - Pie charts, that show the percentage of each contribution to the whole.
  - Scatter diagrams, that show the relationship of one variable to another.
- Review the concept of stratification: will we want to know if the answer to our question varies due to a specific element: day of the week, season of the year, age or sex of the participant, etc.? Talk about how teams should consider how to design their data collection strategy so these questions can be answered, if they are important.

## Attachment 1

## Win As Much As You Can Tally Sheet

Instructions: For 6 consecutive rounds you and your partner will choose either an X or a Y, and each of the other partnerships in your group will make the same choice. The payoff for each round depends on the pattern of choices made by your group.

PAYOFF SCHEDULE	
4 X's	Lose \$1.00 each
3 X's	Win \$1.00 each
1 Y	Lose \$3.00
2 X's	Win \$2.00 each
2 Y's	Lose \$2.00 each
1 X	Win \$3.00
3 Y's	Lose \$1.00 each
4 Y's	Win \$1.00 each

Confer with your partner in each round and make a joint decision and mark the scorecard accordingly. After each round, track the group's choices and the payoff.

ROUND	YOUR CHOICE (CIRCLE)		GROUP'S CHOICE	PAYOFF	BALANCE
1	X	Y	X_____ Y_____		
2	X	Y	X_____ Y_____		
3	X	Y	X_____ Y_____		
4	X	Y	X_____ Y_____		
5	X	Y	X_____ Y_____		
6	X	Y	X_____ Y_____		

## The Game Itself

- Ask participants to divide up into groups of 3 to 6 with the people most like themselves with no more than 6 groups total. If asked what you mean by “most like themselves,” provide no more information.
- Give each group a copy of the instructions (Attachment 1.)
- Each group gathers around its flip chart and gives itself a name, writing it on the flip chart.
- Each team composes a question it will ask each of the other participants to determine how the groups have been formed.
- After all teams have composed questions, instruct the participants to gather data from all the participants, including their own team. Team members should record each person’s name and his/her answer.
- Each team then creates a graphical display of their information.
- Teams then quickly present their findings and show their charts/graphs.
- The facilitator selects the winning team.

## Debrief and Discussion

- Review results.
- Ask the teams to describe their work: how did each team decide on its questions?
- Look at the graphs and analyze the data more deeply:
  - What do they show about the make-up of the group of participants?
  - Can you stratify the data in a useful way?
  - What about the mean of the data and the range? What conclusions can you draw about the nature of the participants in this game?
  - How useful are these graphics? How could they be improved?
- Discuss the application of what they have learned to their own HIV program.
  - Do the data they have access to provide answers to useful questions? Why or why not?
  - Do they get any data results in graphical format?
- If so, are these graphs useful?
- If not, what would they like to see? How could they go about getting such graphs?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

# Games to Teach Skills in Developing Changes

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	25 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

# Think Inside the Box Game

## Why Use This Game

- To teach the importance of going beyond the most obvious result.
- To show that thinking creatively can be hard, but it can be done.
- To teach that teams working together can develop more creative solutions than individuals alone.

## Target Audience

Senior staff, team members, and anyone else who will be involved in creating a new process or altering an existing process.

## Type of Game

A competition among teams.

## Key Concepts

- It is easy to get stuck in our thinking about any problem with which we are confronted. That's because our minds are programmed to think in a logical, linear fashion.
- Getting "unstuck" in our thinking is not easy, but we can learn to be better at it.
- Working in teams is one way to help get unstuck.

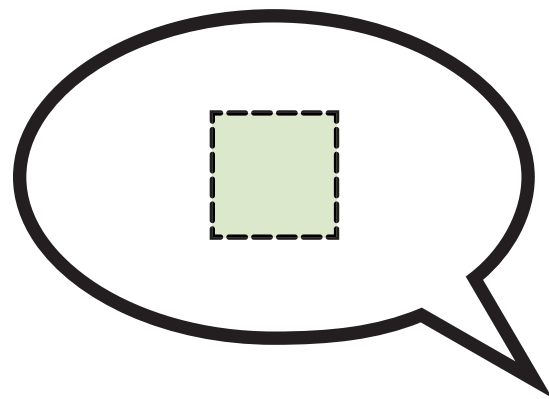
## Source, History and Resources for More Information

Information about this game comes from Qualis Health, the QIO for Washington State, and its Performance Improvement Support Center. For more information about creative thinking and quality improvement, see Plsek, Paul E., *Creativity, Innovation and Quality*, Milwaukee, ASQ Press, 1997.

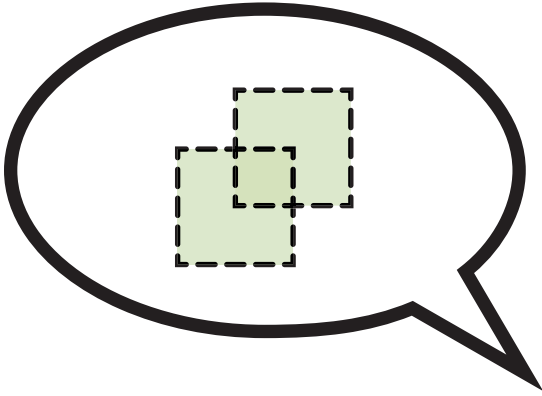
## Materials

For this game, you will need:

- A pad of paper and pens for each team (it helps to have pens of different colors for each team)
- Flip chart and markers to demonstrate the game and to record the key points of the discussion







## Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around a table or tables, set up to make it easy for the participants to work in small groups.
  - Distribute a pad of paper and pen(s) for each team that will participate.
  - Set up the flip chart so you can give the instructions and capture key points of the discussion after the game.

## Playing the Think Inside the Box Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand that developing innovative solutions can be difficult.
- Understand what is involved in getting better at being innovative.
- Appreciate the importance of teamwork in promoting creativity.

### *Agenda*

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

1. Background to the Think Inside the Box Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

Most people, most of the time, practice what creativity expert Edward de Bono calls “vertical thinking” – sequential, analytic reasoning based on established patterns of thought. This ability to build on what we already know makes humans able to handle situations of amazing complexity, but because we are always building on these established patterns of thought, vertical thinking is not very good for designing innovative solutions to problems.

For example, most HIV clinics have problems with no-show rates. Almost every clinic that works on this problem decides to address it by making reminder calls: our minds are set in this vertical pattern that people don't show for appointments because they forget, and this often masks our ability to address this problem more effectively.

To be better innovators we need to expand our ability to practice de Bono's “lateral thinking” – where we can take an image from one setting and pair it with an image from a completely different setting to create a new tool (Paul Plsek points out that the Ziploc storage bag resulted from lateral thinking. It combines two entirely different concepts – food storage and fastening of clothes – into one new creative idea that was a leap forward in the keeping of leftovers).

This game helps to introduce the concepts of vertical and lateral thinking, by presenting a puzzle that looks simple on the surface but quickly gets much more difficult. Participants work on the puzzle in teams, helping each other to think more “laterally” and finally agree on the solution. The game also gives teams a chance to practice good team behaviors, as usually one or two members get the solution more quickly and then must explain it clearly to the other team members – and that's not always easy!

### *Key points to explain to your audience:*

- Introduce the concepts of vertical thinking – the logical way we usually approach problems, and lateral thinking – what we do when we are being creative.
- Explain that this game will help illustrate the difficulty we often have with lateral thinking and will help us begin to understand how to do it better (i.e., by working collaboratively).

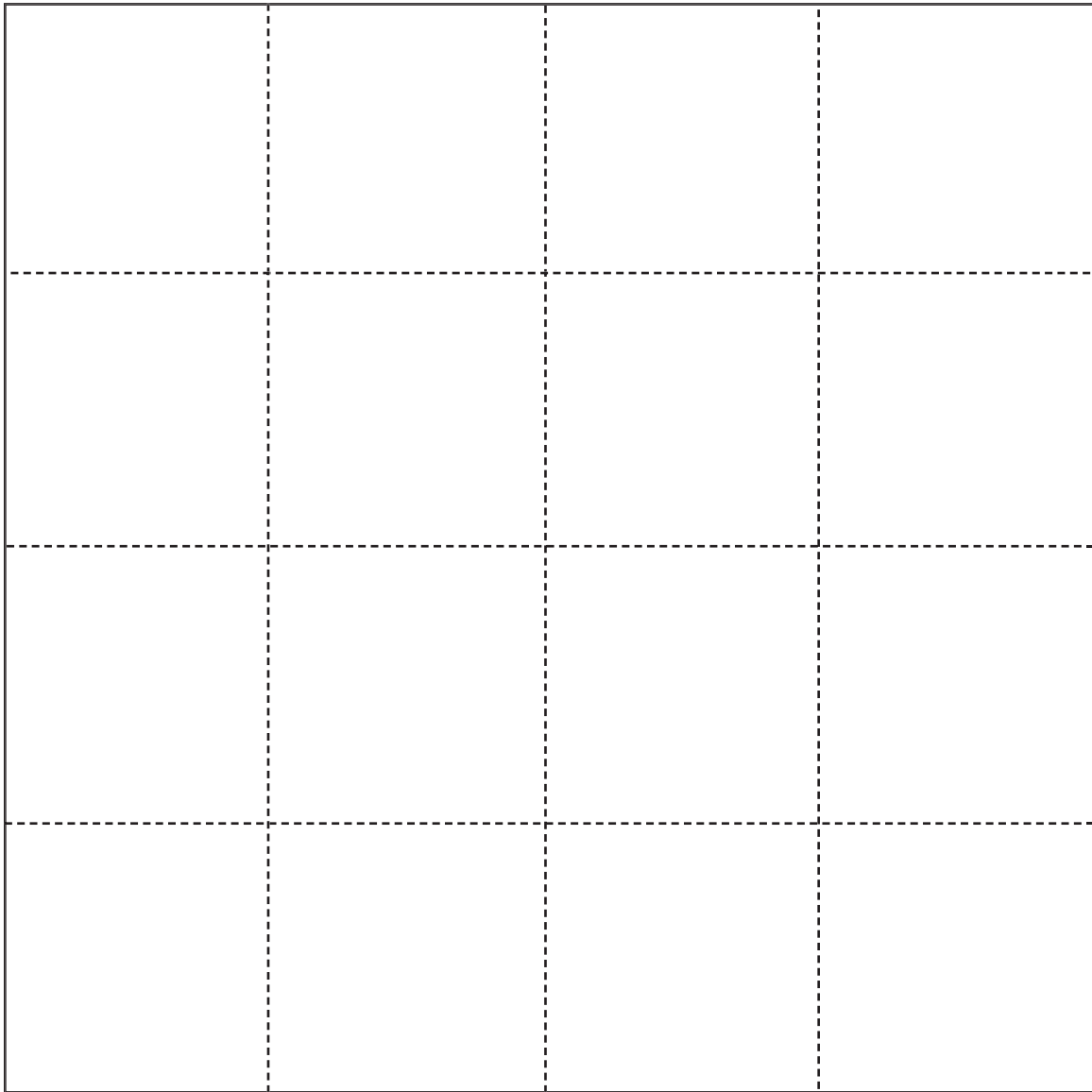
## The Game Itself

- Divide the participants into teams. Aim for 3 or 4 teams.
- Tell each team to copy you as you:
  - Draw a square on the flip chart.
  - Divide it into 4 quadrants.
  - Divide each quadrant into 4 quadrants.
- Tell each team to work together to count the number of squares that result.
- Each team will quickly come to “16” as the answer (most likely one individual will shout it out). Remind them to work as a team to develop the answer. Tell them to think seriously, count carefully and make sure everyone on the team understands the answer.
- Watch the teams. Note which one arrives at the right answer (which is 30 – see Attachment 1) first. Observe how the teams work together.
- When all teams have the answer or appear too frustrated to continue, call time. Ask the team that arrived at the answer first to work as a team to present the solution to the rest of the group.

## Attachment 1

## How on Earth are there 30 Squares?

1 box that is  $4 \times 4$   
4 boxes that are  $3 \times 3$   
9 boxes that are  $2 \times 2$   
16 boxes that are  $1 \times 1$   
Total = 30



## Debrief and Discussion

- Review results.
- Ask the team that is presenting to describe their team process:
  - How did they come to their solution?
  - How about bringing others on the team along?  
Add your own observations.
- Ask other teams to describe their experiences and the ease or difficulty they had with the problem.
- Discuss the application of what they have learned to their own HIV program.
  - What problems keep coming up again and again in the program?
  - What solutions have they tried? Have any of these truly been innovative?
  - How could they develop more creative solutions?
- You may want to suggest some answers here. Plsek's book includes lots of tools to strengthen groups' creative thinking capabilities. See the Reversals Game, below, for one suggestion. But even something as simple as benchmarking from another industry can help promote lateral thinking.

