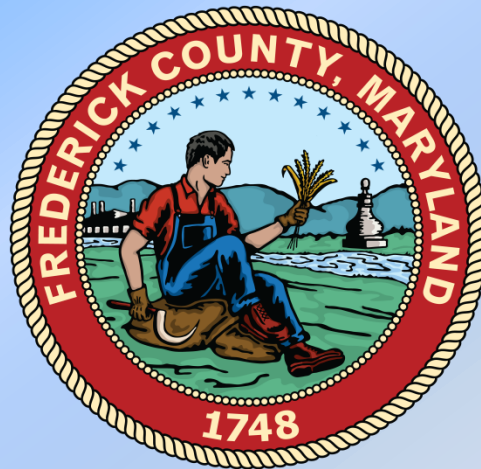# Frederick County Health Department

Employee Introduction to Quality Improvement Tools

Training Objectives

- Introduce Quality Improvement tools frequently used by FCHD

- Discuss the use of tools for *data* collection

- Demonstrate the use of a Flowchart and a Cause and Effect Diagram

What Are Quality Improvement Tools?

"Quality tools are the diagrams, charts, techniques and methods that, step by step, accomplish the work of quality improvement. They are the means to accomplish change."

-The Quality Toolbox, Second Edition by Nancy R. Tague

Public Health
Prevent. Promote. Protect.

Frederick County Health Department

Frequently Used Quality Improvement Tools

- Flowcharting
- Cause and Effect Diagram
- Check Sheet
- Pareto Chart
- Survey

Act   Plan

Study   Do
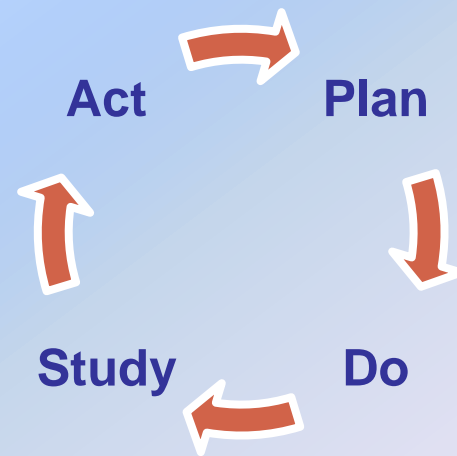
Using Quality Tools in the PDSA cycle

Frederick County Health Department
Storyboard Work Guide

Use this tool to help your team develop an effective storyboard.
The questions will guide you to collect and record data for each phase of PDSA.
ALL Storyboards include DATA.

Plan
Identify an opportunity and Plan for Improvement

Tools that can be used in the 'Plan' phase: Flowcharting, Fishbone, Check Sheet, Pareto Chart, Survey

1. Getting Started

- What area, problem, or opportunity for improvement did the health department identify?
- How were resources estimated and committed?
- Was approval obtained, if needed, to conduct the QI project?

2. Assemble the Team

- How were the team members identified/selected?
- What team member roles and responsibilities were assigned and how?

Develop AIM Statement

The aim statement should address:
- What are we trying to accomplish?
- How will we know that a change is an improvement? (how it is measured)
- What change can we make that will result in improvement?

3. Examine the Current Approach

- What is the current approach or process flow?
- **What baseline data were used to understand the current approach? COLLECT AND SHOW BASELINE DATA.**
- How was input obtained from customers and/or stakeholders?
- How was baseline data analyzed? Include graphics developed to display baseline data.

- How did the team determine the root cause(s) of the problem?
- Revise Aim Statement based on baseline data as needed

4. Identify Potential Solutions

- How did the team identify all the potential solutions to the problem, based on the root cause(s)?
- Were model or best practices reviewed to identify potential improvements?
- What solution did the team pick and why?
- Use Fishbone, Survey, flowcharting, Idea creation tools and expanding process analysis tools

5. Develop an Improvement

- What improvement theory did the team develop? List an improvement theory as an **IF...THEN statement.**
- What strategy did the team develop to test the theory?

