



QUALITY ASSURANCE Measuring for Success

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What is Quality



- “Quality” is delivering what is expected.
- Derived from concepts developed in the 1930s and built around the theory of process stability and control (SPC).
- Includes defining expectations, designing product/service that meets expectations, measuring activities within processes for adherence to requirements and making changes to improve the process.
- Process variation impacts output. Can be positive or negative.
- Today a “lack of quality” is seen as a risk
 - *known as Operational Risk.*

Understanding Quality



- Must know who your customers are and what they expect as well as what happens when the expectations are not met.
- Process must be designed to meet those expectations.
- Process activities should have relationship to output.
- QA measures how frequently process activities are or are not followed.
- Relate process failures to risk and design improvements to control or eliminate risks.

The Quality Control Plan



- A Quality Control Plan is critical for success.
 - Its primary function is to present the method for measuring and analyzing the organization's processes.
 - To create credibility it must adhere to the principals of quality management.
 - Must have its product defined to meet customer expectations
 - Must have sound process for review and analysis
 - Must have valid reporting results
 - Must focus on continuous improvement

Defining Quality



- Define quality
 - What are the process(es) you are reviewing?
 - Is it more than one?
 - Are they related?
 - Is there more than one customer for the output of the process?
 - What is the expected output of that process?
 - Is it the same for all customers?
 - Do any processes cause conflict between expected outputs?
 - How are conflicts resolved?
 - Mortgage loans- between credit guidelines and customer service

Defining Quality



➤ Needs to be defined in terms of observable output

Is the expected output a “satisfied customer”?

If so, how is “satisfied” defined?

Is the output, the receipt of a document?

If so, what must the document contain?

Are there any timeframes or notifications associated with those timeframes?

The Program Elements



- Basic Steps
 - Identifying the population and sample
 - Conducting the review
 - The analysis process
 - The reporting process
 - The improvement process