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
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Debrief and Discussion	Facilitator, audience	15 minutes

## Sudoku Game

### Why Use This Game

- To explain what a change concept is.
- To show how change concepts can be used.
- To help leaders understand why they need to provide change concepts to improvement teams.

### Target Audience

Senior staff who are leading improvement efforts in their organizations.

### Type of Game

A demonstration with everyone participating.

### Key Concepts

- There is a growing body of information about the types of changes that will result in improvement in the delivery of health care services.
- From this information we can develop general notions or approaches to improvement – that is, change concepts – that can be very helpful to teams trying to make changes that result in improvement.
- It is leadership’s responsibility to provide these change concepts to teams.

### Source, History and Resources for More Information

For more information about change concepts, see Langley et. al., “*The Improvement Guide*,” San Francisco, Jossey-Bass, 1996.

### Materials

For this game, you will need:

- The Sudoku Puzzle, one copy for each participant (see Attachment 1)
- Flip chart and markers to record the key points of the discussion

### Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around three tables. It is best if the tables are not too close to each other.

- Make copies of the Sudoku Puzzle for each participant. Distribute at least one pen to each table.
- Prepare the “change concept” note you will slip to one participant in Team 3 part way through the game (see game instructions, below, for the text of the note).
- Set up the flip chart so you can capture key points of the discussion after the game.

## Playing the Sudoku Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand what a change concept is.
- Understand how change concepts can be used for improvement.
- Appreciate senior leadership’s role in providing change concepts to improvement teams.

### *Agenda*

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

1. Background to the Sudoku Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator’s note*

The third question of The Improvement Model is “what change can we make that will result in improvement?” The field of operations research has provided much information on how to answer this question for work processes: minimizing handoffs, for example, will almost always improve work flow. “Minimizing handoffs” is therefore a change concept, what Langley and his colleagues call “a general notion or approach that has been found to be useful in developing specific ideas for change that result in improvement.” As more improvement work takes place in health care, clinical change concepts are being developed. Using patient registries, for example, has become recognized as a change concept for chronic illness care. “Set and document self-management goals collaboratively with patients” is a change concept for HIV care.

In organizations committed to improvement, senior leaders recognize their role in identifying and providing change concepts that are then used by their improvement teams. The purpose of this game is to help senior leaders understand what change concepts are, and then to initiate a discussion among leaders about their role in using change concepts.

### *Key points to explain to your audience:*

- Introduce the idea of change concepts. Use the definition and examples above. It can also be helpful to think up change concepts that would apply to recreational activities or hobbies: “keep your eye on the ball” is a change concept that applies to most sports, for example.
- Explain that this game will help illustrate how change concepts are best used in improvement efforts.

## The Game Itself

1. Divide the participants into three teams; have each team sit at a table.
2. Explain the purpose of the game: to work as a team to fill the grid with numbers 1-9 so that each column, row, and 3 x 3 square has the numbers 1 - 9 with no repeats in any column, row, or 3 x 3 square. Sudoku is not a mathematical game.
3. Distribute a copy of the Sudoku Puzzle (Attachment 1) to each participant.
4. Tell the teams that the group will reconvene in 15 minutes to see how far each has gotten.
5. Immediately go to Team 1. Speak only to them, make sure the other teams cannot hear. Tell them you are giving them a change concept for the puzzle. That change concept is: “ a) begin with the one 3 x 3 square with the most numbers already filled in and fill it in completely; b) then pick the one column with the most numbers filled in and complete it; and then; c) pick a row the one row with the most numbers filled in. Repeat square, column, and row.”
6. Team 2 receives no assistance.
7. Hand a note to one team member of Team 3. Try and select the quietest member. The note should read: “Read the following sentence aloud to your team: ‘I think there is a change concept about this puzzle. It has something to do with starting with the 3 x 3 squares, but I can’t remember the details.’”
8. After another 15 minutes, call time.

## Debrief and Discussion

- Review results.
  - Ask the teams to report in the following order: Team 2, Team 1 and Team 3.
- Press Teams 1 and 3 to describe exactly how they received the change concept and how it affected their work.
- Discuss the application of this experience to the use of change concepts. Elicit that leadership’s taking a strong role in providing the change concept at the beginning of the puzzle was essential to the team’s success. Team 3’s experience should be similar to relying on a team member to come up with the change concept: it comes along later in the process, and may not be correct or complete. It can be more frustrating than helpful.
- Discuss the application of what they have learned to their own HIV program.
  - What change concepts have they used, and how have they worked?
  - What change concepts might apply to HIV care?
  - What improvement efforts are taking place now in their own programs for which they would like to provide change concepts?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their responses on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

## Attachment 1

## Sudoku: The Game

5	3			7				
6			1	9	5			
	9	8		4			6	
8				6				3
4			8		3			1
7				2				6
	6					2	8	
			4	1	9			5
				8		1	7	9

## Sudoku: The Solution

5	3	4	6	7	8	9	1	2
6	7	2	1	9	5	3	4	8
1	9	8	3	4	2	5	6	7
8	5	9	7	6	1	4	2	3
4	2	6	8	5	3	7	9	1
7	1	3	9	2	4	8	5	6
9	6	1	5	3	7	2	8	4
2	8	7	4	1	9	6	3	5
3	4	5	2	8	6	1	7	9



SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	60 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

## Egg Ship Game

### Why Use This Game

- To help teams to get used to working together.
- To give teams practice in problem-solving.
- To focus teams on the importance of meeting customer needs.

### Target Audience

Team members and others who will be developing and running PDSA cycles, or working on any sort of complex team project.

### Type of Game

A competition among teams.

### Key Concepts

- Keeping focused on customer needs helps teams solve problems more smoothly.
- Teams get better at working together over time.

### Source, History and Resources for More Information

This game comes from “*101 More Training Games*,” by Gary Kroehnert, McGraw-Hill Book Company Australia, Sydney, copyright 1999 (pp. 28-29). Mr. Kroehnert includes permission to reproduce his games for educational purposes or training activities.

### Materials

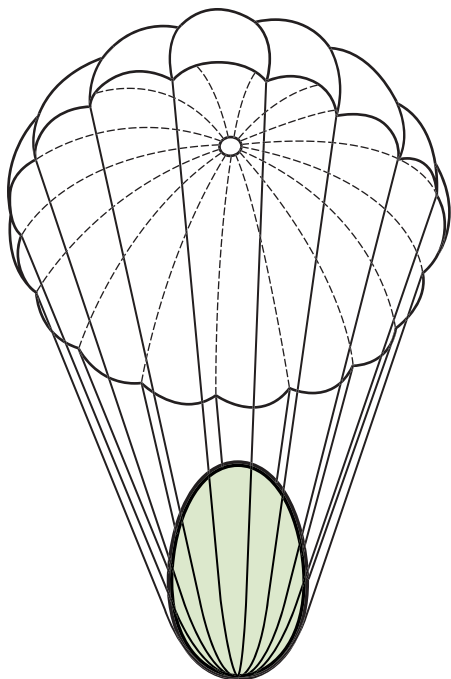
For this game, you will need:

- For each team participating:
  - One raw egg (hard-boiled may be substituted to help with the clean-up if any break)
  - A roll of sticky tape
  - A handful of drinking straws
  - Marking pens
  - One copy of the Briefing Sheet (Attachment 1)
- A flip chart and markers to record the key points of the discussion
- A small ladder or step-stool for the 10-foot test flight

### Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Remove tables; teams will need space to work.
  - Have the equipment ready to distribute to teams.
  - Set up the flip chart so you can give the instructions and capture key points of the discussion after the game.



## Playing the Egg Ship Game

### *Welcome and Introductions*

To begin the game, 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:

- Know their teammates better.
- Know how they and their teammates work together to solve a problem.
- Have experience collaborating to address customer needs.

### *Agenda*

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

1. Background to the Egg Ship Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

One of the first things people learn about quality improvement is that it's supposed to focus on the needs of the customer. When QI teams reach decision points – having to decide between two options, for example – remembering that they need to meet or exceed customers' needs helps make decisions and keep team's work on target. In health care it is especially important to remember to work to improve care from the patient's or client's perspective, not to make things "easier" for providers.

This game illustrates the value of having a clearly stated customer need – even though, in this case, it's a need that can be difficult to meet! The game is fun and lighthearted but contains important lessons. Take the time at the end to work through the discussion questions.

### *Key points to explain to your audience:*

- If the participants have not been exposed to the concepts of customers and customer needs, spend some time discussing these with them. Some in health care can be uncomfortable with the commercial connotation of "customer" – stress that for us, customer is designed as the person who receives and uses the service or product you produce.
- Acknowledge that this is a difficult task and encourage participants to help each other and to be creative.
- Make sure everyone understands the goal: to create a spacecraft suitable for the successful transportation of raw eggs.

## The Game Itself

- Divide the participants into teams of 5-7 people each.
- Tell the groups that they represent companies that produce spacecraft. These companies will be competing for a lucrative contract to construct a particular type of craft.
- Each group then starts the task of designing, constructing and evaluating a spacecraft suitable for the transportation of raw eggs. Give each team 45 minutes to design and construct their Egg Ships using the materials supplied.
- At the end of this time, begin the two-part evaluation. Each evaluation consists of a test flight, one from 4 feet and the other from 10 feet. Should the eggs break during either test flight, the company will be sued for damages.
- Conduct the first part of the evaluation by holding the Egg Ships 4 feet above ground level and dropping them to the floor. The egg must not break.
- Egg Ships that survive the 4 foot test move on to the second part. Hold each Egg Ship 10 feet above the floor (use the ladder or step-stool) and drop it. Again, the egg must not break.

## Debrief and Discussion

- Review results. Identify the teams that successfully completed both parts of the evaluation.
- Ask the teams about how they did their work?
  - How did they approach the task? Did they break down the work? Who did what?
  - How about bringing others on the team along? Add your own observations.
- Did any group ask the customer for more specific details, such as the required color, placement of a company logo, etc? Why or why not?
- Did any group get the customer involved in the process? Why or why not?
- Discuss the potential application of what they have learned to their own HIV program.
  - How do we involve customers in our problem-solving?
  - Does our use of teamwork help or hinder our problem-solving?
  - What might we do differently to improve?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

---

## Attachment 1

### Egg Ship Briefing Sheet

Your team represents a company that designs, builds and flies custom-built spacecraft. You will be competing for a lucrative contract to design and construct Egg Ships for the next decade.

For this exercise you will have 45 minutes to design your Egg Ship. On completion of the design and construction your Egg Ship will be evaluated and put through two separate test flights. Should the egg break during either test flight the company will be sued for damages.

The first test flight will be from the height of 4 feet. The Egg Ship must be held 4 feet above ground level and dropped to the floor. The egg must not break during this flight.

The second test flight will be a 10-foot flight. The Egg Ship will be located 10 feet above ground level and dropped to the floor. Again, the egg must not break.

All of the raw material (pun definitely intended) will be distributed by your customer.

Good luck!

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	5 minutes
The Game	Facilitator, audience	15 minutes
Debrief and Discussion	Facilitator, audience	36 minutes

# Reversals Game

## Why Use This Game

- To teach groups a tool they can use to help them generate innovative ideas about how to solve a problem.
- To help groups understand how to “un-stick” their thinking.

## Target Audience

Team members and others who will be involved in creating a new process or altering an existing process.

## Type of Game

A demonstration with everyone participating. The game works best with a group of no more than 8-10 people.

## Key Concepts

- It is easy to get stuck in our thinking about any problem with which we are confronted. That’s because our minds are programmed to think in a logical, linear fashion.
- Getting “unstuck” in our thinking is not easy, but we can learn to be better at it.
- Specific tools exist to help us get unstuck.

## Source, History and Resources for More Information

This game is derived from exercises described by Paul E. Plsek in “*Incorporating the Tools of Creativity into Quality Management*,” *Quality Progress*, March, 1998, pp. 21-28, and in his book, *Creativity, Innovation and Quality*, Milwaukee, ASQ Press, 1997.