Do

Tools that can be used in the 'Do' phase: Flowcharting, Check Sheet

6. Test the Theory

- How was the test carried out? Did the team carry the test out on a small scale?
- How did the team determine the effectiveness of the test?
- What problems, unexpected observations, and/or unintended side effects occurred?
- **COLLECT AND SHOW DATA**

Study
Use Data to Study Results of the Test

Tools that can be used in the 'Study' phase: Flowcharting, Check Sheet, Pareto Chart, Survey

7. Study the Results

- Was the test successful?
- Did the results match the team's theory?
- Did the team experience any unintended side effects?
- Was there an improvement?
- Did the team need to test the improvement under other conditions?
- **COLLECT AND SHOW DATA**

Act
Standardize the Improvement and Establish Future Plans

Tools that can be used in the 'ACT' phase: Flowcharting, Check Sheet, Pareto Chart

8. Decide next steps: Adopt, Adapt, or Abandon

- If the improvement was successful on a small scale?
- If your change was not an improvement, develop a new theory and test it.
- **COLLECT AND SHOW DATA**

9. Establish Future Plans

- How did the team communicate its accomplishments with internal and external stakeholders?
- Were long term plans for additional improvements made?

Date updated 8/26/2015

5

Flowcharting

"If you can't describe what you are doing as a process, you don't know what you're doing."

W. Edwards Deming

8

Flowcharting

⦿ Flowcharting is a picture of the separate steps of a process in sequential order.

⦿ Flowcharting:
- Reveals the real level of complexity of the process
- Identifies wasteful steps
- Shows where improvements could be made and potential impacts

Examples of When To Use Flowcharting

- To understand and communicate how a process is done

- To study a process for improvement

- When better communication is needed between people involved with the same process

Flowcharting Steps

⦿ Use the simplest symbols possible – Post-Its

⦿ Walk through the steps with the people involved in the process to get their comments

