Welcome!

Performance Measures in Quality Improvement

will begin shortly

Performance Measures in Quality Improvement

September 9, 2013

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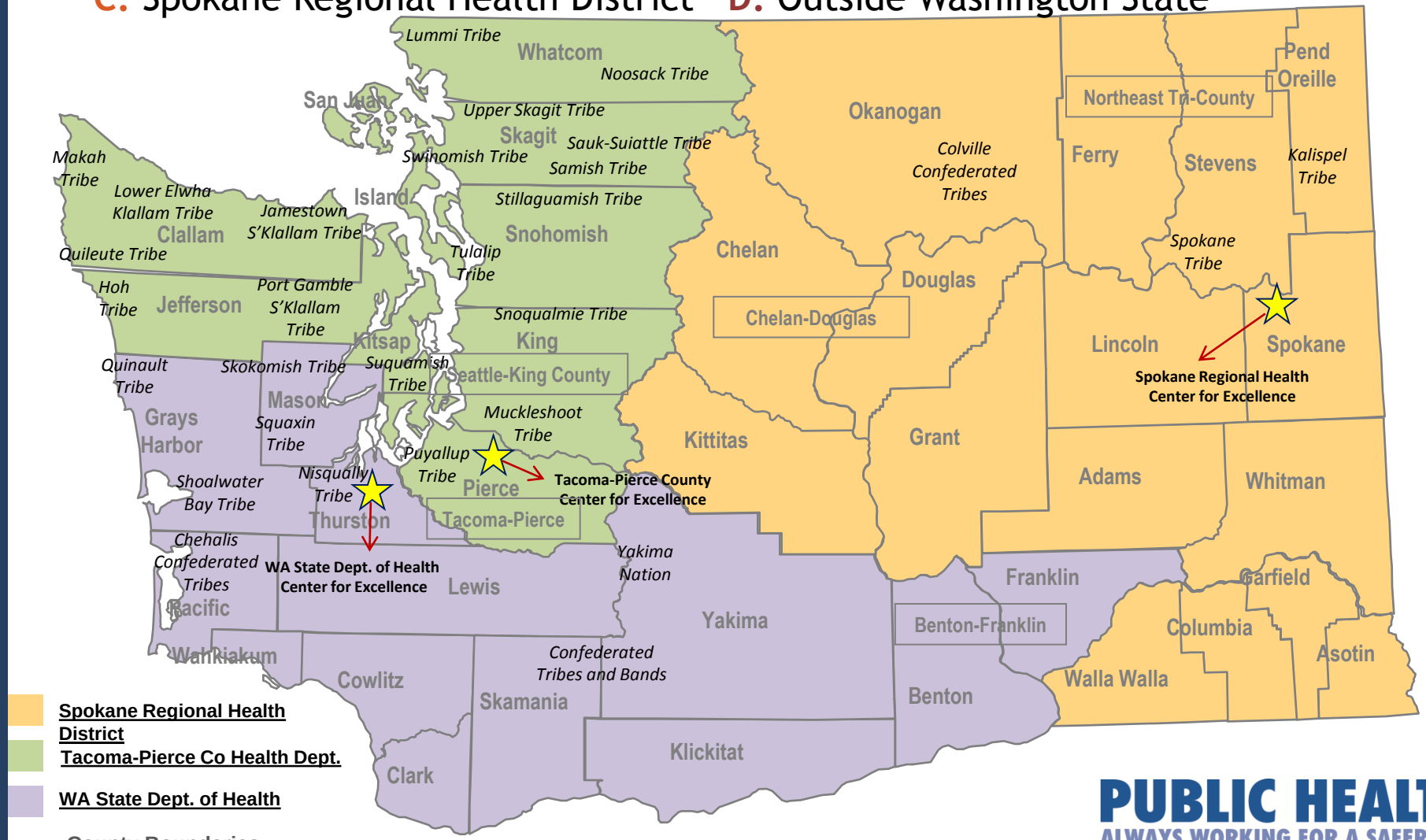
Funded by the U. S. Centers for Disease Control's National Public Health Improvement Initiative

Which Center for Excellence Region are you located in?

A. Department of Health **B.** Tacoma-Pierce County Health Department
C. Spokane Regional Health District **D.** Outside Washington State



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Today's Learning Objectives:

Upon completion participants should be able to:

- Establish meaningful performance measures for work processes
- Describe at least 2 types of measures for a QI project and reasons for selecting different types of measures
- Understand and practice the use of Pareto Charts and apply to QI projects

Performance Management

Performance management includes the following:

1. Performance Measures
2. Quality Improvement
3. Reporting of Progress
4. Performance Standards

Definition of Performance Measurement

"Performance measurement consists of quantitative or qualitative measures of capacities, processes, or outcomes relevant to the assessment of a performance indicator."

Performance Measurement for Public Health Policy Toolkit, APHA and PHF – August 2012

Principles for Performance Measurement

1. Know why you are measuring
2. Be selective
3. Let your customers tell you what results to measure
4. Continually ask how you and your stakeholders are doing
5. Track the internal processes that produce your results
6. Tell and show people what you learn

Dimensions of quality

Dimension	Meaning
1. Performance	What are the Primary Operating Characteristics i.e. the way it is supposed to work
2. Features	Additional quality aspects(do these enhance)
3. Time	e.g. Waiting time, Cycle time, completion time
4. Perceived quality	Personal preferences and needs
5. Reliability	Extent of "failure-free" services
6. Personal Interface	Punctuality, courtesy, professionalism

Adapted from *The Improvement Guide*, Langley, Nolan, Norman & Provost, 1996

Success can be Measured in Stages

	1. Short term **"Process Outcome"**	2. Mid-range **"Results Outcome"**	3. Long term **"Health Status Indicator"**
Health Issue/ Goal: Improve Childhood immunization rates of 2 year olds	Percent of planned materials distributed to increase provider awareness **(Goal: 100%)** Percent of children with records kept in the immunization registry **(Goal: increase % from year to year)**	Percent of children 0 to 24 mo. completing the recommended series on time **(Goal: increase %)**	Disease rates related to the series are very low or approaching none (such as Pertussis, measles)

Selection of Performance Measures

Ask the following questions:

- Is it meaningful?
- Is it focused on customer requirements or needs?
- Is it accurate and are reliable data available?
- Is it simple enough to be understood?
- Is it cost effective to collect and report the data?
- Can the data be compared over time?
- Is the measure useful?

Focus on work process

- What is a process?

  Series of related tasks directed at accomplishing one particular outcome

- What is a system?

