Quality Improvement

REGION 4 QUALITY ASSURANCE TRAINING
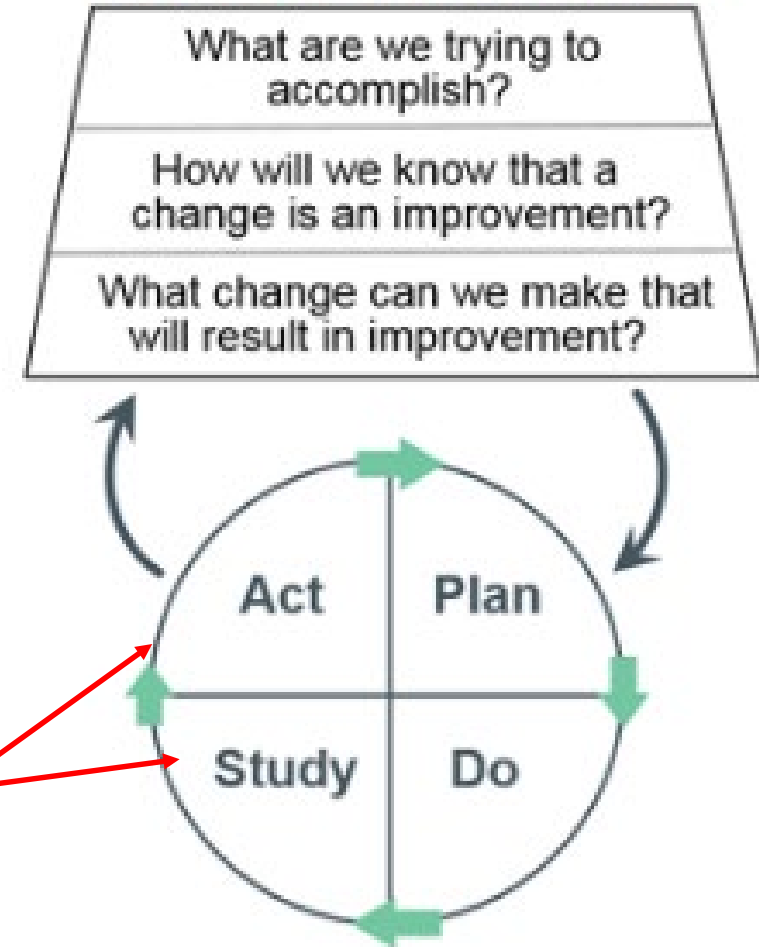
SEPTEMBER 2019

ATHENS, GEORGIA

So…Where are We?