⦿ Make changes if necessary

⦿ Identify time lags and non value-adding steps

Identifying the details of a process is key

Hands Are Dirty
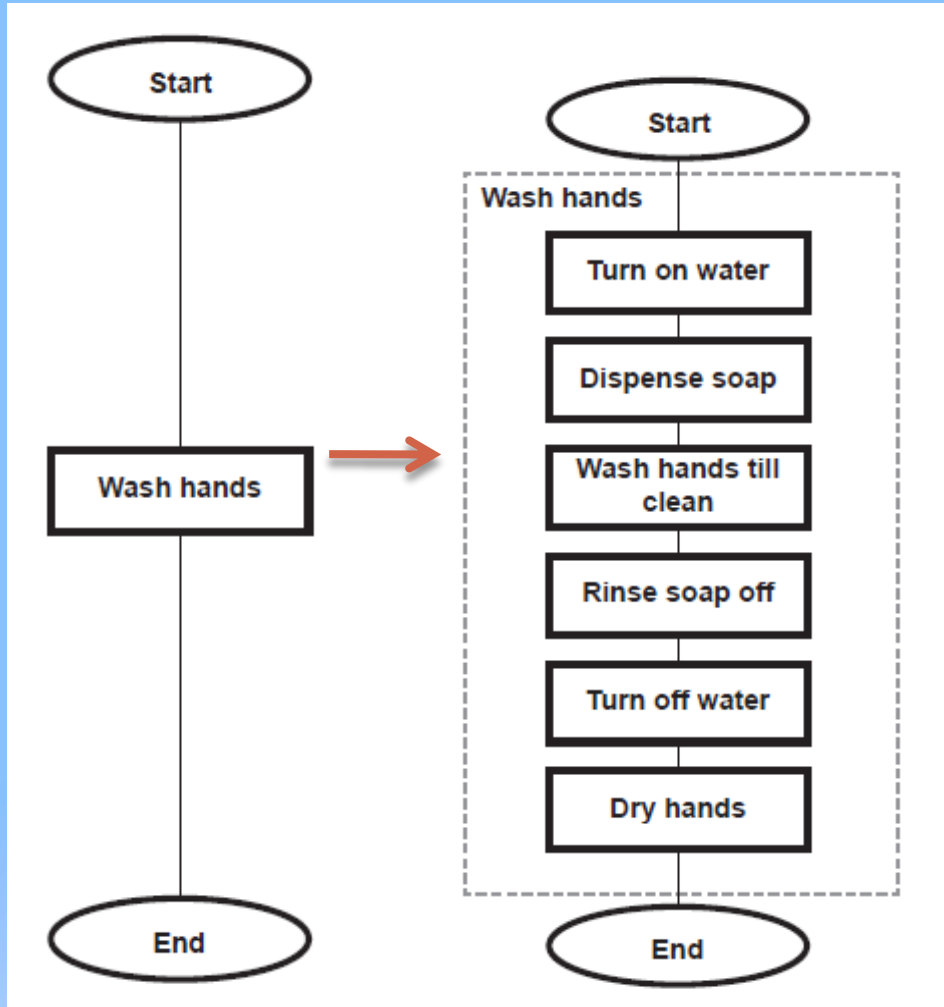
Hands Are Clean
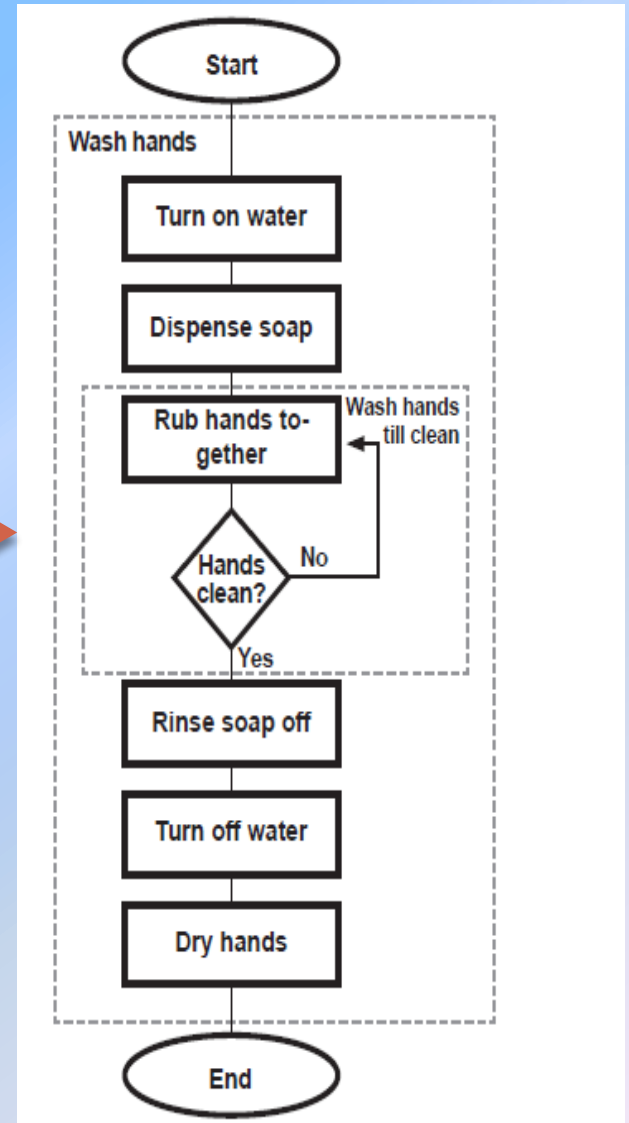
Basic Flowchart Symbols
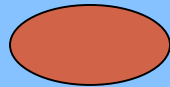
Start/End
Bookends

Activity:
Operation/Inspection
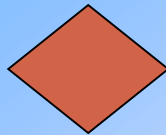
Decision
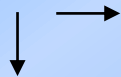
Flow Lines

Flowcharting Exercise

Flowchart the way you would make a peanut butter and jelly sandwich.
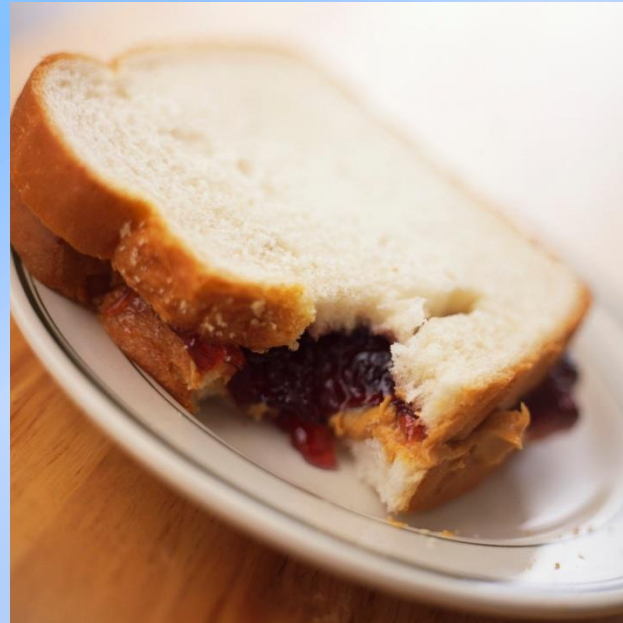
Cause and Effect Diagrams
(also called "Fishbone" Diagrams)