## Materials

For this game, you will need:

- Flip chart and markers to record the key points of the discussion

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs in a circle or U-shape.
  - Set up the flip chart so you can:
- Record the results of the game.
- Capture key points of the discussion after the game.

## Playing the Reversals Game

### *Welcome and Introductions*

To begin the game, 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:

- Realize that they need consciously to break out of their established way of thinking about problems.
- Know how to use a tool to help do this.
- Have experience applying this tool to HIV care.

### *Agenda*

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

1. Background to the Reversals Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

As we discussed in our introduction to the “Think Inside the Box” Game, most people, most of the time, practice what creativity expert Edward de Bono calls “vertical thinking” – sequential, analytic reasoning based on established patterns of thought. This ability to build on what we already know makes humans able to handle situations of amazing complexity; because we are always building on these established patterns of thought, however, vertical thinking is not very good for designing innovative solutions to problems. Innovation requires more skill with lateral thinking, a technique that can be learned. (See the Facilitator's note for the “Think Inside the Box” Game for more information).

A number of tools have been developed to help people practice and become better at lateral thinking. Many of these are designed to help us escape from the way we always think of things by forcing our thought patterns to go in a different direction. One commonly-used tool is called a “reversal:” you take an issue, and then ask what would it look like if the opposite of that situation existed? What would it look like our patients were responsible for improving our health? What would it look like if we wanted to raise costs and decrease client satisfaction? When presented with questions like this, people laugh and come up with silly answers. Often, these silly answers contain a germ of an idea that can lead to a truly innovative approach to an existing problem.

This game teaches the reversals tool by applying it to a general situation. This activity best serves as an introduction to a hands-on application of the tool to your own HIV program. Use the game to get people warmed up, relaxed and comfortable with the tool. In the debriefing session (instead of discussing what happened during the game), use the tool and the group to develop possible solutions to your own program, perhaps to work on that intractable problem that you can't seem to fix.

As the facilitator, you should introduce the concepts (see below) and explain the reversals tool. Get the participants to brainstorm rapidly for a few minutes about what this “absurd” situation would look like. Make this discussion as free-wheeling as you can: silly ideas are likely to be the ones with the most potential. Capture the ideas on the flip chart as they come up. After 5 or 10 minutes, review the list with the group and start what Plsek calls “harvesting” – seeing in the silly ideas core concepts that might actually be adapted and put to use. The harvesting will be more difficult in the abstract game and easier with the real-life situation.

*Key points to explain to your audience:*

- Introduce, if you have not already, the concepts of vertical thinking – the logical way we usually approach problems, and lateral thinking – what we do when we are being creative.
- Explain that this game demonstrates a tool that can help promote lateral thinking. Describe the tool.
- Tell participants that “anything goes” at the beginning, and encourage absurd suggestions. Then reassure them that you’ll get serious after a bit and work to use the suggestions to develop solutions to try.

## The Game Itself

- Tell the group that you are going to work on the problem of (choose one from the following list, or make up your own):
  - Global warming
  - Childhood obesity
  - The unappealing quality of local take-out pizza.
- Present the reversal: what would it look like if:
  - Our goal was to melt more of the polar ice cap, more quickly?
  - We wanted to get children to eat more junk food and exercise less?
  - We wanted to get local pizza shops to increase the greasiness of their products?
- Encourage brainstorming – no criticism – and outrageous ideas. Capture them on the flip chart.
- After a few minutes, stop and review the list. Tell the group it’s time to return to reality. Go through the ideas and lead a discussion about which might actually be useful, or contain a useful concept? How could this concept be expanded into an idea that has promise for fixing the problem?

## Debrief and Discussion

- Work together and apply the tool to your HIV program:
  - What problem keeps coming up again and again in the program? (Referrals to other programs: ophthalmology, gynecology, dental, often are perennial problems.)
  - What solutions have they tried? Have any of these truly been innovative?
  - What would be a good “reversal” of this problem? (One option in developing a reversal is to ask, rather than how to solve the problem, how to make it worse. “What if we wanted fewer clients to keep their appointments?”)
  - Brainstorm answers to the reversed question.
  - Stop after 10 minutes and “harvest” the ideas for concepts that could lead to suggestions you might try.
  - Make a plan to do a pilot test of one of these suggestions.

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.



# Games to Teach Skills in Testing and Making Changes

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	25 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

## Peg Game

### Why Use This Game

- To teach how to develop and test a hypothesis.
- To teach that multiple cycles of hypothesis development and testing are good ways to develop solutions.
- To show how to develop better knowledge as you go through these multiple cycles.

### Target Audience

Team members and others who will be developing and running PDSA cycles. Some teachers find this game works best with senior staff, others have found it successful for all participants.

### Type of Game

A competition among teams.

### Key Concepts

- Developing theories is essential to learning and improvement.
- “Tests of change” need to be planned and carefully evaluated.
- Data collection and documentation are important.

### Source, History and Resources for More Information

This game has a long history. Its application to learning and improvement was identified by Lloyd Provost who uses it to teach the concept of PDSA at the Institute for Healthcare Improvement’s Breakthrough Series College.

### Materials

For this game, you will need:

- Copies of the game board for each participant (see Attachment 1)
- Fourteen markers for each participant. You can use coins for the markers, or any small round candy. M&M’s™ work well
- Copies of the “Score Sheet: Theories and Results” (Attachment 2) for each participant
- Flip chart and felt-tipped marking pens
- Overhead or LCD projector
- Background slides or overheads: “PDSA for the Peg Game,” and “To Be Considered a PDSA Cycle” (Attachments 4 and 5)

## Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself (see Attachment 6 for the answer key.)
  - Practice presenting the key teaching points.
- Prepare the room:
  - Arrange chairs around a table or tables. A U-shaped table works well.
  - Set up a small desk, table or podium in the front of the room.
  - Set up the equipment (e.g., flip chart and overhead projector or LCD projector) you will use to introduce the game and record the results. Test the equipment to make sure it works.
  - Prepare the flip chart or an overhead transparency with the "Team Results Summary" (Attachment 3.)

## Playing the Peg Game

### *Welcome and Introductions*

To begin the game, 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:

- Know how to develop theories of change and how to design tests of these theories.
- Understand how to use the results of these tests to design new tests that reflect what they have learned.
- Appreciate the roles that ongoing data collection and documentation play in carrying out PDSA cycles.
- Begin to see how to apply these concepts to their HIV program.

### *Agenda*

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

1. Background to the Peg Game.
2. The Game Itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and Close.

## Background to the Game

### *Facilitator's note*

As teams work to make improvements in their HIV programs, they should be thinking “we think this change will make things better because it will....” If they do this, teams then will have a way to assess whether the change was successful. Thinking about why a change might work involves developing a theory, and teams often find it hard to be disciplined enough to develop and test these theories. The Peg Game encourages teams to be systematic about designing and trying out solutions; the teams that do this well find the solution more quickly.

The challenge in running this game is to make sure your teams develop a hypothesis before each cycle. Participants may get excited about trying to find the solution and miss the real point of the game unless you keep reminding them and help them to see it.

### *Key points to explain to your audience:*

- Describe the components of a PDSA cycle. Use (and project) Attachment 5 to help you. Stress the importance of thoughtful planning before each test and careful assessment of the result. Random doesn't work.
- Review what is meant by “plan,” “do,” “study,” and “act.” Use (and project) Attachment 4 to help you. Reinforce that the purpose of the game is to teach how to run a PDSA cycle.
- Add that multiple PDSA cycles result in better understanding and better results. Indicate that the game will illustrate this point as well.

## The Game Itself

(This description is adapted from the manual for the Institute for Healthcare Improvement's Breakthrough Series College.)

1. Give each person a game board (Attachment 1) and markers. Each person completes the game.
  - a. Each participant covers each number on the game board with a marker, leaving one number blank. The participant can then remove markers from the game board by “jumping” one marker over another and then into the blank spot: the marker that is jumped over then can be removed (people who have played checkers will understand this immediately). The goal is to set up your movements so that you end with only one marker remaining on the board. Each participant continues for as long as he or she can, and notes how many markers remain on the board.
2. Tally everybody's results. Identify the best performers and have them become leaders of teams of 3-4 people (depending on the size of your group).
3. The leader teaches his or her team the “best” approach and then team repeats as a group.
4. Tally results. Reconvene as the large group and discuss what we have learned. In most cases, this “shared learning” will not result in better performance. Discuss why. Ask: how many cycles have we run? (The answer is none. Up to this point, the team hasn't carried out any of the parts of a PDSA cycle.) Also, no record has been kept of the way the result was achieved. Ask teams then to try several PDSA cycles and see how these go.
5. Each team then completes a full PDSA cycle. Distribute Attachment 2 and make sure each team records its theories, plans and results.
  - a) The Plan should include the theory and prediction, the approach and a plan for recording what was done (you may provide a hint to the groups that they should record each move in order, recording the space moved from and to, e.g., 6-1, 4-3).

- I) Some theories: keep pegs bunched up, keep pegs away from corners, leave one side empty, keep middle empty until the end.
- II) Some plans: work backwards, work independently.
- b) Do involves completing the game one time, following the plan. Each team should record its results and any problems or other observations.
- c) In the Study phase each team should review what happened, adjust theories, adjust plans for the next cycle.
- d) Act means to carry out the next cycle.
6. Each team completes a second cycle (you can suggest that a good strategy might be for each member of the team to run an independent test of the “same theory” and then see who gets a good result).
7. Complete additional cycles as time permits.
8. Record each team’s best result on the flip chart or overhead: “Summary of Peg Game” (Attachment 3)

## Debrief and Discussion

Reconvene as a large group. Review results.

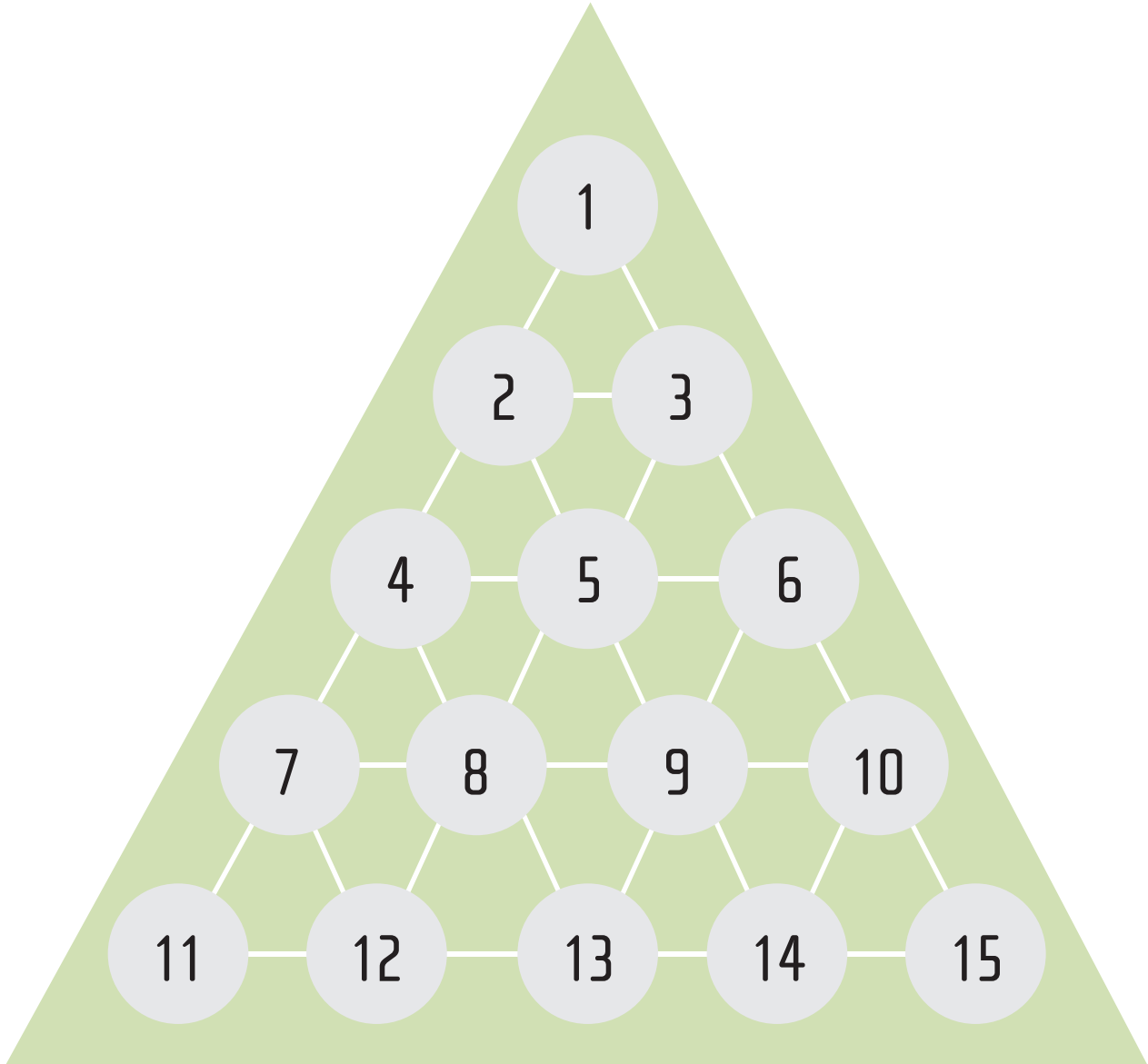
- Ask the team with the best results to describe their theory and plan to the others.
- If necessary, walk through the answer key (Attachment 6).
- Ask participants how the PDSA approach differed from their initial approach to the problem. Discuss how whether using PDSA was an improvement.
- Ask participants about improvements they have tried to make in their HIV programs:
  - Did they use a PDSA approach? Did they begin by testing their change on a small scale – with one provider’s patients, for example – and for a short (one or two sessions) period of time?
  - If so, did it work? How might they have done PDSA even better?
  - If not, do they think using PDSA cycles would have made this effort more successful? Why or why not?
- Ask participants where might they use PDSA in their current work.