DQO → MQOs → DQA → DQO

Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Act | Plan
Study | Do

You are here
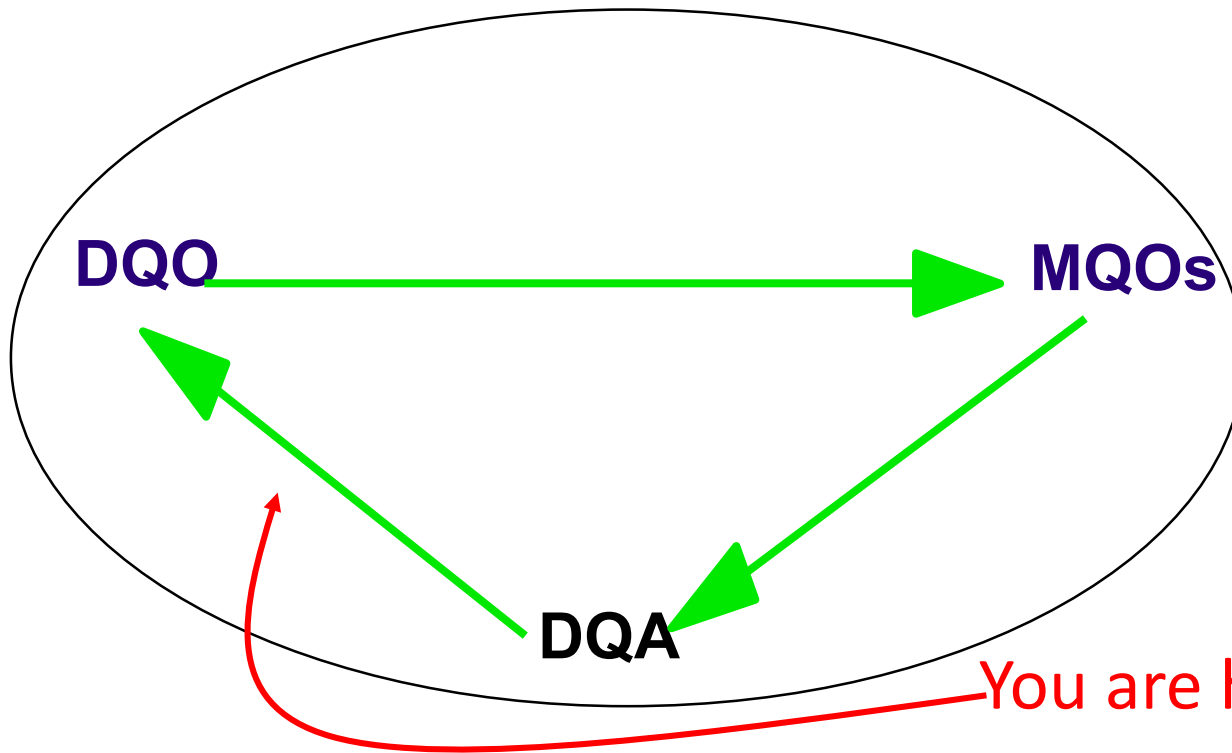
Quality Improvement

Is a systematic, formal approach to the analysis of performance and efforts to improve performance

Quality Improvement

Steps to get there

➢ Establish a culture of quality in your organization

➢ Collect and analyze data

➢ Determine and prioritize potential areas for improvement

➢ Set goals

➢ Communicate your results

➢ Commit to ongoing evaluation

Establishing a Culture of Quality

➢Start with the Quality Management Plan

  ➢Demonstrate in writing a commitment to quality

  ➢Demonstrate with action by staffing a QA Manager and technical staff

  ➢Ensure all staff know they play a role in quality and can all contribute to change

➢Develop a Quality Improvement Team or Program

  ➢Include members representing different kinds of expertise within the organization

➢Ensure all quality documents (QAPP/SOPs etc) demonstrate the commitment to quality

  ➢Well written, meet data quality requirements, and are followed

Collect and Analyze Data

➤ Do it every year…but improvement should occur as soon as needed

➤ Bring all staff together: Management, QA , Field, Lab, IT

➤ Look at all facets of the Quality System: QMP, QAPP, SOPs, day to day communication, IT

➤ Analyze the QA/QC data - What do the internal reports say?
  ➤ What went well, where did we have problems?
  ➤ It's not just data, it's people, resources and equipment

➤ What's on the horizon.. More work, fewer people?

Collect and Analyze Data

➤ Review all QA Reports
   ➤ Did procedures meet CFR requirements?
   ➤ Did the aggregated QC data meet DQOs?
   ➤ What fell out of AMP 600 and 256 reports?

➤ Do box and whisker plots & control charts show some sites drifting, even if data meet requirements?

➤ Do the more imprecise or biased sites have a particular monitor type, gas standard, calibrator, or are the responsibility of one operator?

➤ What did external/internal TSAs find... could the findings affect data quality?

Analyze the data:
Example of data verification by field technician

Same data set reviewed by independent QA staff

The hours in blue were invalidated due to shelter temperature exceedances (AE)

Analyzing the Data for Improvement

Points to potential weaknesses in the quality system:

- Not following SOP or lack of detail in SOP
- Unaware of QA requirements in QAPP/SOP
- Lack of training or need of better training
- Need for better personnel
- Need for better equipment
- All the above?

This issue should prompt corrective measures and improvements in the Quality System

Analyzing Precision and Bias

➤ Is it an old instrument?

➤ Is it a new Field Technician?

➤ Is the QC standard contaminated?

➤ When was it calibrated; how often?

➤ Why did it take so long to find out?

➤ Decide if tightening QC helps

What's with this site?