Root Causes of Low Rate of HIV Testing

Test Location

Client

Inconvenient

Don't see benefit

Don't want to test

Too public

Fearful

Low Rate of HIV Testing

Not Client Centered

Not Respectful

Not Offered

Inexperienced

Counseling

Staff
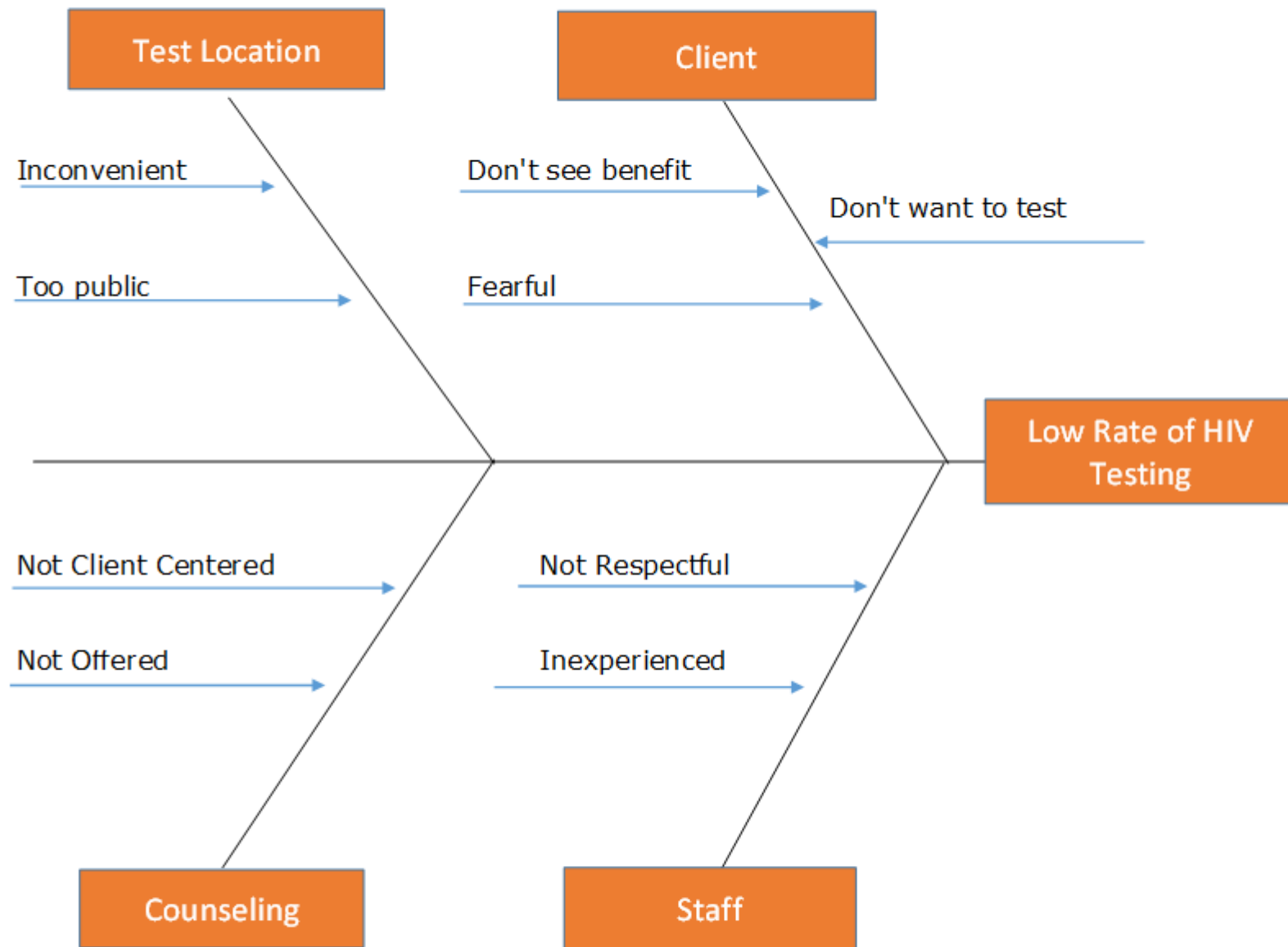
Problem Solving

- When confronted with a problem most people like to tackle the obvious cause and fix it. This often results in more problems.