  Group of related processes

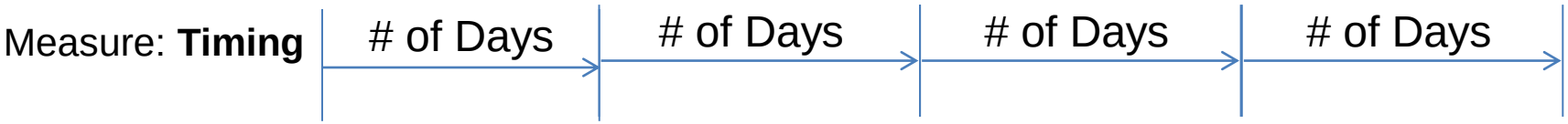
Types of Work Process Measurement

Type of Measure	Definition	Examples
Process Input	amount of resources such as labor, equipment, supplies	Number of employees, number of clients eligible for program, number of permit applications, number of reports received, amount of grant funds received
Process Output	number of services provided	Number of permit applications reviewed, number of classes presented and participants trained, number of clients served
Process Outcome	short term results of services (immediate results, effectiveness)	Rate of inspections or reviews completed on time, percent of class attendees with improved post test scores, lower critical violation rates in restaurants,
Process Efficiency	reflect cost per output or outcome	Number of clients served compared to number eligible, turnaround time per application processed

Example of Automobile:

Customer Need	Translation	Outcome or Effectiveness Measure
Protection from problems	Length of warranty	Years, months
	Coverage of warranty	List of subsystems covered or excluded, costs covered or excluded
Efficiency	Distance traveled per quantity of fuel	Miles per gallon, Km per liter of fuel
Reliability	Repairs or breakdowns	Failure rate, time between failures, recalls
Service	Promptness	Days, hours
	Competence	Percent of recalls for service
	Courtesy	Number of complaints about attitude or courtesy

Contract Implementation work process flow (high level)

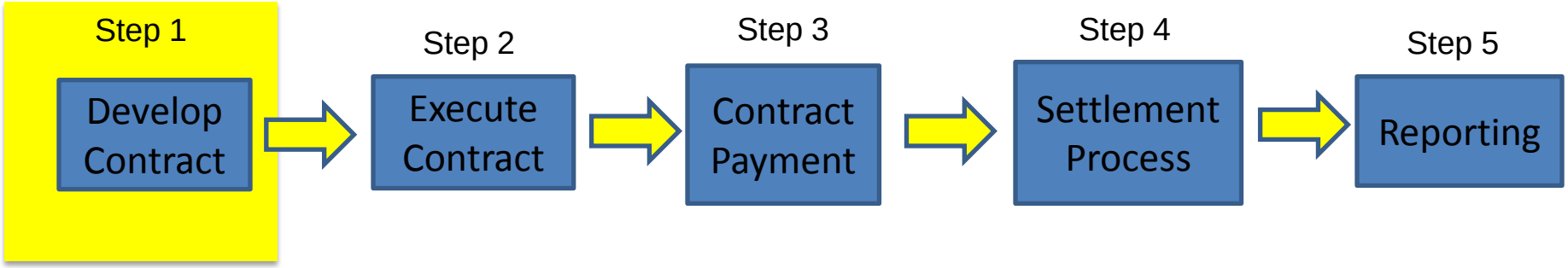


What is valued by the customer (as it relates to the contract implementation process:

- Simple contract
- Hassle-free payments
- Rapid processing
- Accurate contract payment

NOTE: Need to understand the needs of key stakeholders and how each part of the process supports meeting these needs.

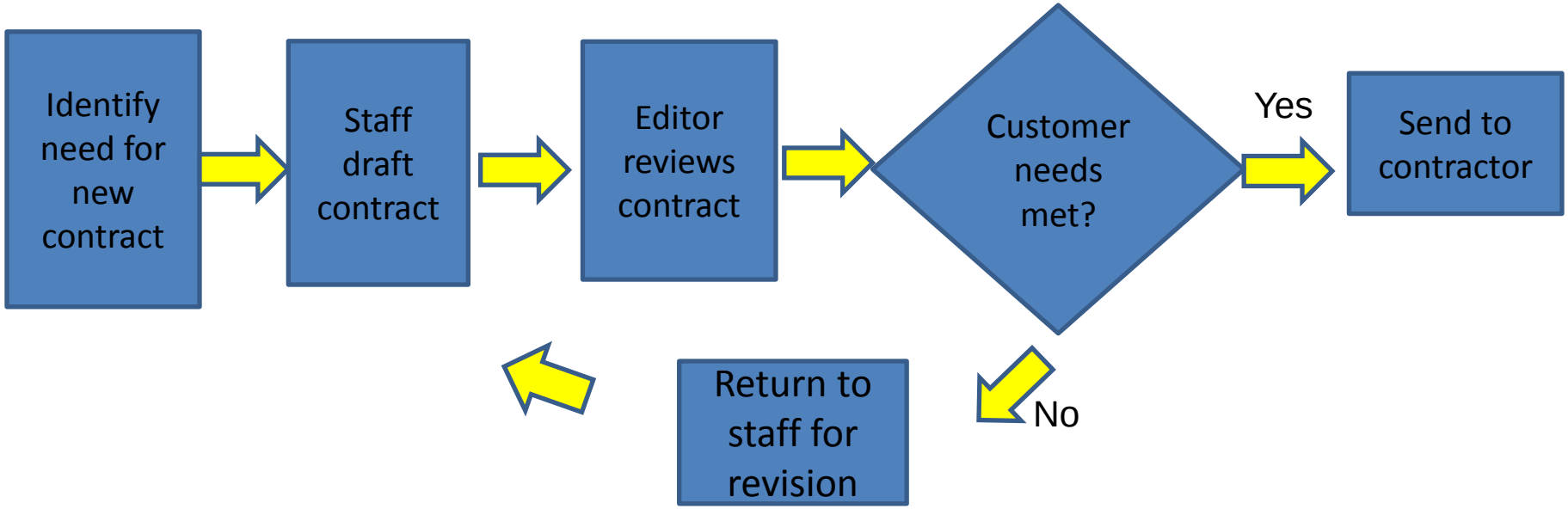
Link Customer (External) Need to Process



Customer requirements / needs:

1. Simple contract
2. Hassle-free payments
3. Rapid processing
4. Accurate contract payment

Breakdown of Step 1: Develop contract & 1st customer need: Simple contract



WHAT ARE THE MEASURES THAT WE CAN IDENTIFY FOR THE SIMPLE CONTRACT C/S REQUIREMENT

Survey of contractors - showed "simple" means:

1. Clear statements of deliverables – percent of contract deliverables agreed to by contractor
2. Specific deadlines – percent deadlines stated with date and time due
3. Lay language – use of acronyms? Is there a glossary/ Are terms defined?

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On-Site Sewage Program Logic Model

Mission/Goal: The public's health is protected by preventing disease associated with sewage and by assuring safe, uncontaminated ground and surface water.

PROCESS

OUTCOME

Resources

Activities: all activites a performed at state & loc level unless stated otherwise

Outputs

Short-term Outcomes

Inte mediate Ou comes

Long-term Outcomes

Goal / Mission *(Impact)*

Legal authority: CW and WACs, local codes & o inances

Staff
- technical expertise

Computers and printers

Database

Facilities

Forms (inspections)

Vehicles

Funding

Equipment

Materials

Stakeholder support

Rulemaking & Interpretations

Technical Assistance:
DOH to LHJs
DOH to public
LHJs to public

Educate: homeowners, professionals & staff, and OSS system operators

Professional Licensing of Installers, Pumpers, & O&M Specialists (LHJ)

Partner, Stakeholder and Community involvement

Review: permit applications and O&M permits
Additives & Products (DOH)

System Inspections:
New System
Repair (Loan Certs)
Sanitary surveys
ID OSS Systems