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

Attachment 1

Peg Game: The Game Board



Peg Game

## Attachment 2

## Score Sheet: Theories and Results

CYCLE	THEORY TESTED	PLAN	RESULT
1			
2			
3			
4			
5			
6			

Attachment 3

**Team Results Summary**

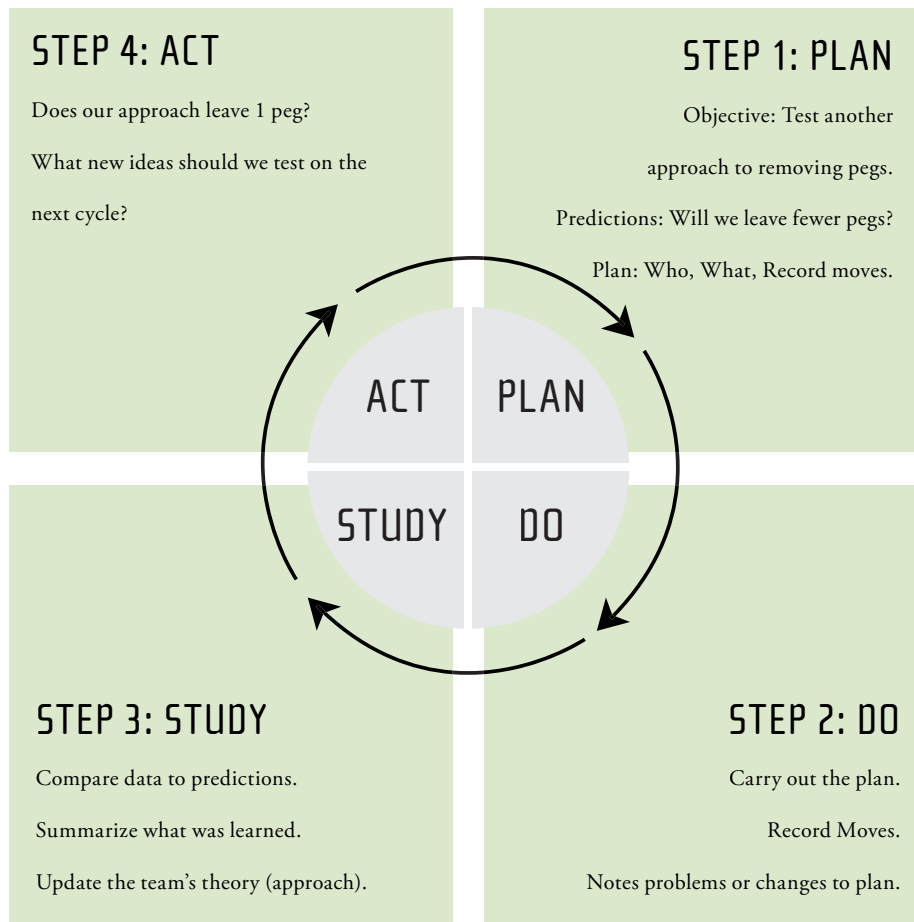
TEAM	NUMBER OF CYCLES	BEST RESULT
1		
2		
3		
4		
5		
6		
7		
8		
9		

Peg Game



## Attachment 4

## PDSA for the Peg Game



Attachment 5

To Be Considered a PDSA Cycle

- TO BE CONSIDERED A PDSA CYCLE:
  - The test or observation was planned (including a plan for collecting data).
  - The plan was attempted.
  - Time was set aside to analyze the data and study the results.
  - Action was rationally based on what was learned.

Peg Game

## Attachment 6

**Peg Game Answer Key**

1. Leave # 6 blank.
2. Complete the sequence of jumps in this order:

1 » 6

10 » 3

13 » 6

3 » 10

2 » 9

15 » 6

11 » 13

14 » 12

6 » 13

12 » 5

7 » 2

2 » 9

13 » 6

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	20 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

## Tennis Ball Game

### Why Use This Game

- To teach how to approach improving a process.
- To teach how to build on knowledge gained from one test in designing a second test.
- To teach how multiple testing cycles lead to improvement.
- To teach the concept of “breakthrough” improvement.

### Target Audience

Team members and others who will be developing and running PDSA cycles.

### Type of Game

A competition among teams.

### Key Concepts

- Processes can be improved by changes in the steps that constitute them.
- The results of one test of a change can help a team identify additional changes to make.
- More tests lead to more knowledge about a process, and to better improvements.
- Setting “stretch goals” can push teams to make substantial improvements.

### Source, History and Resources for More Information

This game is used at the Institute for Healthcare Improvement’s Breakthrough Series College and has been used by a number of improvement collaboratives. Additional information about this game comes from Qualis Health, the QIO for Washington State, and its Performance Improvement Support Center.

### Materials

For this game, you will need:

- A tennis ball or bean bag for each team
- A way of timing how long it takes each team to complete its process: a stopwatch or a clock with a second hand
- A flip chart and markers to record the results of the discussion

### Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.

- Prepare the room:
  - Participants will work in teams of 6-7 people. Set up the room with enough tables and chairs to accommodate groups of that size. Alternatively, set chairs up auditorium style and plan to have the teams work standing up (they will have to move the chairs out of the way for this, as they will need to work standing in circles).
  - Set up the flip chart in the front of the room.

## Playing the Tennis Ball Game

### *Welcome and Introductions*

To begin the game, 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:

- Know how to design changes to a process.
- Know how to test these changes and build on them to design subsequent changes.
- Appreciate how having a clear, ambitious goal can energize a team to make improvements.

### *Agenda*

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

1. Background to the Tennis Ball Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

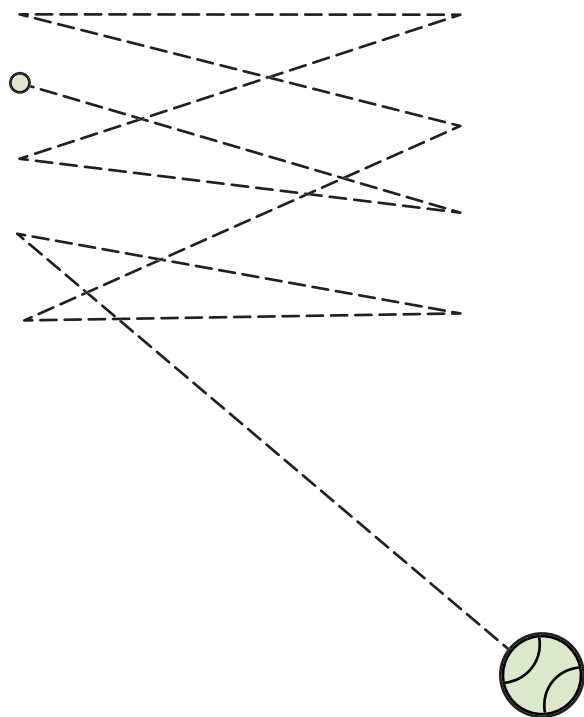
### *Facilitator's note*

This game is a simpler introduction to the concept of PDSA than the Peg Game. It may work better with improvement teams or as a “just in time” teaching technique. As this game is very physical, it is also useful right after lunch or other times when participants' energy is lagging.

This game illustrates the “accelerating improvement” component of PDSA, as shown in the diagram in Attachment I. The idea is that hunches and ideas, when tested, lead to new knowledge that leads to improved processes. Each testing cycle adds more knowledge, and many cycles lead to real improvements.

If your audience is not familiar with the idea of improving quality by improving processes, this game can help introduce that concept. Walk through the steps of a standard patient/client visit. Discuss what can complicate each step and how each complication can affect the quality of care or service you provide.

Step 9 in the game instructions is optional. Using it will allow you to introduce the concepts of benchmarking and breakthrough improvement. Pointing out the excellent results achieved by others is an example of benchmarking – comparing your performance to the “best in class.” If they can achieve these results, why can't we? By presenting the “stretch goal” of the imaginary better performance, you may energize participants to be more aggressive in improving their own performance. In turn, they may achieve startling results!



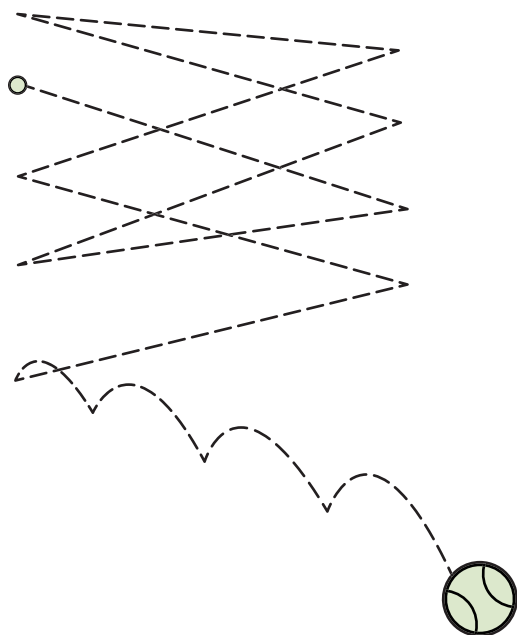
*Key points to explain to your audience:*

- Describe the components of a PDSA cycle. The attachments to the Peg Game, also in this guide, can be adapted to help in explaining PDSA.
- Stress the idea that many PDSA cycles will accelerate the rate of improvement. Use the diagram in Attachment 1 to illustrate this concept. One key point to stress is that each PDSA cycle creates new knowledge about the process, so focusing on running many cycles – carefully, but expediently – will increase what you are able to learn about your process and the improvements you plan.

## The Game Itself

1. If they haven't already, ask participants to form groups of 6-7 people. One person becomes the quality officer, the others will represent steps in the patient visit process.
2. The people representing the steps in the patient visit process stand in a circle or sit around a circular table. The quality officer stands outside the circle but is able to see the process.
3. Begin the design of the patient visit process. One person in the process passes the tennis ball to the person across from him/her in the circle (remembering to whom you threw it). Then the receiver passes it to another person, remembering who each time. The last person passes it to the person that started.
4. Instruct the quality officer to make sure:
  - no one drops the ball.
  - the sequence of steps (i.e., people) is the same on each patient visit.
  - the ball starts and ends with the same person.
5. The quality officer records the time from the start to the end of the process.
6. Practice once to establish the order of the steps.
7. Carry out the process once. The team must start over if execution is done incorrectly or someone "drops the ball". The quality officer times the process and records the time.