- Using a systematic approach to analyze the problem and find the root cause is more efficient and effective

Cause and Effect Diagrams - Construction

◉ Typical Major Cause Categories* for Public Health are:

- People (personnel, patients, partners or providers)
- Methods/Procedures
- Policies
- Motivation/Incentives
- Materials/Equipment
- Resources/Technology
- Environment

*There is no perfect set or number of categories. Make them fit the problem.

Cause and Effect Diagram

- Generate ideas as to what are the major cause categories of the effect

- Label these as the main branch headers
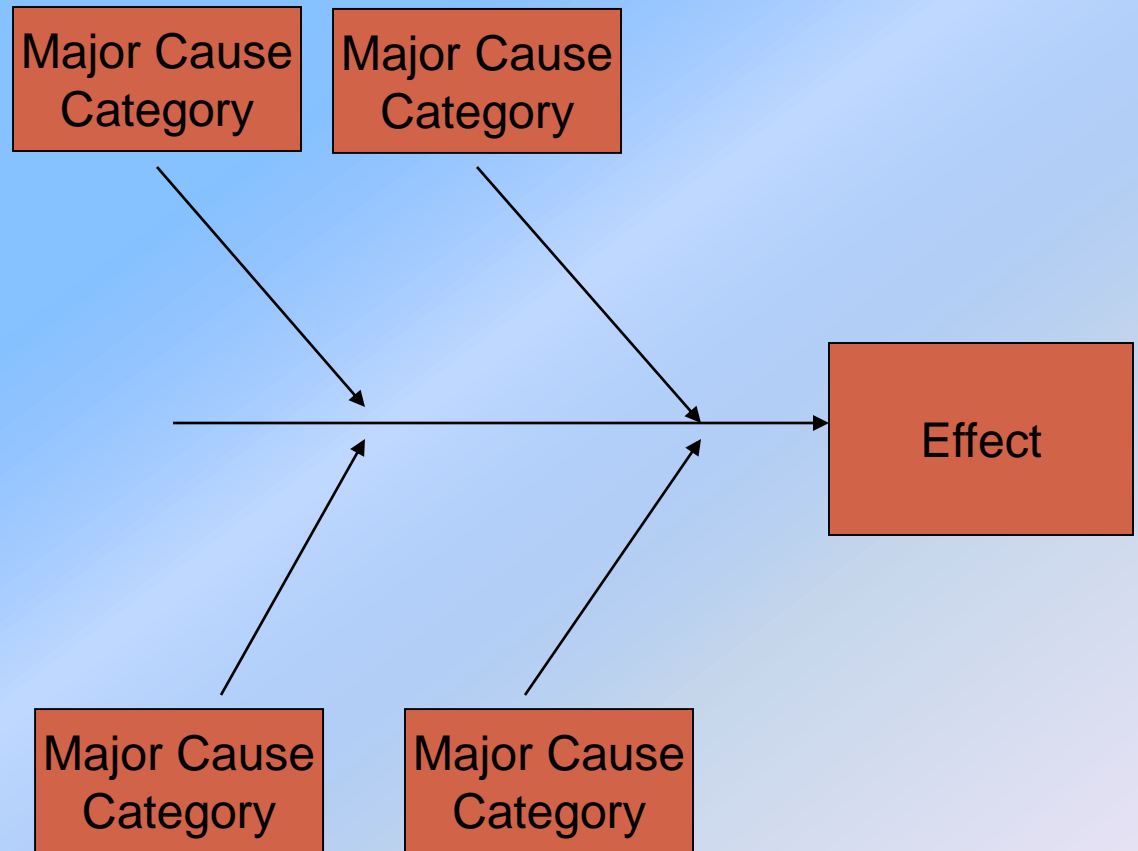
Cause and Effect Diagrams - Construction

- For each main cause category brainstorm ideas as to what are the related sub-causes that might affect your issue