Complaint & Incident Investigations

# of current science-based rules reviewed 1X every 4 years

# of technical assistance responses

# of LHJ staff & industry participants in workshops

# of staff with individual training plan

# of appropriately licensed professionals

# of stakeholder event participants

# of permits, additives O&M certs. & products reviewed

# of new system, repair, sanitary sewage & loan cert inspections

# of previously unknown systems identified

# of complaints
# of incidents investigated

# of enforcement

So That

Consistent, science- based rule
% of rules applied locally

Increased knowledge of homeowners, professionals & OSS system owners
% of professionals licensed
% of improved post test scores
% of workshop evaluations satisfactory or better
% of responders indicating they used information 3-6 months later
% of TA recipients stating that their needs were fully addressed

Improve communication & information & resource sharing w/ith stakeholders
% of participant responses indicating that group is effective

Assure that products/sites & technical specs are within requirements
% of permits, additives
O & M permits, & products acted on in required timeframe

Systems are constructed or repaired to function properly
% iof failing repaired &approved within 1 year
% of systems approved final as-builts (inspected)
% of systems that function properly
% of previoously unknown systems reviewed & found compliant

Failures are identified in a timely manner
% failures identified with corrections

So That

On-site systems, in homes and larger systems, are designed, installed & function properly

% systems properly functioning at 5 years
% of systems repaired or replaced (failure rate)

So That

Prevent contact with sewage & contamination of surface & ground water. Prevent waterborne Illness. Swimmable Drinkable Diggable

Data Description and Collection Form

Performance measure:	
Target population:	
Numerator:	
Denominator:	
Source of data:	
Which are you using – a target or a benchmark?	
What is target/benchmark?	
Who will collect the data?	
How often will the data be analyzed and reported?	
Baseline measurement data and date(s):	

Data Description and Collection Form

Performance measure:	Food handler class effectiveness
Target population:	People being trained for food handling
Numerator:	Number of attendees that scored 80% or higher
Denominator:	Number of attendees at food handling class
Source of data:	Class records
Which are you using – a target or a benchmark?	Target
What is target/benchmark?	95% (based on past performance)
Who will collect the data?	Jim Smith
How often will the data be analyzed and reported?	Quarterly
Baseline measurement data and date(s):	81% (2011)

Data Description and Collection Form

Performance measure:	Food handler class effectiveness
Target population:	People being trained for food handling
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Establishing Targets or Goals for Performance Measures

- Use a reliable method to identify and establish targets or thresholds for the work process measures (yellow area i.e. the short term process outcomes):
  - Customer Requirements/Needs
  - Regulatory Targets or Requirements
  - State average performance or rates
  - "Sister" Organizations' Data e.g. Seattle King County vs Tacoma Pierce County
  - Your Own Past Performance (historical data)

Examples of Reporting on Performance Measures

Performance Measures "Snapshot"

Department Level:

Program	Brief Statement of Measure	2010 Goal	2010 Achieved	2011 Goal	1st Q	2nd Q	3rd Q	4th Q	2011 Total
% Met target	(met target/measures with data)								

Division Level:

Program	Brief Statement of Measure	2010 Goal	2010 Achieved	2011 Goal	1st Q	2nd Q	3rd Q	4th Q	2011 Total

Performance Measures "Snapshot"

2013 Office of the Director/Administrative Services

Program Level Performance Measures

Business Unit/ Program		Performance Measure	2012 Achieved	Target	1Q	2Q	3Q	4Q	YTD
OAPI	1	Percent of OAPI data requests that are fulfilled within five business days	88%	90.00%	100.00%	74%			
		N = data requests received			26/26	14/19			
	2	Percent of TPCHD health indicators that have been updated with the latest available data	100% (14/14)	100.00%	100.00%	100%			
		N = number of indicators			57/57	1			
	3	Percent of customers who were satisfied with OAPI's work product at the end of the project	not collected	100.00%	no data	89% (8/9)			
		N = number of customers/projects			1	9			
VR	1	Net revenue from Vital Records fees	$501,395	$501,395	$140,155	$139,484			
		quarterly percent	$501,395	25% per Q	28%	28%			
HR	1	Average time to fill vacant positions	6.22 weeks	↓avg. of 6 weeks	5.07 weeks	3.93 weeks			
		N = requisitions processed	103	N/A	12	2			

Performance Measure Title

Measure Description:	
Target:	
Actual:	
Status:	
Outcome Owner:	
Data Source:	
Link to Strategic Plan:	

Key Insights
• *Why are we getting the results we are getting?*
• *Are we progressing toward our target?*
• *Have we achieved our target?*
• *Are there any unintended consequences of our actions?*

Next Actions
• *What is likely to happen in the future?*
• *What are possible areas for improvement?*

Small Drinking Water Systems

Measure Description:	Percent of population served by smaller water systems that do not meet drinking water standards
Target:	20%
Actual:	22% (12,179/55,034)
Status :	
Outcome Owner:	Brad Harp
Data Source:	Wash. St. Dept. of Health and Envision Database
Link to Strategic Plan:	SD 1, 3 and 4: Pierce County has access to safe & reliable water resources

Key Insights

- Small water system managers face numerous challenges due to lack of water system management experience
- Through education and technical assistance water systems are better able to meet system standards
- Line of Sight: division level PM not met, program level PM met

Next Actions

- Ongoing education and technical assistance is critical due to the high level of turnover in small water system managers and operators
- QI needed to evaluate effectiveness of current assistance strategies.

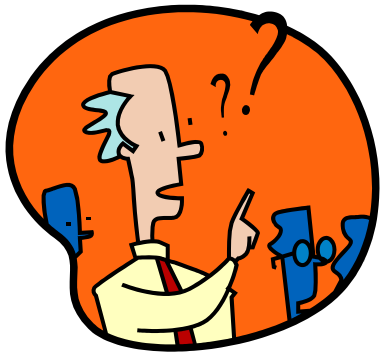
In summation, we have covered :

- Definition and principles and selection of performance measures,
- Dimensions of quality as it relates to performance measures,
- Types of work process measurements,
- Data collection and reporting of performance measures

We hope useful information has been provided to aide in your performance measurement work.

References to this topic have been provided at end of the 2nd half of our presentation

What comments and questions do you have?