8. Complete a PDSA cycle to test some ideas to improve the visit time of the process.
  - Plan: Decide what change to make. Why do you predict this change will result in a shorter visit time? Who will make the change, when and how?
  - Do: Execute the Plan – run the process one time with the changes in place. Check for compliance with quality criteria (see #4, above). Record visit time data.
  - Study: Document what you learned from this test. Be prepared to share your data with other teams.
  - Act: Make a decision about the changes. What ideas do you have for the next PDSA cycle?
9. The facilitator can at this point ask each team for its fastest time. Sigh deeply, and say that you heard that teams in a neighboring clinic, city or state can handle a patient visit much more quickly. Urge your teams to push to match their competitors.
10. Run at least one more PDSA cycle. If you have time, run several.



## Debrief and Discussion

Reconvene as a large group. Review results.

- Ask participants what they experienced. Did their times get better? How about from the second to third cycles? Did the second round of improvements build on the first?
- If you used the optional Step 9, explain why you did so. Explain benchmarking and breakthrough improvement. Ask about the impact your comment had on their team's work and its result.
  - The NQC website at [NationalQualityCenter.org](http://NationalQualityCenter.org) has information about improvements other programs have made in their HIV care, if you want to try some benchmarking yourself.
- Ask participants about improvements they have tried to make in their HIV programs:
  - Did they use a PDSA approach?
  - If so, did it work? How might they have used PDSA even better?
  - If not, do they think using PDSA cycles would have made this effort more successful? Why or why not?
- Ask participants where might they use PDSA in their current work.

## Feedback and Close

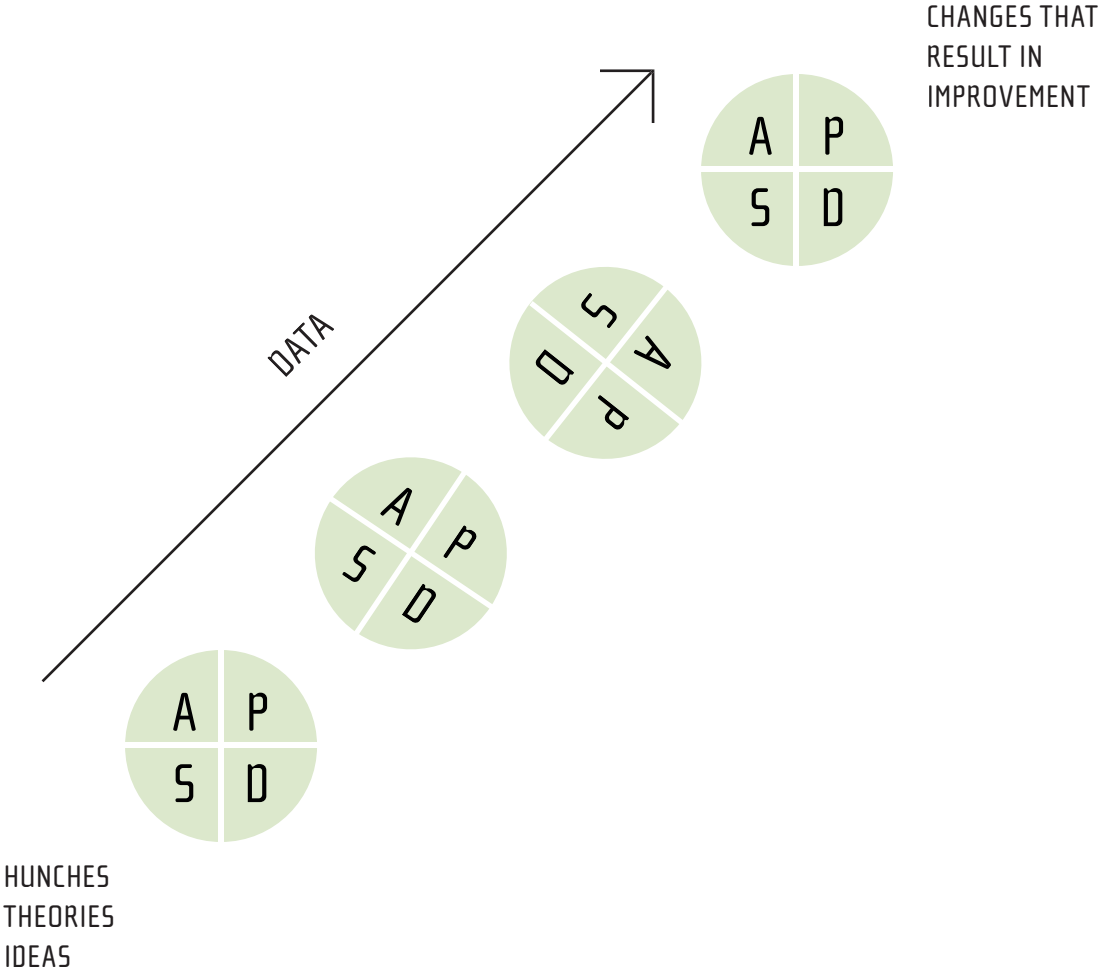
- Ask your audience for feedback on whether this session met its objectives. Take notes of their responses on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

Attachment 1

Accelerating Improvement Diagram

Building Knowledge

Source: Langley et. al., The Improvement Guide, San Francisco: Jossey-Bass, 1996, page 9.



Tennis Ball Game



SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	25 minutes
Debrief and Discussion	Facilitator, audience	25 minutes

## The Zin Obelisk Game

### Why Use This Game

- To teach how to work as a team to develop hypotheses, test solutions and solve problems.
- To show how to develop better knowledge as you go through multiple cycles of hypothesis development and testing.
- To help teams understand leadership, cooperation and conflict issues in team problem solving.

### Target Audience

Team members and others who will be developing and running PDSA cycles, as well as organization leaders who will be overseeing and coaching the work of these teams.

### Type of Game

A competition among teams.

### Key Concepts

- Teams need to be able to share information and listen to each other to work well.
- In trying to solve a complex problem, some structure is helpful. The approach of developing and testing a hypothesis (the scientific method) can provide this structure.
- Each team will have its own strengths, weaknesses and conflicts. As teams work together more, they will learn how to manage these issues better.

### Source, History and Resources for More Information

This game has been used by the New York State Department of Health, AIDS Institute. It comes from: Francis, D., & Young, D. *“Improving Work Groups: A Practical Manual for Team Building.”* San Diego, CA: University Associates, 1979, p. 147–151.

### Materials

For this game, you will need:

- A copy of the Zin Obelisk Group Instruction Sheet (Attachment 1) for each participant
- Blank paper and a pencil for each participant
- A set of Zin Obelisk Information Cards for each group (thirty three cards per set – see Attachment 2 for the text of the cards)
- Flip chart and markers
- A copy of the Zin Obelisk Review Sheet (Attachment 3) for the facilitator

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Set up circles of chairs for each team that will participate (the game works best with 5-8 participants).
  - Set up the flip chart so you can capture key points of the discussion after the game.

## Playing the Zin Obelisk Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand the strengths and weaknesses of their team as it works to solve a difficult problem.
- See how to apply the scientific method – developing and testing a hypothesis – to their problem-solving approach.
- Begin to develop strategies for better listening and cooperation within their team.
- See how to apply these concepts to their HIV program.

### *Agenda*

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

1. Background to the Zin Obelisk Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator’s note*

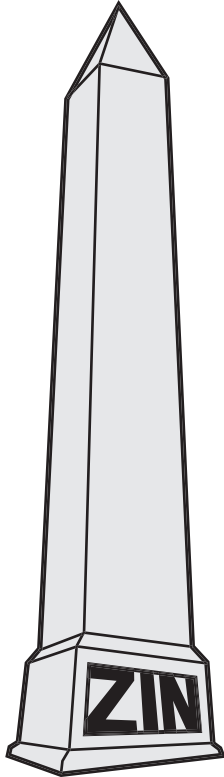
The Zin Obelisk is a difficult and in some ways absurd puzzle. It uses made-up situations and made-up words, putting everyone on the team in the same position of being unfamiliar with the situation.

The game is structured so no one person has all the information necessary to solve the puzzle. The members of the team must listen to, and respect, each other – and since the puzzle is difficult and the time to complete it is short, team members tempers may fray.

Teams should realize that random stabs at an answer will not help them; they need a systematic approach. While formal PDSA cycles (see The Peg Game for a full description) don’t make sense, the scientific method that underlies the PDSA concept may in fact help teams sort through the Zin Obelisk. Just as you learned in high school biology, the scientific method involves developing a hypothesis about what may happen, conducting an experiment and seeing if the result confirms your hypothesis. Most health care workers are familiar with this concept and will be open to applying it to problem-solving.

### *Key points to explain to your audience:*

- Reassure them that this is a difficult exercise taking place under time pressure.
- Suggest to the participants that they be systematic in their approach, and stress that listening and collaboration are keys to success at solving the puzzle.
- Remind participants about the scientific method and suggest that they keep this approach in mind as they work through the puzzle.



## The Game Itself

- Divide your group into teams of 5 to 8 participants.
- Distribute to each team member a copy of the Zin Obelisk Group Instruction Sheet (Attachment 1), paper, and a pencil.
- After the members have had time to read the instruction sheet, distribute a set of Zin Obelisk Information Cards randomly among the members of each team. You need one complete set per team (i.e., distribute all 33 cards randomly within one team. If you have more than one team you need additional sets of cards.)
- Allow the team to work on the task; stop them after 25 minutes if they have not completed the task by then.

## Debrief and Discussion

Reconvene as a large group. Review results.

- Attachment 2 contains the answer. Make sure each participant understands the rationale for the answer, walking through it if necessary.

- Ask each group to describe its process, using the following questions as a guide:
  - What behavior helped the group accomplish the task?
  - What behavior hindered the group in completing the task?
  - How did leadership emerge in the team?
  - Who participated most?
  - Who participated least?
  - What feelings did you experience as the task progressed?
  - What suggestions would you make to improve team performance?
- Ask if groups used the scientific method and, if so, whether it was helpful.
- Ask participants about teamwork in their HIV programs:
  - Do they use teams to solve complex problems?
  - If so, how do they work? What works well, and what could be improved?
  - Do any of these teams use the scientific method as an approach? Do they try to develop and test hypotheses about changes that might lead to improvement? If so, how does this work? If not, how could you get them to try this approach?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their responses on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience for their hard work and success.

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## Attachment 1

### Game Instruction Sheet

In the ancient city of Atlantis, a solid, rectangular obelisk, called a zin, was built in honor of the goddess Tina. The structure took less than two weeks to complete.

The task of your team is to determine on which day of the week the obelisk was completed. You have twenty-five minutes for this task. Do not choose a formal leader.

You will be given cards containing information related to the task. You may share this information orally, but you may not show your cards to other participants.

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## Attachment 2

### Text for the Zin Obelisk Information Cards

Make a set of thirty-three cards by typing each of the following sentences on a 3"x5" index card:

1. The basic measurement of time in Atlantis is a day.
2. An Atlantian day is divided into schlibs and ponks.
3. The length of the zin is 50 feet.
4. The height of the zin is 100 feet.
5. The width of the zin is 10 feet
6. The zin is built of stone blocks.
7. Each block is 1 cubic foot.
8. Day 1 in the Atlantian week is called Aguaday.
9. Day 2 in the Atlantian week is called Neptimimus.
10. Day 3 in the Atlantian week is called Sharkday.
11. Day 4 in the Atlantian week is called Merma idday.
12. Day 5 in the Atlantian week is called Dayoldrum.
13. There are five days in an Atlantian week.
14. The working day has 9 schlibs.
15. Each worker takes rest periods during the working day totaling 16 ponks.
16. There are 8 ponks in a schlib.
17. Workers each lay 150 blocks per schlib.
18. At any time when work is taking place there is a gang of 9 people on site.
19. One member of each gang has religious duties and does not lay blocks.
20. No works takes place on Dayoldrum.
21. What is a cubitt?
22. A cubitt is a cube, all sides of which measure 1 megalithic yard.
23. There are 3 1/2 feet in a megalithic yard.
24. Does work take place on Sunday?
25. What is a zin?
26. Which way up does the zin stand?
27. The zin is made up of green blocks.
28. Green has special religious significance on Mermaidday.
29. Each gang includes two women.
30. Work starts at daybreak on Aquaday.
31. Only one gang is working on the construction of the zin.
32. There are eight gold scales in a gold fin.
33. Each block costs 2 gold fins.