- Use the 5 Why technique when a sub-cause is identified

- Keep repeating the question until no other causes can be identified
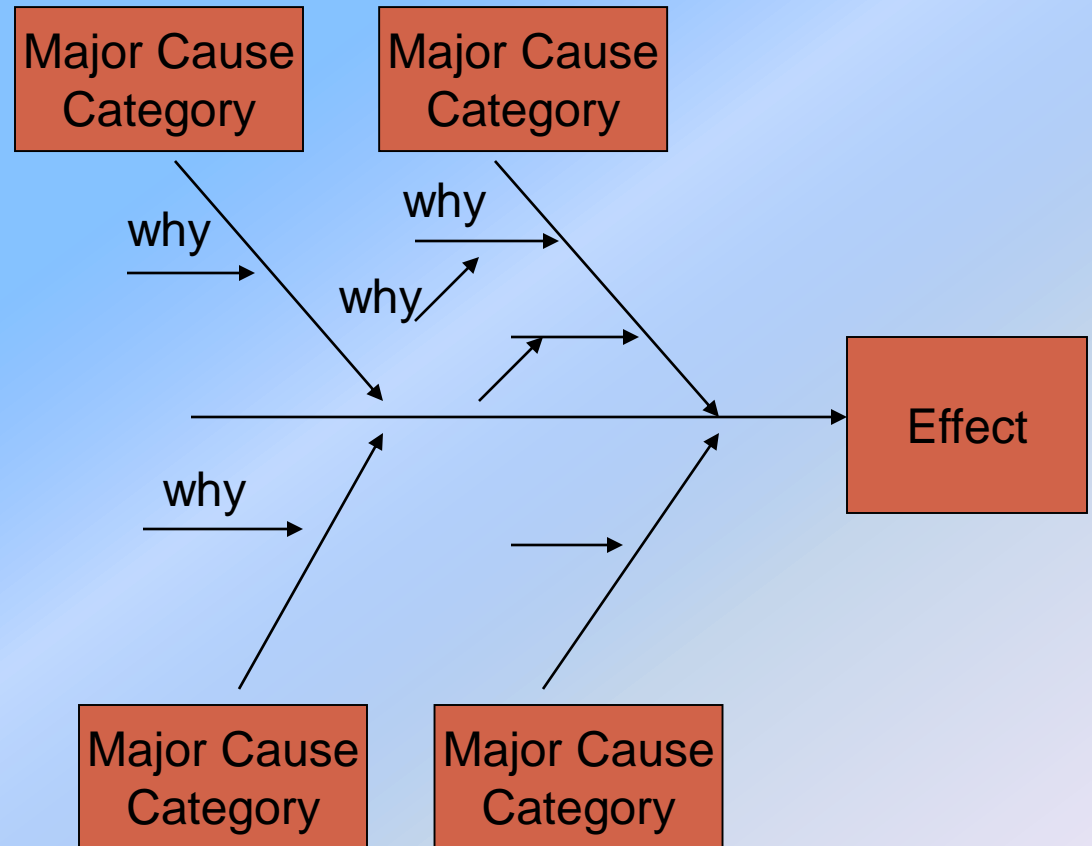
Group Exercise

◉ Problem(Effect): Frequent tardiness

◉ Determine major cause categories

◉ Ask 5 whys

Check Sheet

Example of Check Sheet

The figure below is an example of a check sheet used to collect data by the 211 Call Center during FCHD's H1N1 Pandemic Influenza Response

TYPE OF CALL	DAY					
	14-DEC	15-DEC	16-DEC	17-DEC	18-DEC	19-DEC
Info re: H1N1 Vaccine	JHT JHT JHT IIII	JHT JHT JHT I	JHT JHT JHT JHT	JHT JHT JHT JHT IIII	JHT III	0
Info re: Seasonal Flu Vaccine	JHT I	II	0	II	0	0
Referred to FCHD Call Center	0	I	III	I	I	0
Referred to H1N1 Registration Line	JHT JHT JHT	JHT IIII	JHT JHT IIII	JHT JHT II	JHT I	0
Referred to FCHD Seasonal Vac Clinic	I	0	0	0	0	0
Symptomatic	0	0	0	I	0	0
TOTAL	41	28	37	40	15	0

Check Sheet

- Check Sheet Description:
  - Structured, prepared form for collecting & analyzing data

- A Check Sheet:
  - Creates easy to understand data
  - Makes a pattern in the data obvious

- Use a Check Sheet when:
  - Data can be observed & collected repeatedly
  - Collecting data on the frequency or patterns of events, problems, or causes of problems

Check Sheet

Check Sheet Procedure:

- Decide what event or problem will be observed. Develop definitions that everyone will use.
- Decide when data will be collected and for how long.
- Design the form for the check sheet. Make it as simple as possible.
- Test the check sheet for a short trial period to be sure it collects the appropriate data and is easy to use.
- Record data on the check sheet each time the targeted event or problem occurs.