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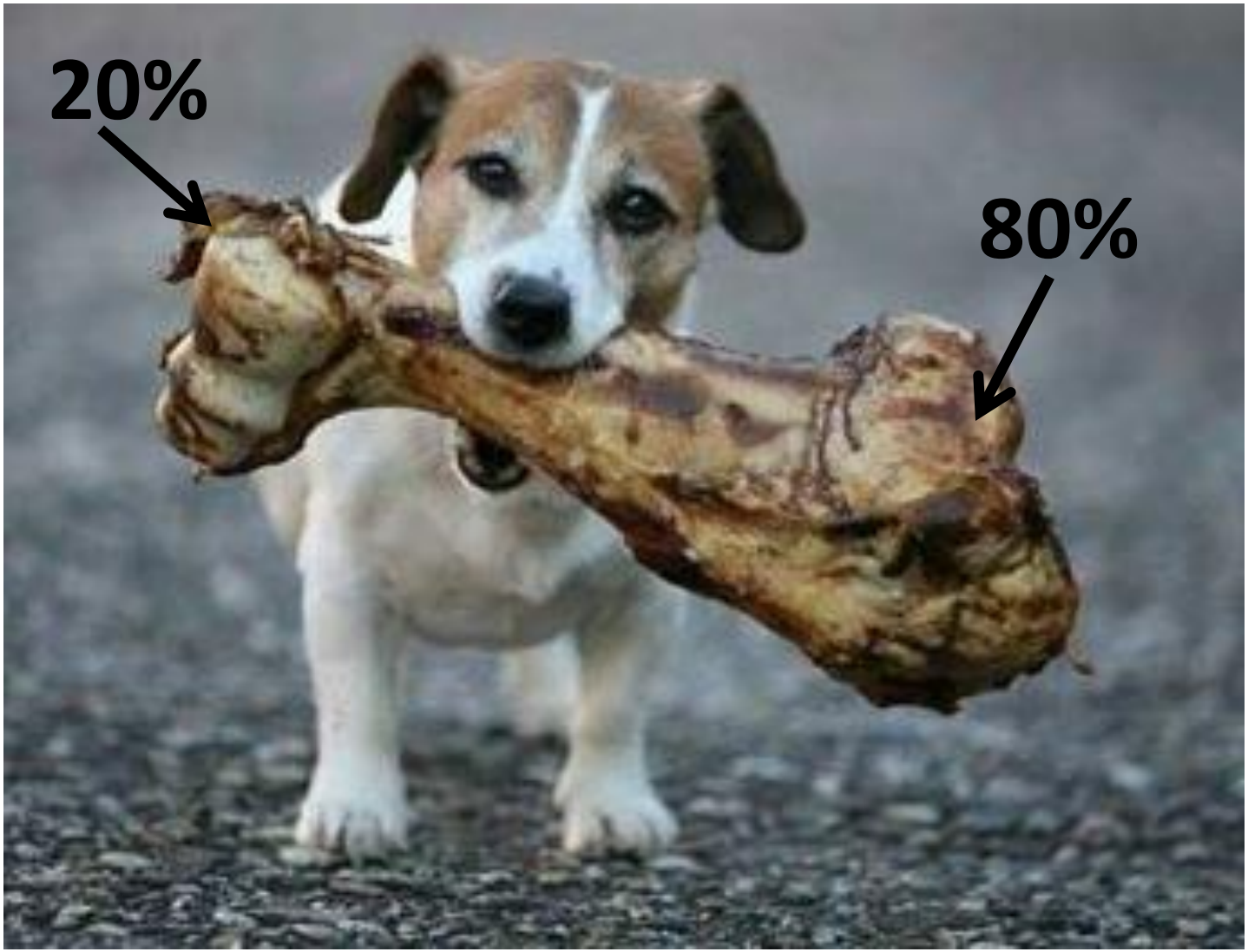
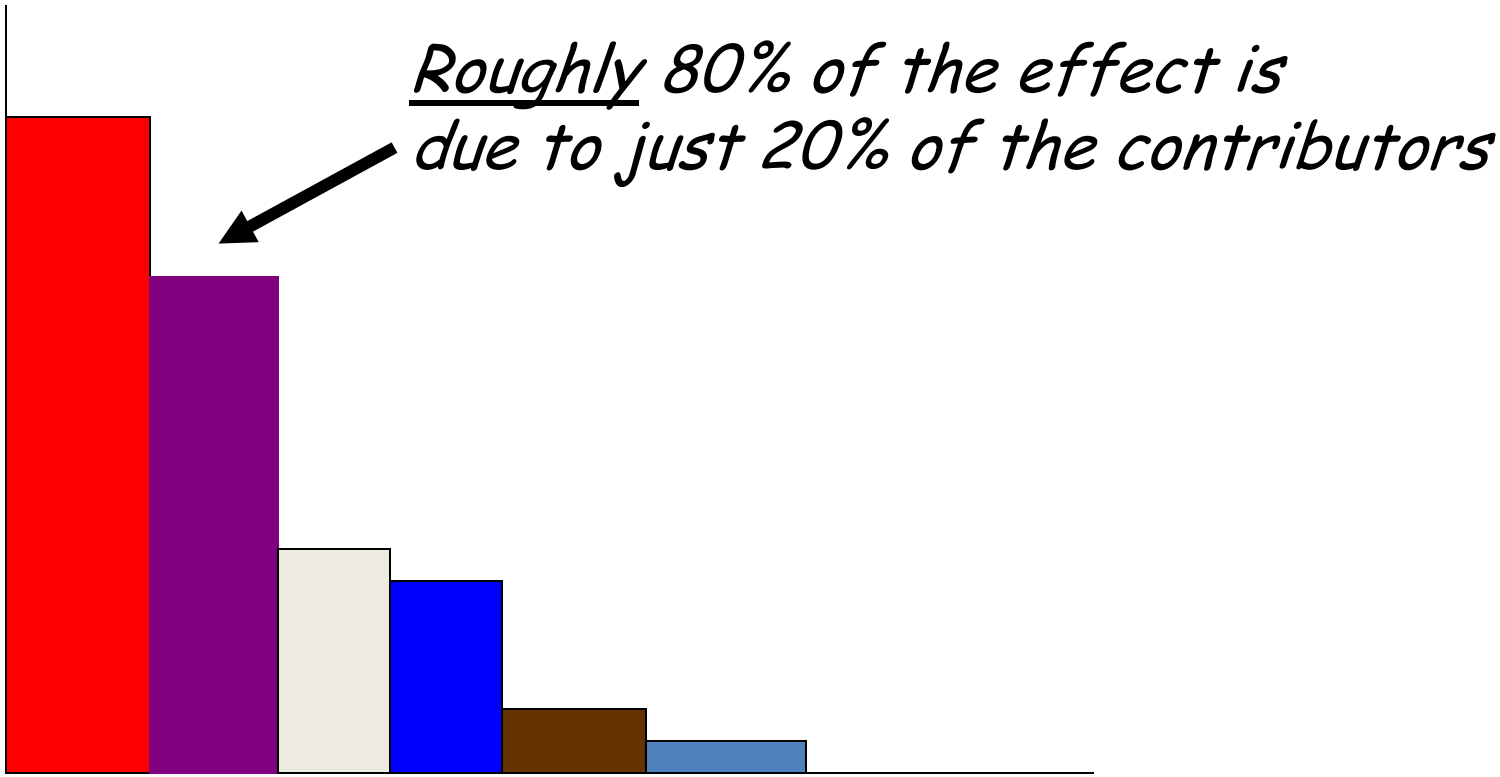
Pareto Principle



Wilfredo Pareto

- Wilfredo Pareto
- An engineer, sociologist, economist, political scientist, and philosopher
- Pareto Principle (Pareto's Law or 80/20 Rule)
- Pareto Charts

Pareto Principle or the 80-20 Rule



Identify the "Vital Few"

- Pareto Principle - In any group of things that contribute to a common effect, a relative few contributors (20% "vital few") will account for the majority (80%) of the effect
  - These few contributors are called the "vital few" while the many other contributors are called the "useful many"
  - The "vital few" hold the greatest potential gain from quality improvement efforts
- Pareto Diagram—A fact based tool for priority setting in quality improvement efforts