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## Attachment 3

### Answer and Rationale

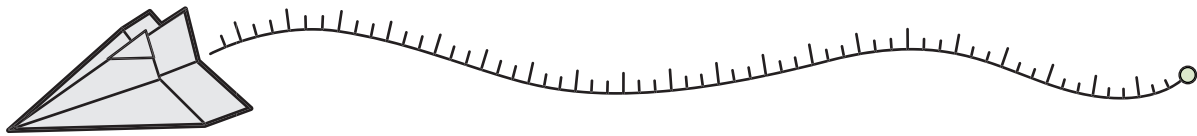
The answer is Neptiminus.

Rationale:

1. The dimensions of the zin indicate that it contains 50,000 cubic feet of stone blocks.
2. The blocks are 1 cubic foot each, therefore, 50,000 blocks are required.
3. Each worker works 7 schlibs in a day (2 schlibs are devoted to rest).
4. Each worker lays 150 blocks per schlib, therefore each worker lays 1050 blocks per day.
5. There are 8 workers per day, therefore 8,400 blocks are laid per working day.
6. The 50,000th block, therefore, is laid on the sixth working day.
7. Since work does not take place on Daydoldrum, the sixth working day is Neptiminus.

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	45 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

## Paper Airplane Game



### Why Use This Game

- To show how incremental change can, when replicated and expanded over time, lead to improvement.
- To teach the importance of planning cycles of change and building on the knowledge learned in the previous cycles.
- To show how to develop better knowledge as you go through these multiple cycles.

### Target Audience

Team members and others who will be developing and running PDSA cycles. Also, leaders who will be overseeing these teams, to help them understand the concept of small-cycle tests of change.

### Type of Game

A competition among teams.

### Key Concepts

- Good changes start small.
- Base your next change on what you learned from its predecessor; in this way, your knowledge – and the impact of your change – will grow over time.
- Improvement comes from repeating these cycles over time.

### Source, History and Resources for More Information

Information about this game comes from Qualis Health, the QIO for Washington State, and its Performance Improvement Support Center.

### Materials

For this game, you will need:

- Four tables, one labeled “plan,” one “do,” one “study,” and one “act”
- Space for people to try to fly their airplanes
- Materials to make paper airplanes: stacks of construction paper, paper clips, tape, scissors, glue
- A yardstick or long tape measure for each team
- A small prize for the winning team

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself (including different airplane-making strategies).
  - Practice presenting the key teaching points.
- Prepare the room:
  - Move chairs out of the way. People will be standing and gathering around tables. Need to have space to fly the airplanes and see how far they can fly.
  - Prepare a flip chart so you can record results of the discussion, if appropriate.

## Playing the Paper Airplane Game

### *Welcome and Introductions*

To begin the game, 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:

- Know how begin an improvement effort with a small test of change.
- Understand how to learn from this first test and use that knowledge to design new tests that become more effective over time.
- Appreciate the role of team work in this effort.
- Begin to see how to apply these concepts to their HIV program.

### *Agenda*

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

1. Background to the Paper Airplane Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator’s note*

As teams work to make improvements in their HIV programs, they need to become comfortable with the idea of starting out with a small-scale, pilot test of change that they will build on, and enlarge, over time.

Teams often find it hard to start out with something small; they want to jump in and make a change they think will have more impact, right away. The purpose of this game is to help teams see that the incremental approach of increasingly complex PDSA cycles will, in fact, lead to a better product at the end.

You will need several coaches to help you with this game, to make sure that each team thoughtfully carries out each part of the PDSA cycle. That is why you have four stations around the room – one at which teams “plan” their airplane, one at which they “do” the test flight (make sure you have plenty of airspace at this station), one at which they “study” the result of the flight, and one at which they “act” to determine the changes they will make to airplane design in the next round. The coaches are there to ensure that each team goes through all four steps.

Make sure you have time to run through several improvement cycles: a minimum of three, or more if possible.



*Key points to explain to your audience:*

- Describe the components of a PDSA cycle. Stress the importance of thoughtful planning before each test and careful assessment of the result.
- Stress that using PDSA cycles means starting small. The Institute for Healthcare Improvement recommends telling teams to pick a change they can begin to test “next Tuesday.” Explain then that the second cycle builds on what was learned in the first, and so on, until finally an effective change can be implemented. The diagram in Attachment 1 is useful in illustrating this concept.

## The Game Itself

1. Divide the group into teams of at least 4 people each.
2. Explain the task: create a paper airplane. The goal is to have the paper airplane that will fly the farthest.
3. Teams move from station to station designing & constructing a paper airplane, putting it through a test flight, evaluating the results of the flight (how far did it go?) and acting on the results to prepare for the next cycle.
4. Coaches ensure teams follow the task and don't skip any steps. They also act as air traffic control officers.
5. At the end of the predetermined number of cycles, teams stop. Each records and reports its longest flight.
6. Facilitator records results from teams and awards the small prize to the team with the airplane that flies the longest distance.

## Debrief and Discussion

Reconvene as a large group. Review results.

- Ask the winning team to walk through its airplane designs. What did they learn from each test cycle? How did they change the airplane each time?
- After they have presented, ask other teams to describe their results.
- Discuss in general the idea of multiple small cycles of change. Did their experience in this game help them understand the approach? Do they think it is a valid approach to improvement work? Why or why not?
- Ask participants about improvements they have tried to make in their HIV programs:
  - Did they start with a small test of a change?
  - If so, did it work? How might they have used PDSA cycles even more effectively? If not, do they think using PDSA cycles would have made this effort more successful? Why or why not?
- Ask participants where might they use small cycle tests of change in their current work.

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their responses on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	15 minutes
Debrief and Discussion	Facilitator, audience	10 minutes

## Selling Spread Game

### Why Use This Game

- To help people understand the way innovation works, and that not everyone will adopt a change easily at the same time.
- To communicate the factors that may affect how quickly people will adopt a change.

### Target Audience

Senior staff and QI team members who are ready to take changes they have developed to the rest of the organization, to try to implement them beyond the pilot site(s). You may also involve the people to whom the changes are being “spread.” The game works best with groups of 30-40 people.

### Type of Game

A demonstration with everyone participating.

### Key Concepts

- People accept change at different rates.
- People’s willingness to adopt a change will vary depending on the:
  - Relative advantage of the proposed change.
  - Change’s compatibility with the current system.
  - Simplicity of the change and transition plan.
  - “Testability” of the change.
  - Ability to observe the change and its impact.

### Source, History and Resources for More Information

Sarah Fraser, a scholar on spreading good practices in health care, uses this demonstration in her teaching. She led the demonstration at a learning session sponsored by the Institute for Healthcare Improvement, which made this description available to us.

### Materials

- Flip chart and markers to record the key points of the discussion

### Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Participants will need room to move around, so make sure chairs can easily be moved to the sides of the room.

## Playing the Selling Spread Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand some of the challenges in implementing a change.
- Have a sense of how to present a change so more people may be willing to try it out.

### *Agenda*

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

1. Background to Selling Spread Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

This game is a demonstration to illustrate the research of Everett M. Rogers about how innovation gets transmitted through a population. In very simple terms, Rogers says that people adapt to something new at different rates. Some people are true innovators – those who are most venture-some about taking on a change. They are followed by early adopters, the early majority, the late majority and last by the laggards. The distribution of these groups in a population roughly mimics the bell curve, with most falling into the early majority or late majority categories.

As the game is designed to show, many factors about a change affect which category a person will fall into for any given change. Rogers has identified five attributes of a change that may affect how a person feels about change. Explain these briefly to your audience, primarily to help your “sellers” design effective pitches for their ideas. Rogers introduces each attribute as follows:

1. Relative advantage of the proposed change: “the degree to which an innovation is perceived as being better than the idea it supersedes.”
2. Compatibility with the current system: “the degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters.”
3. Simplicity of the change and transition: “the degree to which an innovation is perceived as relatively difficult [or simple] to understand and use.”
4. Trialability/Testability: “the degree to which an innovation may be experimented with on a limited basis.”
5. Observability [ability to observe the change and its impact]: “the degree to which the results of an innovation are visible to others.”

Research also shows that those in the “early adopter” category are most able and helpful to influence the majority to warm up to a change. As you do your improvement work, think about who might be an early adopter on whom you can rely for help.

### *Key points to explain to your audience:*

- People embrace change at different rates.
- How they feel about change may vary depending on the specific innovation being proposed.
- Careful explanations around key attributes can help people be more open to change.

## The Game Itself

1. In a group of 30-40 people, ask for two volunteers to come up with and “sell” a good idea to the audience. It should be an idea they think is good, but might be a little tough to sell to this group. The ideas can be on any subject: some that relate to an HIV program include:
  - Providing beepers or cell phones to all patients to remind them of their appointments.
  - Installing computers in waiting rooms so patients can update their own medical records.
  - Allowing patients access to their provider “24/7” via email.
  - Allowing patients access to the program’s scheduling system so they can schedule their own visits.
2. Instruct the two people giving the “pitch” to use Rogers’ attributes of the change that affect the rate of adoption, that is, the:
  - Relative advantage of the proposed change.
  - Compatibility with current system (structure, values, practices).
  - Simplicity of the change and transition.
  - Testability of the change.
  - Ability to observe the change and its impact.
3. One of these two goes first and pitches their idea in front of the crowd in one minute.
4. The remaining people listening are asked to group in the front of the room, and to sort themselves out according to their own level of enthusiasm and likely “adoption” of the proposed idea. They sort themselves from left (innovators/early adopters) to right (late adopters/historians) along the front of the room. (Expect a roughly bell shaped curve).
5. Have people at each end of the distribution explain why they did or did not “buy” the change. People who arranged themselves in the middle of the distribution can be asked what it would take for them to adopt the idea.

6. The second “seller” then gets up and pitches his or her idea for one minute, and the group up front is asked to sort itself again by adoption of the new idea. Expect positions to change.

## Debrief and Discussion

Reconvene as a large group. Review results.

- Ask participants what they think happened. Key points to elicit from the discussion include:
  - Different changes are easier or harder to sell than others, so we need to tailor our communication about the change accordingly.
  - Not everyone will adopt a change quickly (be an “early adopter.”) Expect more of a bell-shaped curve.
  - Some people are more likely to accept one type of change versus another. Some are innovators or laggards depending on the different type of ideas or changes proposed. It’s important not to stereotype people as always being innovative or not.
- Ask participants how they might apply what they learned from this game to their HIV programs.
  - What does this way of thinking about change tell us about how to make change happen in our program?
  - How can we better address Rogers’ attributes of change in what we do?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their responses on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	5 minutes
The Game	Facilitator, audience	30 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

## Model Kitchen Utensil Game

### Why Use This Game

- To teach about people's reactions to dealing with change.
- To help groups develop strategies for making change more palatable.

### Target Audience

QI team members who will be involved in testing changes with their colleagues. You may also include the people who will be testing the changes, as all are likely to benefit from a discussion of what it's like to deal with change.

### Type of Game

A competition among teams.

### Key Concepts

- People don't like to deal with change.
- Some strategies will make it more likely that the change you propose will be accepted.

### Source, History and Resources for More Information

This game is very loosely based on "Paper Animals" from Chen & Roth's "The Big Book of Six Sigma Training Games," (McGraw-Hill, 2005, pp. 208-213. Another source for information about change is John Kotter's Leading Change, (Harvard Business School Press, 1996).

### Materials

- For each team:
  - A large quantity of scrap paper: construction paper, newspaper, recycling paper. Use the same type of paper for each team
  - A roll of tape
  - A pair of scissors
  - Colored pens
  - Other supplies that might make things interesting: colored tape, glue, string
- Flip chart and markers to record the key points of the discussion
- If you want, a prize or prizes for the winning team(s)

### Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Set up tables and chairs at which each team will work and distribute the supplies to each table.
  - Set up the flip chart at the front of the room.

## Playing the Model Kitchen Utensils Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand how people may react to dealing with change.
- Develop ideas about how to present changes so people feel more willing to try them.

### *Agenda*

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

1. Background to the Model Kitchen Utensil Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.

## Background to the Game

### *Facilitator's note*

The purpose of this game is to expose the participants to a situation where they will have to deal with an unexpected change in “the rules of the game.” When they have finished the game, you can then lead a discussion about how it was to cope with this unexpected change, and draw lessons out that the participants might apply as they begin to test the changes for improvement they have developed.