CV	Bias	Nobs	Method
5.45	-8.87	32	087
4.97	+5.59	24	087
4.72	+5.43	26	087
5.64	+/-4.54	25	047
1.85	-3.1	256	087
1.69	+1.76	361	087
2.79	+/-2.39	358	087
2.21	-3.79	230	087
3.40	+/-2.62	350	087
1.35	-1.19	347	087
1.75	+1.92	359	087
2.39	-2.64	255	087
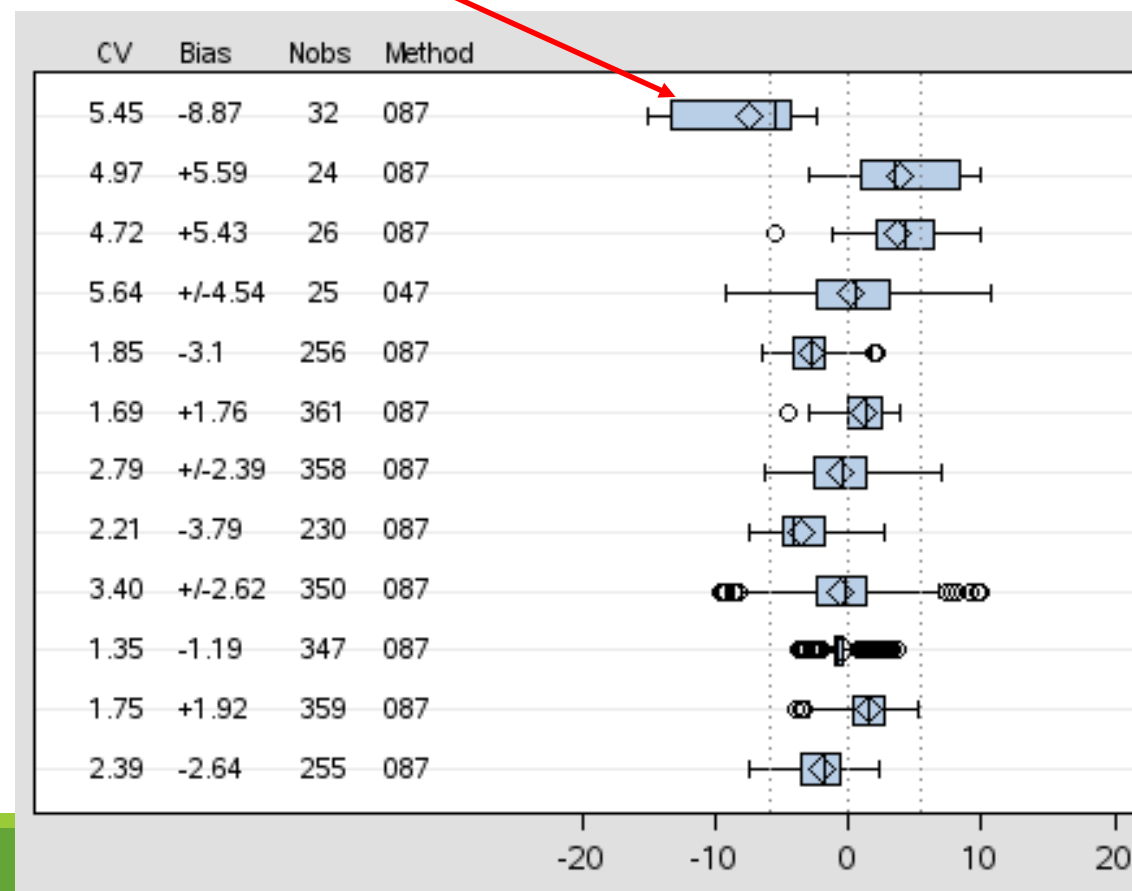
Improvement Actions

- DQI improvements

- Efficiency improvement

- Equipment updates

- Personnel
  - More
  - Different technical expertise
  - More/better training

- Procedural updates

"Putting out fires is not improvement. Finding a point out of control, finding the special cause and removing it, is only putting the process back where it was in the first place. It is not improvement of the process. You are in a hotel . You hear someone yell fire. He runs for the fire extinguisher and pulls the alarm to call the fire department. We all get out. Extinguishing the fire does not improve the hotel. That is not improvement of quality. That is putting out fires."
-Deming, 2000

Determine Areas for Improvement

➢ **Determine root causes** of problems first
  ➢ Problem won't get solved if people don't care

➢ **Prioritize** the most important problems to solve

➢ Be careful about overload – Don't try to solve all problems at once

➢ Get Improvement Team <u>and</u> management agreement/commitment
  ➢ The problem and
  ➢ The time and resources to solve it

Set Goals for Improving Quality

1. State the goals clearly

2. Include numerical goals

3. Set "stretch goals": a goal to reach within a certain time period

4. Avoid "goal drift": Review agreed upon goals at team meeting to avoid drifting or changing the goal

5. Be prepared to refocus the goal: Working on a smaller facet of the goal to achieve overall goal

Communicate Results

➢Track progress on improvements
  ➢Are we meeting implementation timelines?