Pareto Charts & Diagrams

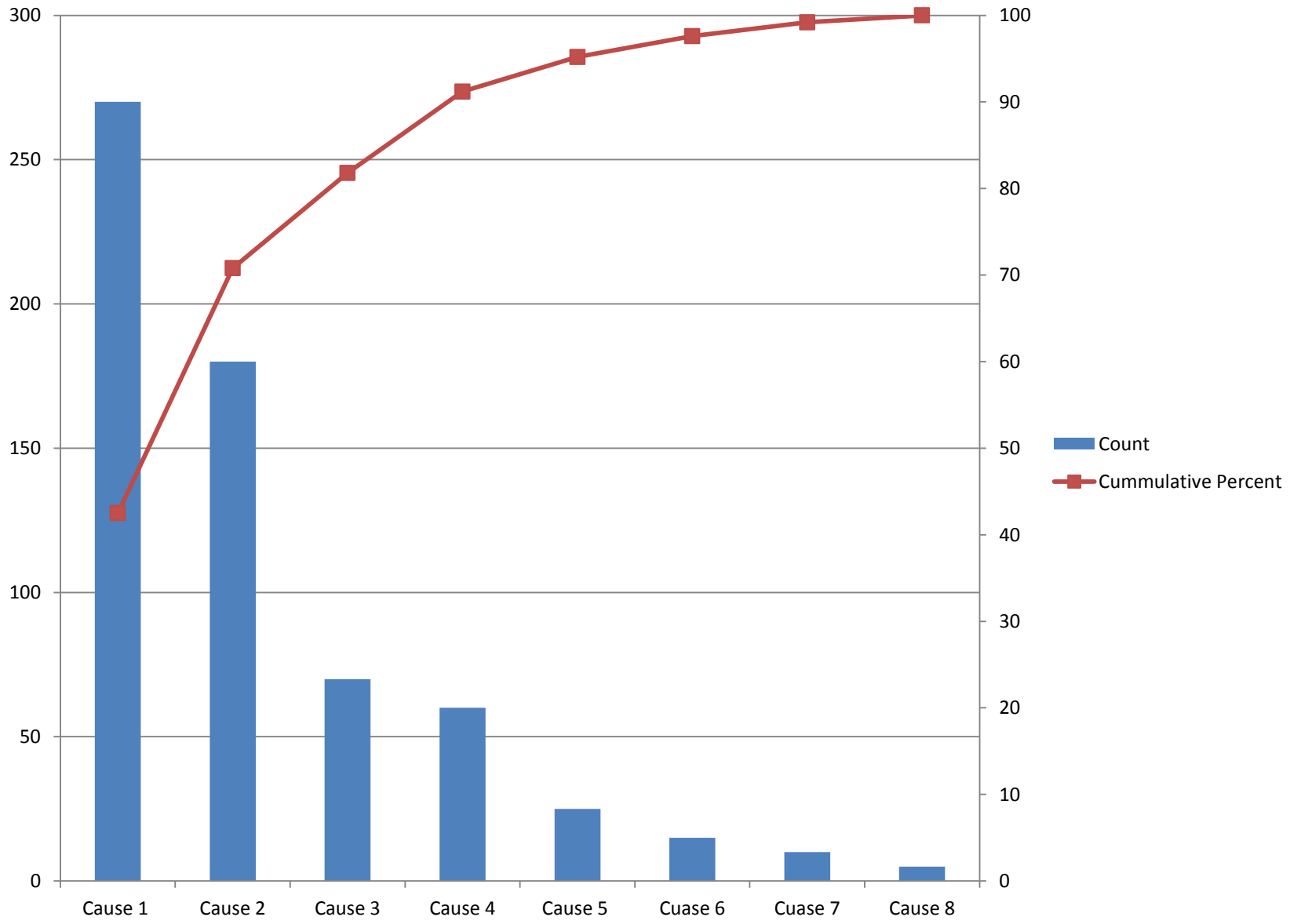
- When would I use this tool?
  - You are working with attribute data – **Data** represented in discrete units (dollars, hours, items, yes-no options) which measure the presence or absence of an **attribute** or characteristic for a response variable (defects, incidents, errors, etc.)
  - Anytime you want to focus attention on biggest contributors to a "defect" problem
    - Assess
    - Analyze (most likely)
    - Evaluate
- Simply listing contributors in descending order of magnitude can …
  - Help groups focus where their efforts will have most effect
  - Help groups let go of lesser issues

Building a Pareto Chart

1. List data (contributors and counts) in descending order of magnitude
2. Calculate total
3. Calculate % contribution to total for each contributor
4. List the cumulative % with each additional contributor

Building a Pareto Chart (continued)

5. Create bar graph with two vertical axes – one for count and the other for cumulative %
6. The left vertical axis should be for the count and the maximum should equal your total count
7. The right vertical axis should be for cumulative % and the maximum should equal 100%
8. The horizontal axis should list each contributor, in order of descending order of magnitude
9. Graph the bars for the count of each contributor
10. Graph the cumulative % for each contributor as a line graph


300
250
200
150
100
50
0
100
90
80
70
60
50
40
30
20
10
0
Cause 1
Cause 2
Cause 3
Cause 4
Cause 5
Cuase 6
Cuase 7
Cause 8
Count
Cummulative Percent

Where is the opportunity to focus?

How big an impact may I have?

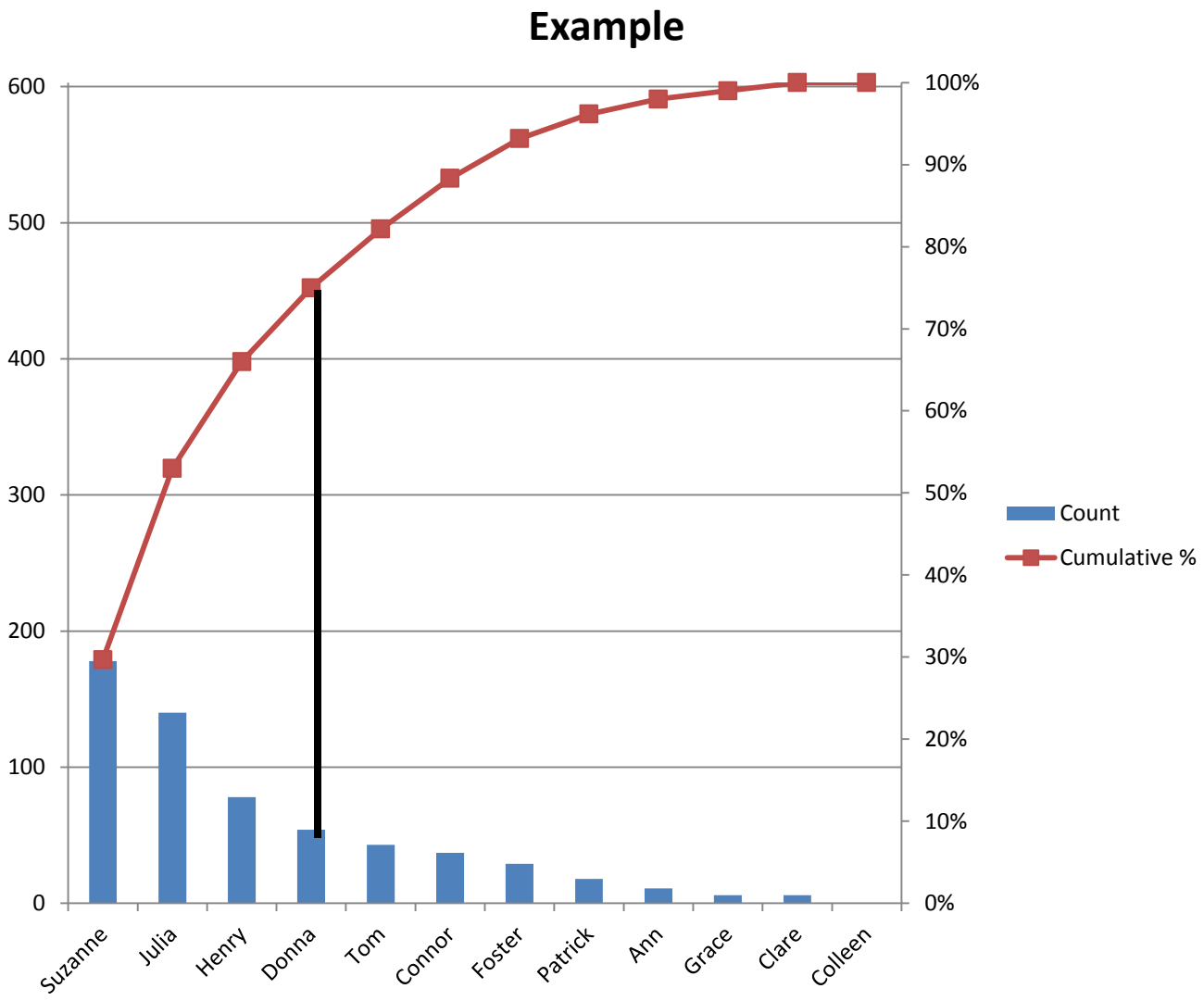
Contributors	Count
Ann	11
Clare	6
Colleen	0
Connor	37
Donna	54
Foster	29
Grace	6
Henry	78
Julia	140
Patrick	18
Suzanne	178
Tom	43