Pareto Chart

Example of Pareto Chart

Mortality Rates for Frederick County
by Top 10 Causes of Death, 2012-2014
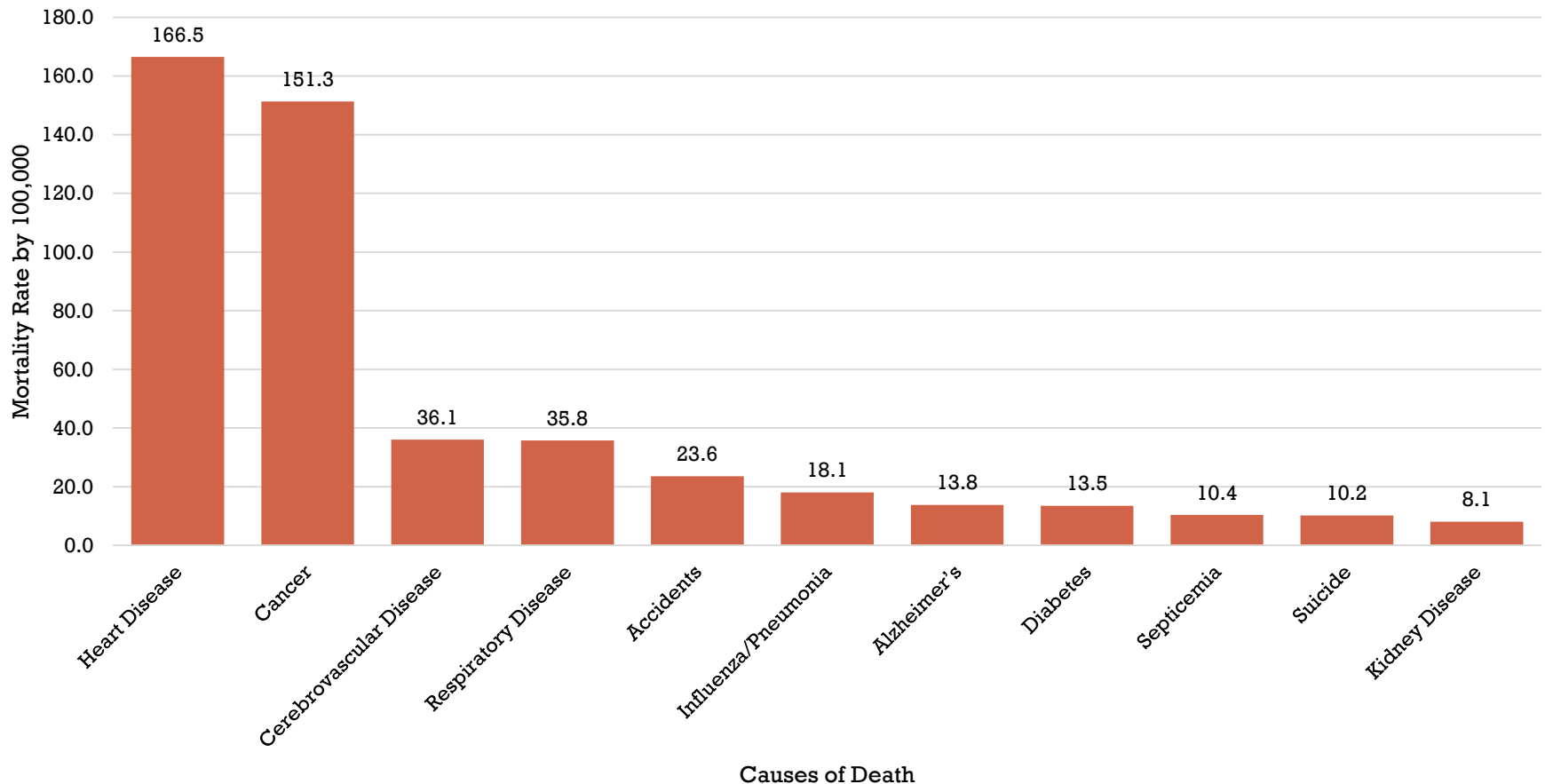
Source: Maryland Vital Statistics Annual Report

Pareto Chart

- Pareto Chart Definition
  - A bar graph arranged with the longest bars on the left and the shortest to the right. In this way the chart visually depicts which situations are more significant.