A commonly used saying about change is that “people don't object to change, they object to being changed.” This game seeks to show how to keep your change effort from being one where people feel they are “being changed.” Some effective strategies include:

- clear, consistent explanations of what the change involves.
- clear statement of the purpose of the change.
- use of the PDSA cycle: start small!
- helping people see how an earlier trial of the change has worked – don't just tell them about it.
- fairness in application of the new rules.
- an opportunity to participate in designing the change (PDSA helps here, too).
- communicating that you understand that making change is hard.

This game should be adaptable to many different scenarios. You could have the teams construct paper hats, for example. Chen & Roth suggest having the teams make paper animals. Building anything that is somewhat elaborate and that lends itself to changing criteria in the middle of the game can serve as the purpose of the team exercise.

### *Key points to explain to your audience:*

- People embrace change at different rates.
- How they feel about change may vary depending on the specific innovation being proposed.
- Careful explanations around key attributes can help people become more open to change.

## The Game Itself

1. The participants should work in groups of 6-8 people.
2. Explain the task:
  - a. The teams should use the materials provided to build a replica of any common kitchen utensil.
  - b. They may use only the materials provided.
  - c. There will be a prize at the end for the team with the utensil that:
    - I. looks the most like the utensil it is supposed to be, in, for example, size, shape and color.
    - II. is the most elaborately shaped (round cutting boards, for example, would not score high on this criterion).
  - d. Tell the teams they have 25 minutes to complete the task.
  - e. Tell the teams there will be a vote among participants at the end to determine the winner.
3. The teams begin work.
4. After 10 minutes, get the participants' attention. Tell them you "forgot" a third criterion. The utensils will also be judged on how functional they are, that is, whether they can in fact be used for the purpose they are intended (will a bowl really hold liquids? Will the spatula really flip a pancake?)
5. After 25 minutes, stop the teams. Have each team present its utensil. Vote for the winner by show of hands and present the prize to the winner.

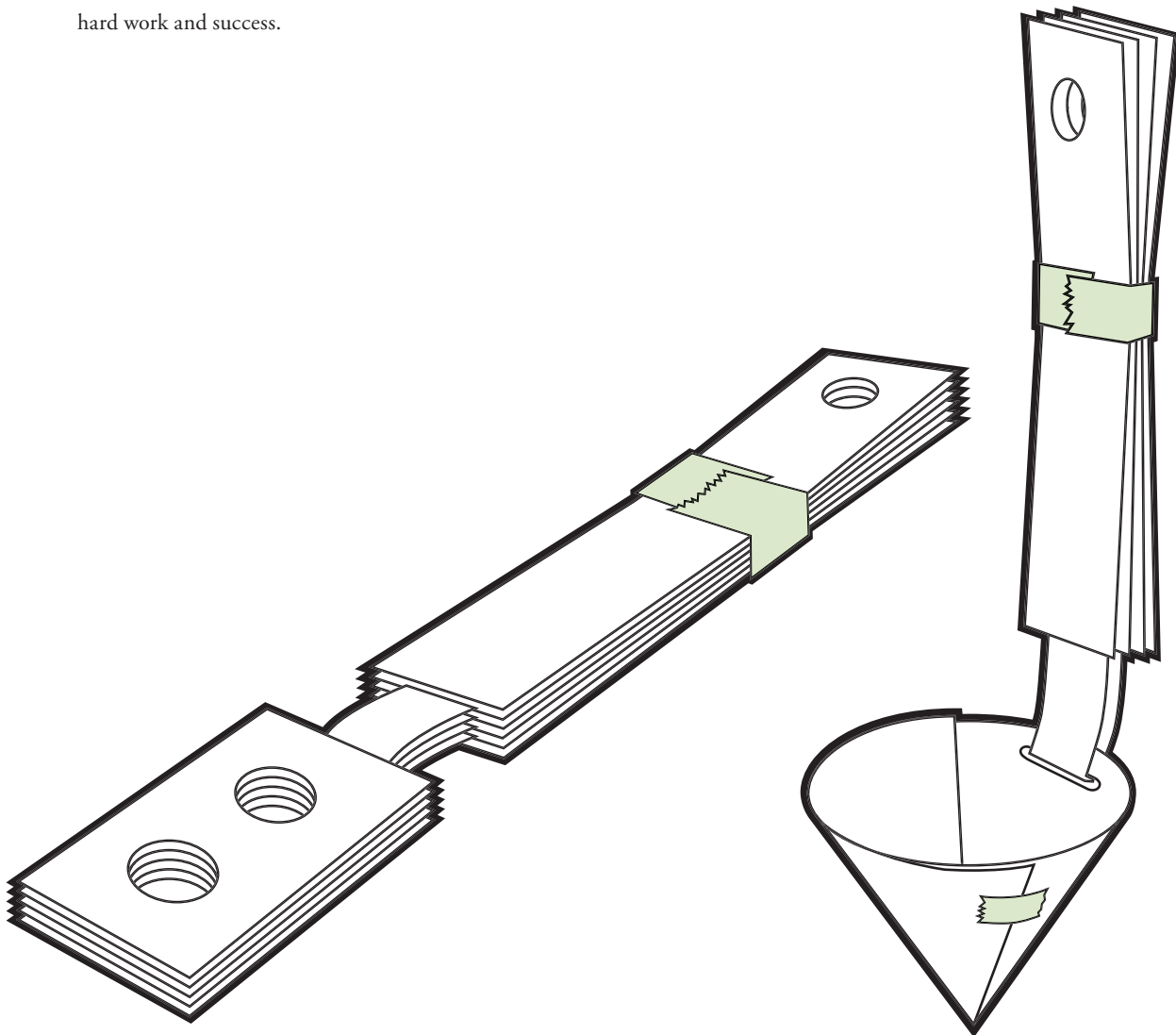
## Debrief and Discussion

Reconvene as a large group. Review results.

- Ask for a report from each group in turn:
  - How did they work together as a group? Were decisions made well? Were they able to be creative?
  - Were they pleased with their product? Why or why not?
- Then begin a general discussion of people's reaction to the change in instructions:
  - What did they think?
  - How did their team react?
  - Did the new instruction make their final product better or worse?
  - What would they have done differently if they'd know that criterion from the beginning?
  - If changes have to be made, how can they be done in a way that's easier to handle? (see the Facilitator's Note, above).
- Ask participants how they might apply what they learned from this game to their HIV programs.
  - How have changes been made in the past? What has worked, and what hasn't?
  - What should we do as we begin to test our changes? How can we help our colleagues deal with the changes we will make?
  - Develop, if appropriate, a simple work plan to make sure the suggestions get implemented.

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.





# Games to Teach Cooperation Skills

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	2 minutes
The Game	Facilitator, audience	15 minutes
Debrief and Discussion	Facilitator, audience	5 minutes

## Many Questions Game

### Why Use This Game

- To teach the idea of team synergy, that each member of a team brings valuable skills and experience to a task and that together, a team can produce a better result than any one individual.

### Target Audience

Senior staff and team members, especially newcomers to QI work and teams that are just forming.

### Type of Game

A competition among teams.

### Key Concepts

- Joint problem-solving and idea-generating methods are valuable.

### Source, History and Resources for More Information

This game comes from “*101 More Training Games*”, by Gary Kroehnert, McGraw-Hill Book Company Australia, Sydney, copyright 1999 (pp. 44-45). Mr. Kroehnert includes permission to reproduce his games for educational purposes or training activities.

Many others have developed games similar to this one. The most famous may be the well-known Lost at Sea simulation, which can be purchased from the publisher Jossey-Bass or large on-line booksellers. Joseph G. Van Matre and Donna J. Slovensky published a version of the Many Questions game that uses a wide variety of music selections rather than trivia questions (Quality Management Journal vol. 7, no. 2, 2000).

### Materials

For this game, you will need:

- A list of varied trivia questions (see Attachment 1, or any list of trivia questions on a wide variety of topics will work): make enough copies of this list for each participant
- Pens for each participant
- Flip chart and markers to demonstrate the game and to record the key points of the discussion

## Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content.
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room
  - Arrange chairs around a table or tables, set up to make it easy for the participants to work in small groups.
  - Distribute paper and pens for each participant.
  - Set up the flip chart so you can give the instructions and capture key points of the discussion after the game.

## Playing the Many Questions Game

### *Welcome and Introductions*

To begin the game, 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:

- Understand the value of working in teams to solve problems and develop solutions.

### *Agenda*

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

1. Background to the Many Questions Game.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.



## Background to the Game

### *Facilitator's note*

This game works best without a lot of introduction. It is meant to be a quick exercise to show the benefits of teamwork and collaboration.

## The Game Itself (from Kroehnert, p. 44)

- Advise the group that they are going to be given a quick quiz to complete.
- Give each participant a copy of the question sheet and tell them they are to answer as many questions as possible by themselves on the sheet in 2 minutes.
- After the 2 minutes have passed, get the group to form smaller groups of 5-7 people. Give these subgroups 5 minutes to arrive at a set of answers on which everyone agrees.
- The subgroups now give their answers to all of the questions. Keep the pace up during this phase. Give the answers to any questions that the groups have not been able to answer correctly.
- You can summarize the activity simply by saying, “if everyone participates in the upcoming improvement work, you can see from this exercise that we will achieve far better results.” Alternatively, a discussion may be led into problem-solving strategies or synergy.

## Debrief and Discussion

- Review results.
- Ask the participants why the group scores were higher than the original scores.
- Ask, did anyone not learn anything new?
- Discuss the application of what they have learned to their own HIV program.
  - Do we have the right people involved in our HIV improvement work? Do we need to add a different perspective?
  - How can we use joint problem-solving methods in our quality improvement work?
  - In what other ways would joint problem-solving methods help our HIV program?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their response on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.

## Attachment 1

**Question Sheet**

1. What right does the 2nd Amendment to the U. S. Constitution give?
2. Which color jersey is traditionally worn by the overall leader in a multistage bicycle road race?
3. Which major league ballplayer currently holds the record for the most consecutive games in which he had a hit?
4. Who painted The Night Watch?
5. Who won the first round of Survivor?
6. Who was prime minister of the U.K. in 1981?
7. How do you say the number “one” in Japanese?
8. Which Greek philosopher lived from 470 – 399 B. C.?
9. In what city and state did Britney Spears first wedding take place?
  - a. (extra credit: how long did this marriage last?)
10. What is nephrolepsis?

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## Attachment 2

### Answer Sheet

1. The right to bear arms
2. Yellow
3. Joe DiMaggio
4. Rembrandt
5. Richard Hatch
6. Margaret Thatcher
7. Ichi
8. Socrates
9. Las Vegas
  - a. less than 55 hours
10. A fern

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	10 minutes
The Game	Facilitator, audience	30 minutes
Debrief and Discussion	Facilitator, audience	15 minutes

# Scavenger Hunt Game

## Why Use This Game

- To introduce future teammates to each other.
- To help people understand their own team working styles.
- To show how teams function most effectively.

## Target Audience

People who are about to join a project/working team.

## Type of Game

A competition among teams.

## Key Concepts

- Having a clearly understood goal is critical to team performance.
- Teams work best when tasks are divided among members.
- Creativity can help solve problems.

## Source, History and Resources for More Information

This game comes from *“Games Trainers Play*, by Edward E. Scannell and John W. Newstrom (“New York: McGraw-Hill, 1980, p. 51). Sources for additional information about teams include Joiner & Associates *The Team Handbook* and Meredith R. Belbin’s *Management Teams, Why they Succeed or Fail*.

## Materials

For this game, you will need:

- Scavenger hunt instructions and the list of items for each team to hunt for (see Attachment 1 for an example)
- A small prize for the winning team

## Preparation

To prepare for this session:

- Familiarize yourself with the session’s structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Practice the game itself.
  - Practice presenting the key teaching points.
- Prepare the room.
  - Chairs can be set up auditorium style or in a semi-circle, depending on how many people you have and the size of your room.
  - Set up a small desk or podium in the front of the room.
  - Set up the flip chart so you can capture key points of the discussion after the game.
- Make enough copies of the instruction sheet so each participant can have one.