Pareto Chart

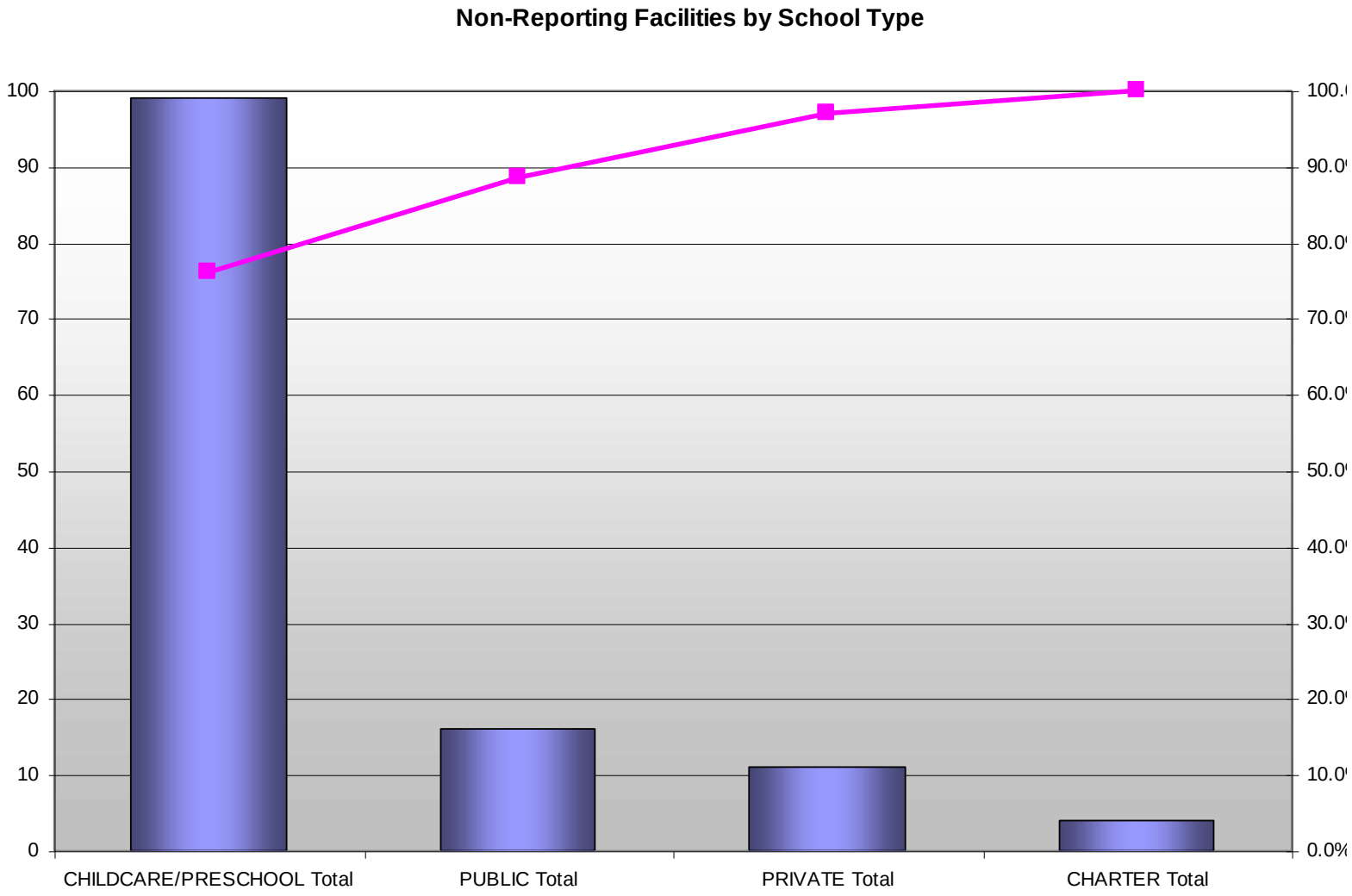
Example

Contributors	Count	Cumulative %	% of total
Suzanne	178	30%	30%
Julia	140	53%	23%
Henry	78	66%	13%
Donna	54	75%	9%
Tom	43	82%	7%
Connor	37	88%	6%
Foster	29	93%	5%
Patrick	18	96%	3%
Ann	11	98%	2%
Grace	6	99%	1%
Clare	6	100%	1%
Colleen	0	100%	0%
TOTAL	600		