➢Question personnel affected by improvement
  ➢Is it working?
  ➢It it a burden?
  ➢Is there a better way?

➢Upon completion of improvement did it have the desired effect?

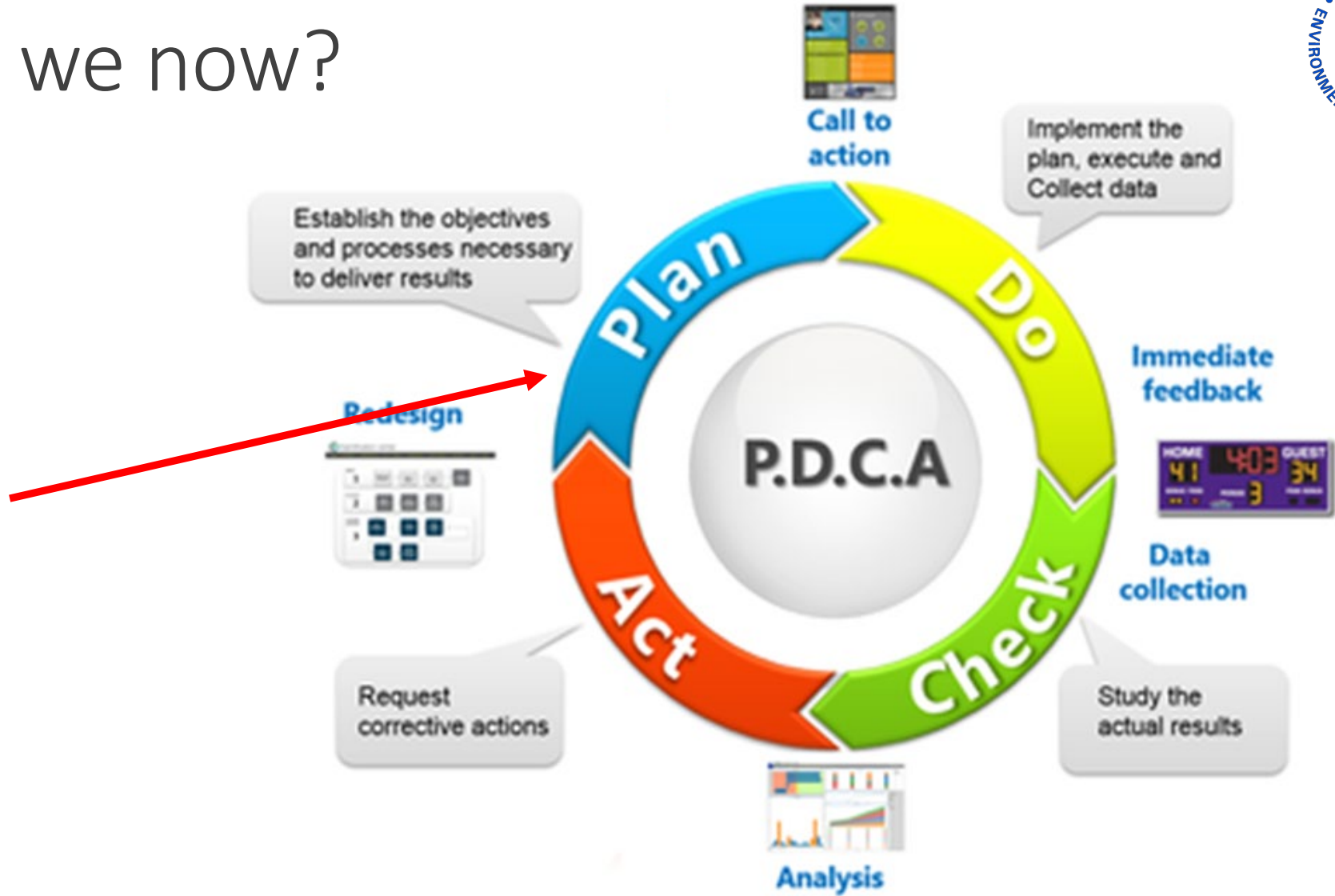➢Use of Corrective Action Reports

➢Include results in Annual QA Report

Commit to Ongoing Evaluation

➢ Review QA improvement progress

➢ Invite internal/external audits

➢ Solicit feedback from staff and management

Where are we now?

You are here, starting the next cycle of continuous improvement

Questions?