- Use a Pareto Chart When:
  - Analyzing _data_ about the frequency of problems or causes in a process.
  - There are many problems or causes and you want to focus on the most significant.
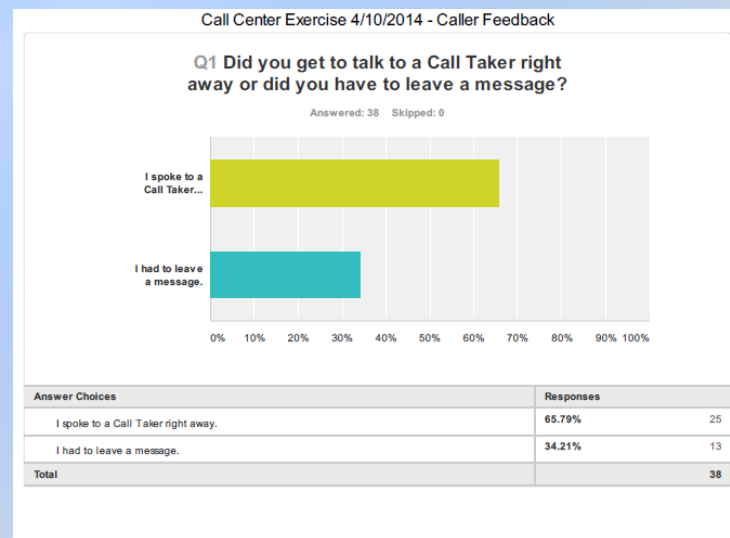
Survey

Example of Survey

The figures below are examples of a survey used to help evaluate a Public Health Preparedness Call Center Exercise

Questions Used in Survey Monkey

Survey Results

Thank you for helping as a caller in the April 10, 2014 Call Center Exercise! We'd like to get your feedback on how your experience as the caller was so that we can improve our plans.

1. Was the recorded message you heard easy to understand? Y/N
2. Did you get to talk to a Call Taker right away or did you have to leave a message?
3. If you left a message, did you receive a call back? Y/N
4. If you received a call back, how long was it after you left your message? 5 min, 15 min, 30 min, 1hr
5. Was the Call Taker easy to understand? Y/N
6. Did you feel you were on the phone with the Call Taker for less time than expected, just the right amount of time, or longer than expected?
7. Did the Call Taker answer your question? Yes/No/I asked for a nurse/the Call Taker couldn't answer the question and said a nurse would call me back.
8. Did you talk to an interpreter? Y/N
9. If you were calling as a member of the public in an emergency, is there anything you think should be changed?
10. Additional comments?

Call Center Exercise 4/10/2014 - Caller Feedback

Q1 Did you get to talk to a Call Taker right away or did you have to leave a message?

Answered: 38   Skipped: 0

Answer Choices	Responses	
I spoke to a Call Taker right away.	65.79%	25
I had to leave a message.	34.21%	13
Total		38

Survey

- **Survey Definition:**
  - Surveys collect _data_ from a targeted group of people about their opinions, behavior or knowledge.

  - Surveys can discover needs, assess satisfaction, gather _data_ about a process.

- **Use a Survey To:**
  - Identify customer requirements or preferences

  - Assess customer or employee satisfaction

  - Establish baseline _data_ and gather _data_ about the effectiveness of a change

Survey Chart

◉ Survey Procedure:

- Determine:
  - What question you are trying to answer
  - Who you want to survey
  - Survey method (paper form, web-based, Survey Monkey, face to face)
  - Timing (when survey will administered)

  Note: surveys given to clients require Internal Review Board (IRB) approval from the State of Maryland. Your Division Director can assist you with obtaining IRB approval.

A few things to keep in mind about Quality Improvement Tools

- Tools can be used in each phase of the Plan-Do-Study-Act Cycle - see the *Storyboard Work Guide*

Act → Plan
↓
Study ← Do
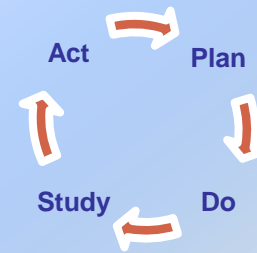
- There are many other QI tools that you can use. Your Division QI rep or Supervisor can provide additional resources.