Pareto Diagram



Example of Pareto Chart



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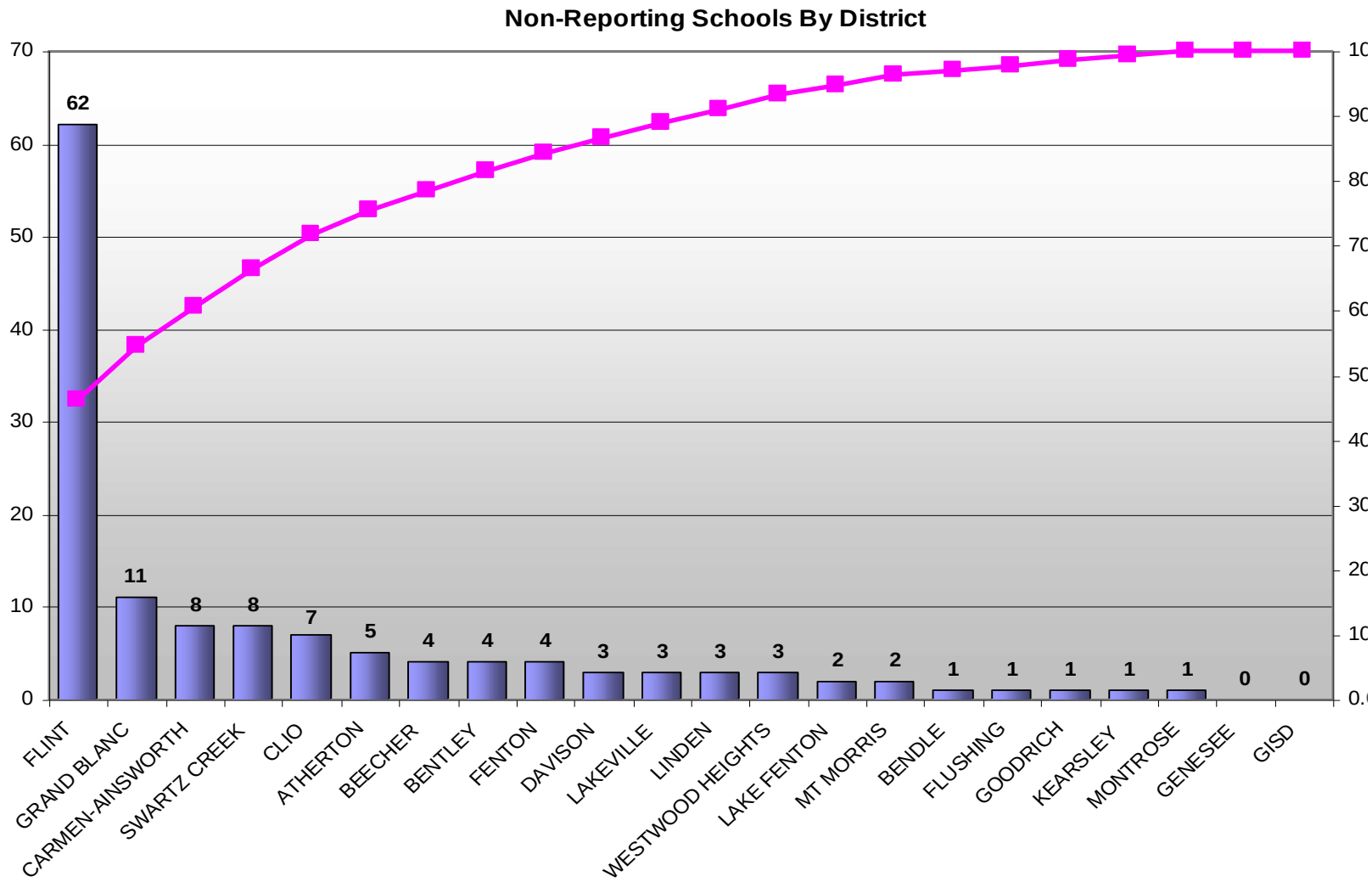


Interpreting Pareto Diagram

- Start on the left!
- The "vital few" contributors will be the those that comprise 70-85+% of total
- You may not have found "cause" at this point
- You may only have identified an area of your problem where further analysis is warranted
- The "useful" many may be addressed later in the project, or in later improvement cycles

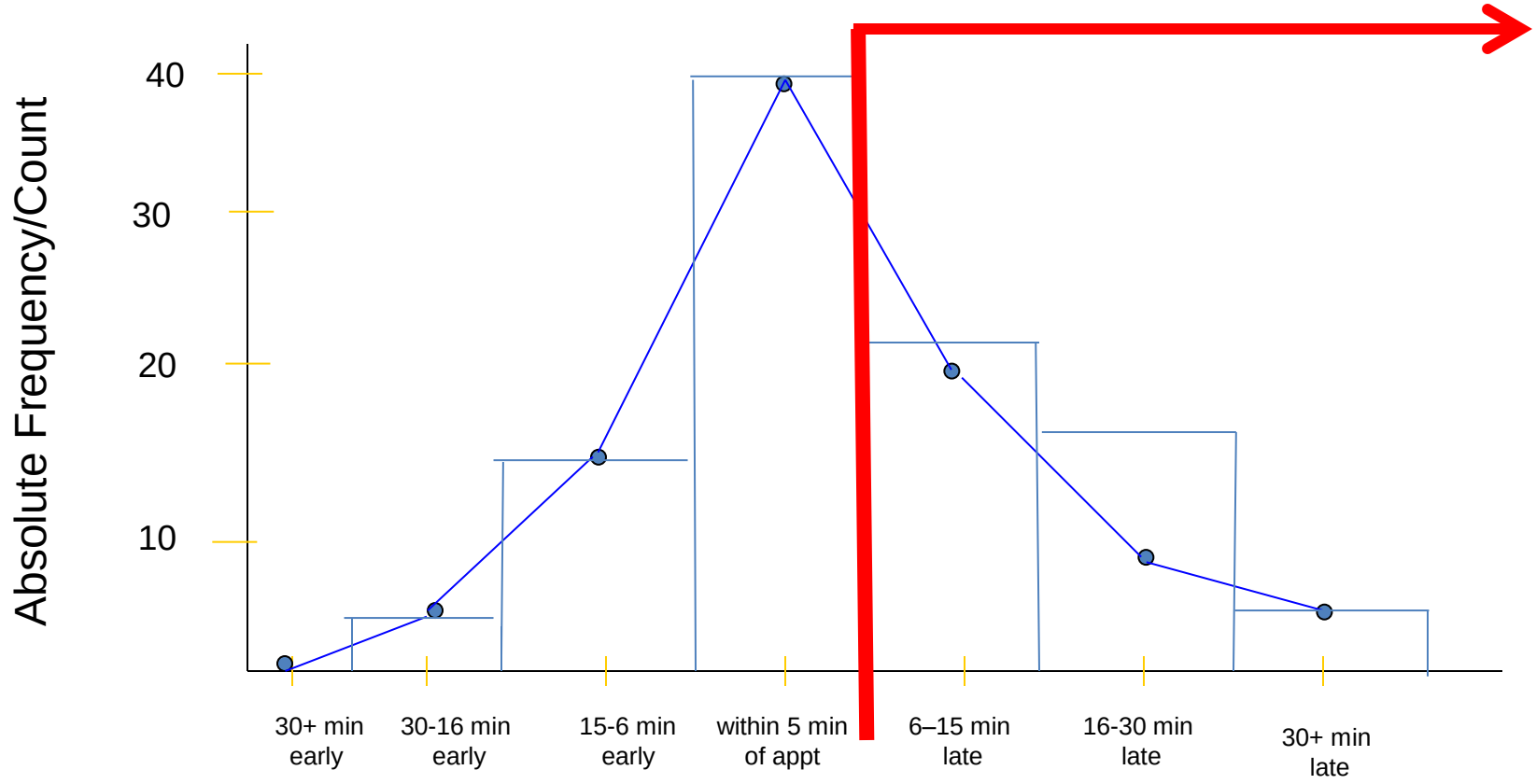
Example of Data Analysis: Why Are Clients Late For Appointments?