## Playing the Scavenger Hunt Game

### *Welcome and Introductions*

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

### *Learning Objectives*

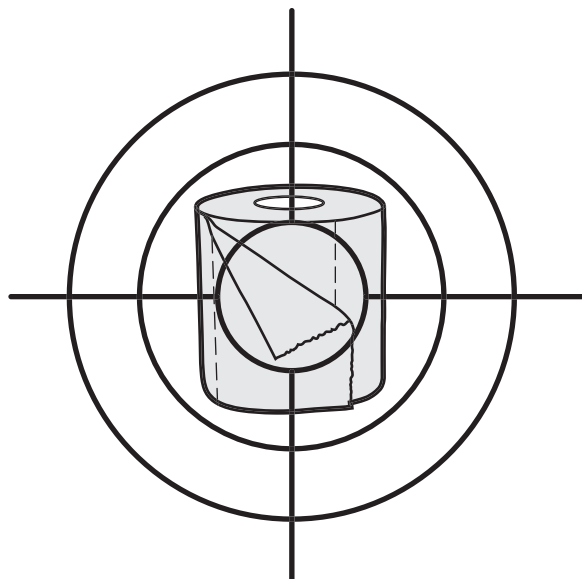
Tell participants that by the end of the session they will:

- Know their future teammates better.
- Understand the importance to teams of having a clear goal.
- Understand how teams work most effectively.

### *Agenda*

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

1. Background to the Scavenger Hunt.
2. The game itself.
3. Debrief and discussion on what the game shows, and how its lessons can be applied to HIV care.
4. Feedback and close.



## Background to the Game

### *Facilitator's note*

Teams that work well are like sports teams. The best ones have members with different skills and strengths, and coordinate these skills and strengths in pursuit of a common goal. Groups of people just forming as teams will have difficulty coordinating their efforts. They will not yet know the skills of their colleagues and may not trust that they can contribute to the task. This game gives a new team experience at working on a task, and through this experience will help give the team confidence in their ability to succeed at the upcoming quality improvement work in your HIV program.

Your job as facilitator is to observe how the teams go about the scavenger hunt. Does everyone on the team search for every item together? Does one person go off on his or her own to try to do all the work without consulting others? Chances are, the most successful team will be the one that divides up the tasks, and you should be prepared to point this out and lead a discussion about effective teamwork.

In creating the list of items each team has to find, aim for some that will be easy and some that will be hard. Try to include items that will involve collaboration to locate. Encourage teams to be creative (that's where the fun comes in) but clarify that you will be the judge of whether a "creative" item meets the requirements of the hunt (hint: use this option to reward examples of good collaboration and teamwork). The teams are likely to get very competitive!



*Key points to explain to your audience:*

- Explain that working as a team can be a different experience, even for people who previously have worked together in a clinic or other setting.
- Highlight that the first step in forming as a team involves getting to know each other; this game is designed to give participants a chance to begin to work together and to have fun.
- Explain that this game will also help illustrate some of the issues involved in working in teams.

## The Game Itself

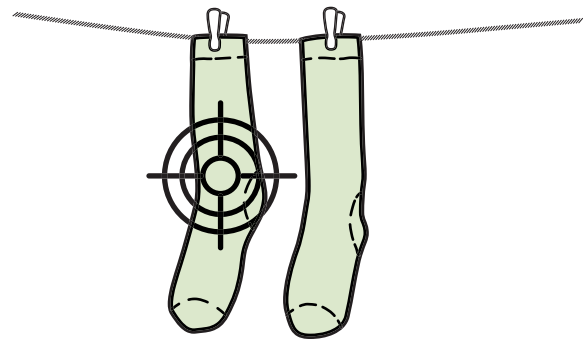
- Convene at least three new teams to participate in the Scavenger Hunt.
- Give each team the list of items they must find (see Attachment 1 for an example). Mention the prize that will go to the winning team.
- Clarify the instructions and ground rules:
  - Time limits.
  - Can't leave the site.
  - Can't sabotage another team.
  - Creativity and teamwork are encouraged (but you are the judge).
- Ask for and answer questions; when all questions are answered, begin the hunt.
- Give a 5-minute warning as time runs out.
- Each team presents its items. If an item has been "creatively" developed, you indicate whether it is acceptable.
- Identify the winning team and award prizes. Congratulate all participants on their success.

## Debrief and Discussion

- Ask each team to describe its method: how did that team go about carrying out the task?
  - On reflection, did this method work well?
- If the results support it, note that the teams that divided up tasks and coordinated their work had the best result.
- Discuss the application of what they have learned to their planned HIV QI work.
  - What did they learn about how they work as a team?
  - How will what they learned affect their work on their next team task?
  - What else would they like to know about team working?

## Feedback and Close

- Ask your audience for feedback on whether this session met its objectives. Take notes of their responses on a flip chart, and keep it for your use in the future.
- Schedule an informal follow-up session with any audience member who wants clarification or more information on the game or the concepts you discussed.
- Thank your audience and congratulate them on their hard work and success.



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## Attachment 1

### Sample Scavenger List and Team Instructions

#### Instructions:

Work as a team to find as many of the items on this list as you can. A prize will be given to the team(s) that can find the most items.

#### Time Limit:

30 Minutes. You will be given the exact time you must return to the main meeting room.

#### Ground Rules:

- You may not leave the building with the sole exception of going to the parking lot to get one or more items out of a team member's car.
- You may not negatively influence or affect the work of any other team.
- Creativity and teamwork are encouraged.

#### The List:

- A "state" quarter from one of the original 13 states.
- A copy of the "Home" section from today's New York Times.
- A box of Tic-Tacs (at least partially full).
- A roll of toilet paper.
- A deck of cards.
- A photograph of a pet.
- A tube of Colgate Total toothpaste.
- A copy of a medical or hospital-related professional journal (e.g., New England Journal of Medicine, Modern Healthcare, Joint Commission Perspectives, nursing or social work journals).
- A pair of white socks.
- A set of jumper cables.
- Any memorabilia (hat, t-shirt, key chain, socks, etc.) from the New York Mets or New York Yankees.
- A jar or bottle of cream or lotion containing alpha-hydroxyl acids.

Good Luck!!!

SESSION AT-A-GLANCE	WHO?	HOW LONG?
Introduction	Facilitator	5 minutes
The Game	Facilitator, audience	30 minutes
Debrief and Discussion	Facilitator, audience	As long as the party lasts!

## Headliner Game

### Why Use This Game

- When you have several teams that have done good improvement work, and you want to celebrate what they've done and let others know about it.

### Target Audience

Teams who have worked on QI projects. Senior leaders can be on-hand when the teams present their results.

### Type of Game

A demonstration with everyone participating.

### Key Concepts

- Making improvement is hard work. Teams that do this work should celebrate their success.
- It's important to let others in the organization know what teams have done.

### Source, History and Resources for More Information

Information about this game comes from the Institute for Healthcare Improvement's Breakthrough Series College and also from Qualis Health, the QIO for Washington State, and its Performance Improvement Support Center.

### Materials

For this game, you will need:

- Flip chart and markers for teams to write down their "headlines"
- Masking tape so the flip chart pages can be posted
- Recognition certificates for all teams
- Festive refreshments (e.g., sparkling cider, chocolates, a cake)

### Preparation

To prepare for this session:

- Familiarize yourself with the session's structure and content:
  - Read through the game instructions and key teaching points in their entirety.
  - Put yourself in a festive frame of mind.
  - Practice presenting the key teaching points.
- Prepare the room:
  - Chairs can be set up auditorium style or in a semi-circle, depending on how many people you have and the size of your room.
  - Set up a small desk or podium in the front of the room. Place the recognition certificates on it.
  - Set up the flip chart so you can easily give each team a page to work on.

## Playing the Headliners Game

### *Welcome and Introductions*

To begin the game, welcome participants and thank them for their attendance.

### *Learning Objectives*

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

- Celebrated their team's work.
- Learned what others have done.

### *Agenda*

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

1. Introduction to the session and the Headliners Game.
2. The game itself, with presentation of the results.
3. Formal recognition of each team's work.

## Background to the Game

### *Facilitator's note*

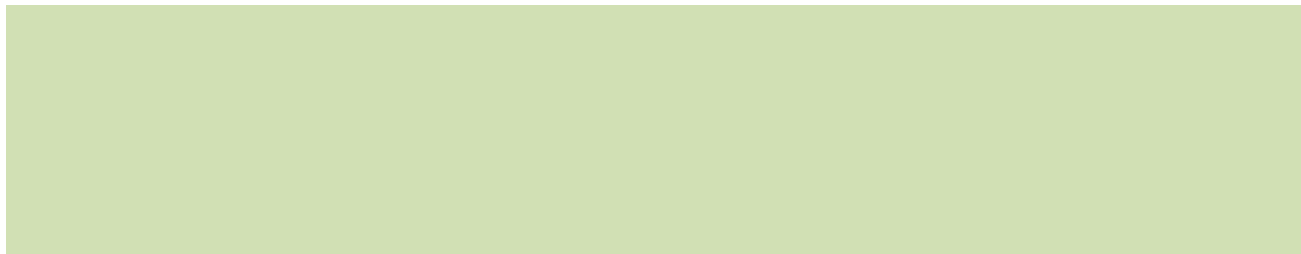
Your quality improvement projects will make changes that will improve the quality of care and services provided by your organization. That's your primary goal. But each project has a secondary goal: to teach everyone in your organization that change can happen and that teams can be successful in their improvement work. You can only achieve this second goal if you broadcast and brag about what QI teams do. The teams work hard and sometimes try risky things. They need a chance to show pride in their work and get recognition from their organization for what they have accomplished.

## The Game Itself

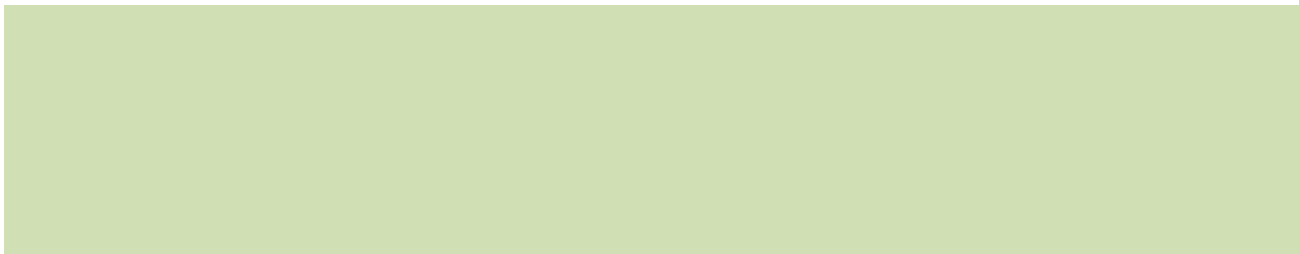
- Welcome everyone to the event.
- Ask them, as a first step, to work in their teams to create a newspaper headline.
  - The headline should capture the work that the team has done this year:
- What has it accomplished?
- How has working on the project inspired the team?
  - Give them 10 minutes to write the headline.
  - They should be creative!
- Have each team post and present its headline (creativity in this presentation is also encouraged).
- Formally recognize each team's work; distribute certificates.

## Debrief and Discussion

- Ask if there are any questions for the teams; facilitate the discussion, if any arise.
- Ask for ideas from participants for future quality improvement work.
- Serve refreshments, relax and celebrate!



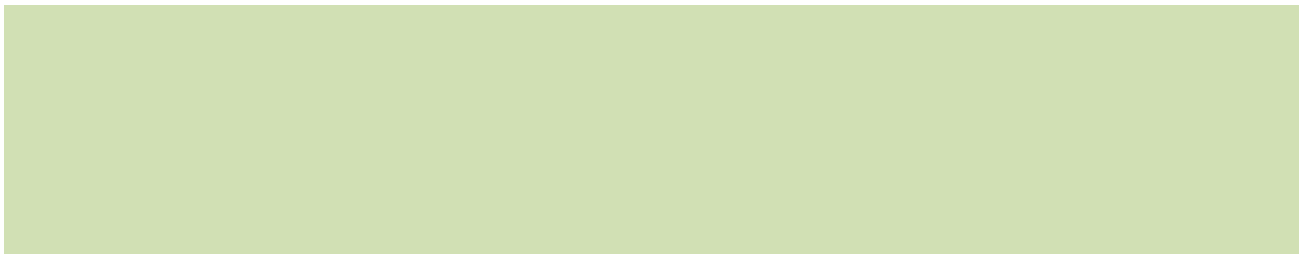
## Notes



# Notes



## Notes



# Notes





**The Game Guide**

New York State Department of Health AIDS Institute  
Health Resources and Services Administration HIV/AIDS Bureau