- It is a question that all of us have wrestled with for a long time.
- Every time we think we have heard all the excuses someone invents another creative one.
- A Health Department decided to track arrival times for scheduled appointments for HIV client services

Client Arrival Times Results

	# Clients at arrival time
7:40 AM	3
7:45	7
7:50	9
7:55	11
8:00 appt	16
8:05	13
8:10	12
8:15	10
8:20	8
8:25	5
8:30	5
8:35	4

Histogram - Grouped Data

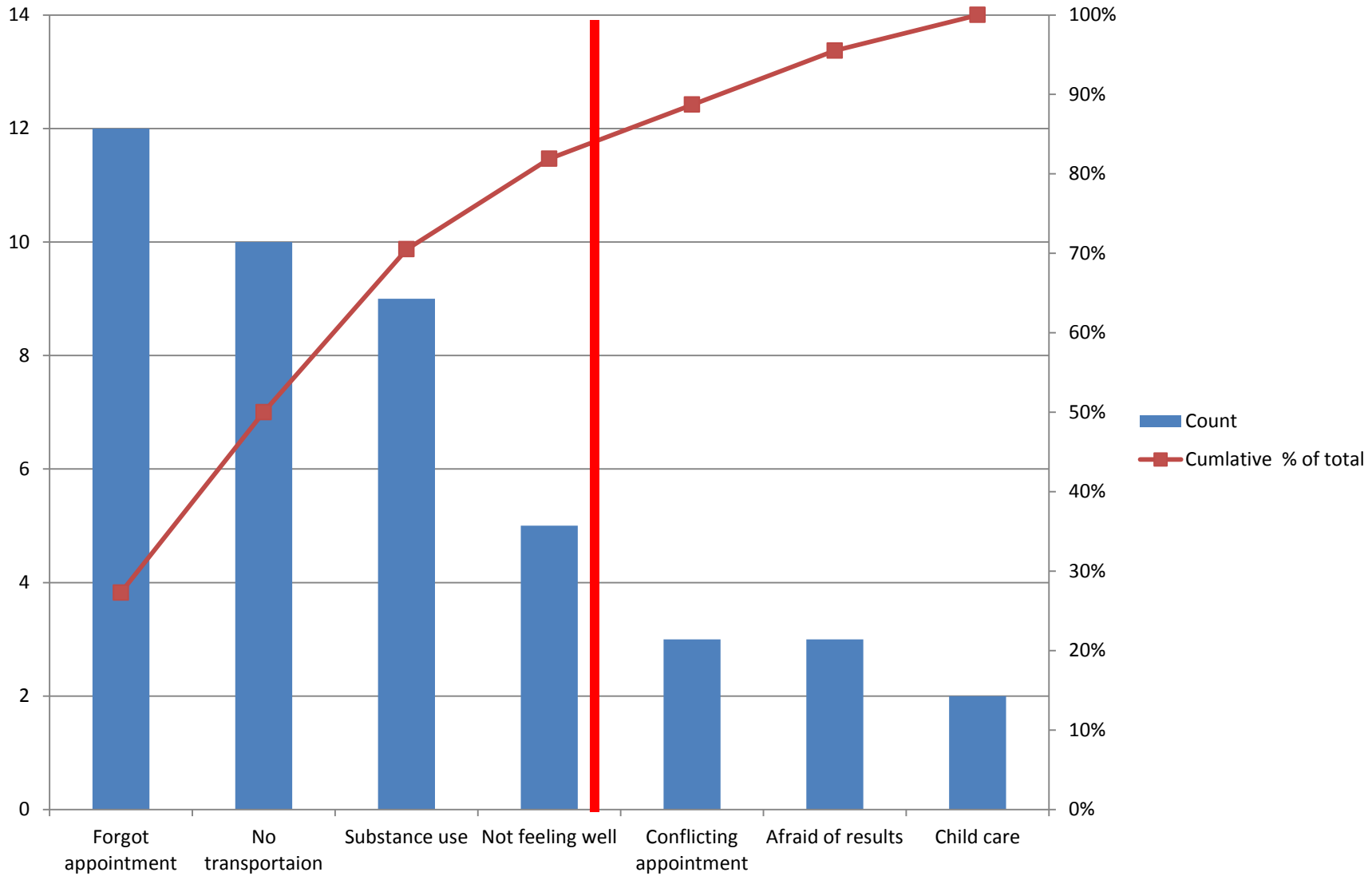


Data Collection Step

Data Collection on reason for clients not arriving on time (late)

Reason	# of 44 clients
Forgot appointment	12
No transportation	10
Substance use	9
Not feeling well	5
Conflicting appointment	3
Afraid of results	3
No day care/child care	2

Pareto Diagram



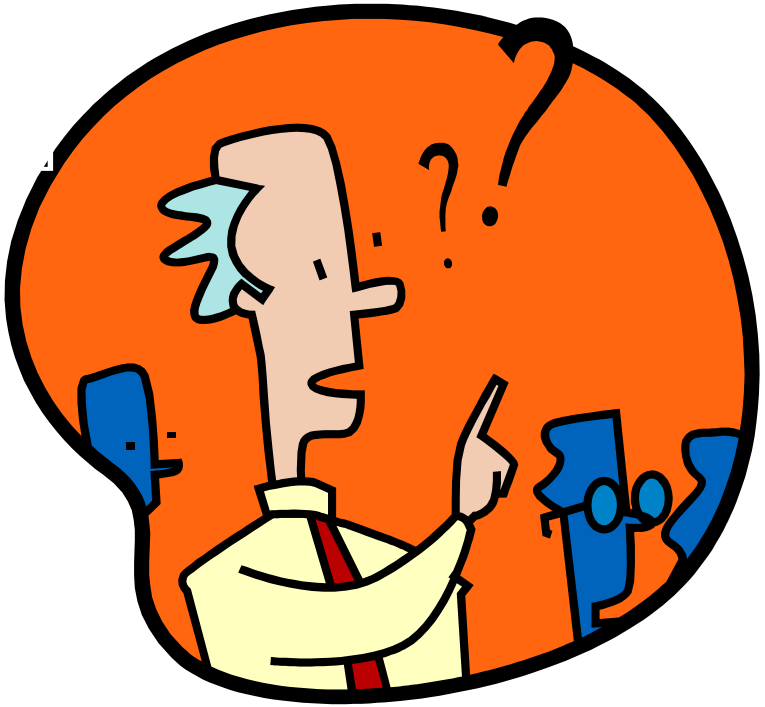
Investigating The Reasons and Taking Action

- Why Are Clients Late For Appt?
- Data analyzed using Pareto chart
- Then address the top 3-4 reasons (the vital few) to test and implement interventions that will address a likely “root cause”, thereby creating greater improvement that can be sustained.
- Use a Cause and Effect diagram (fishbone) to understand the causes.

Let's Review Pareto Principle

- Pareto Charts are used to display Pareto Principle in action
- A fact based tool for priority setting in quality improvement efforts
- 80% of outcomes are from 20% of causes
- Concentrating improvements efforts on these few (20%) will have a greater impact
- Note: The Pareto Principal is a guide, not a scientific certainty

What comments and questions do you have?



Resources and References

- Public Health Performance Management Centers for Excellence Web site: www.doh.wa.gov/PHIP/perfmgtcenters
- *Public Health Quality Improvement Encyclopedia*, Moran and Duffy, Public Health Foundation, 2012
- *The Lean Enterprise Memory Jogger for Service*, Goal QPC, 2009
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- *The Improvement Guide*, Langley, Nolan, Norman & Provost, 1996
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- Quality Improvement Resources from the Public Health Foundation