SAMPLING



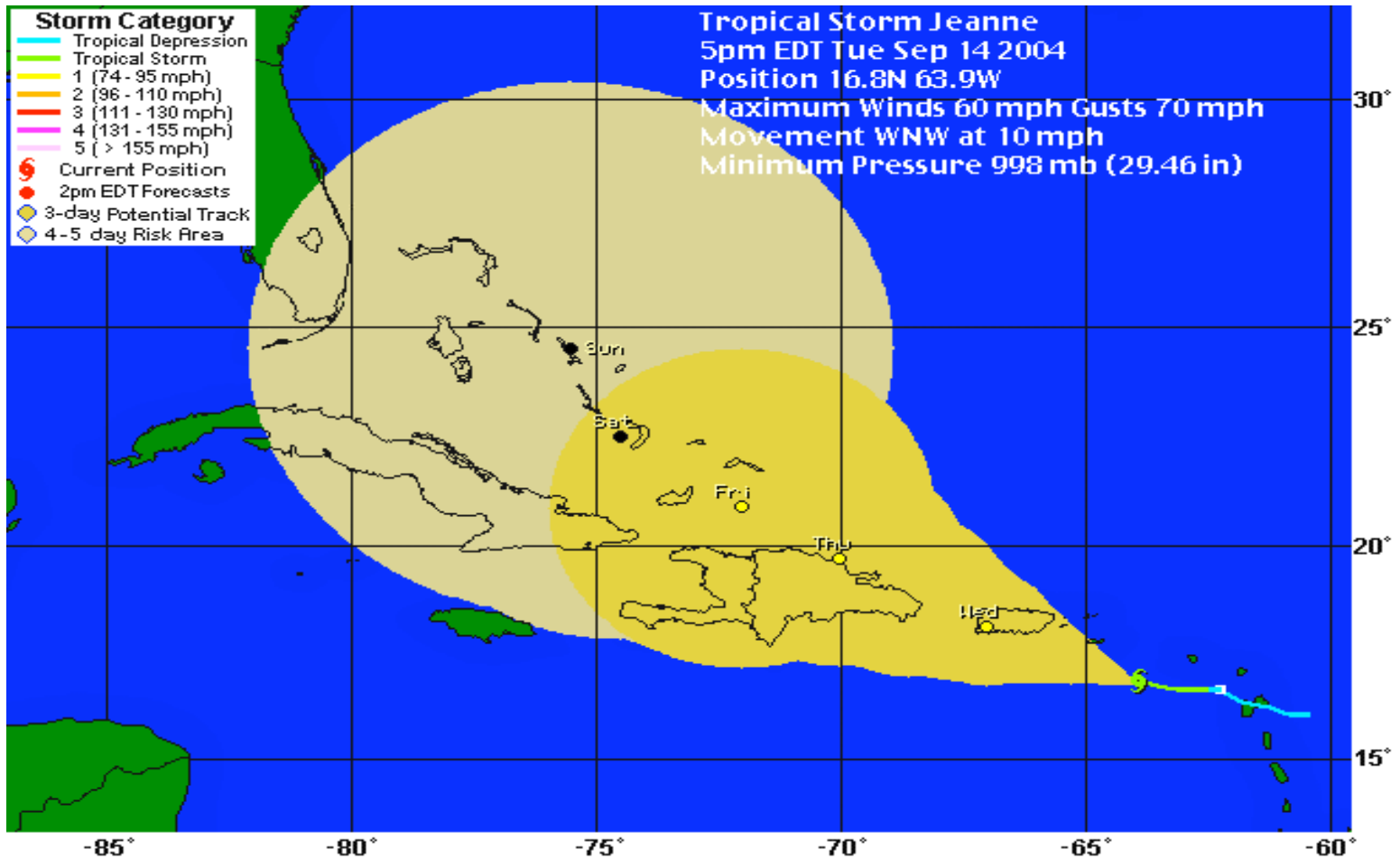
- The population must be identified before sampling.
- Two types of sampling
 - Descriptive
 - Inferential
- Statistical sampling is valid because it allows for establishing the confidence interval.
 - It tells us what will be found in the entire population.
 - Limited by the precision (sampling error).
- Confidence interval includes confidence level and precision.
 - Typically is 95% confidence
 - Precision is typically 2%.
- Does the size of the sample matter?
 - A reduction in size of the sample may impact precision.
 - An increase in sample size may tighten the precision.

Examples



- Presidential Election Polls
 - Sample of “*likely*” voters.
 - Sample size is typically around 1,000.
 - Results are inferred to the population of the entire country for those individual’s likely to vote.
 - Always give a margin of error expressed as +/- so many percentage points.
 - May result is a “Statistical Tie”.

Statistical Validity



The Review Process



- Review process or processes and identify the *RISK* points.
 - Points in process which impact the overall output.
 - Ex. Have accurate income information.
- Determine what types of process variations could occur.
 - Are there turn time issues, accuracy issues, completeness issues.
 - The issues types should be exclusive.
 - Develop a coding system for tracking
- Create the questions to determine if the process was followed or a variation occurred.
- Establish what type of process variation occurred.
- Document variation.
- Determine if variation(s) resulted in an unacceptable outcome.
 - An overall level of acceptability must be established. Did the output meet expectations.

The Analysis Process



- Establish overall error rate
 - Number of reviews receiving “non-quality” rating divided by total number reviewed.
- Find the **frequency** of the various process variations
 - Total number of times process variation was found in both the acceptable and non-acceptable reviews.
- Identify those associated with the errors.
 - Compare percentage for each exception in the total sample vs. non-quality. Those exceptions that have a higher percentage in the non-quality than the sample are the **severe** issues.
- Conduct additional reviews if necessary to validate findings
- Utilize different types of quality analysis tools
 - Cause and effect diagram
 - Pareto Analysis
- Draw conclusions about process failures.

The Reporting Process



- Who is the Reader (QA Customer); What do they want from the report.
 - Managers typically want information, not data
- Basics segments of a report.
 - Executive summary
 - Methodology
 - Findings
 - Conclusions
 - Recommendations
- Making the report more readable
 - Visuals
 - Graphs
- Making the report more credible.
 - “Learning cannot be based on experience alone. It requires comparisons of results to a prediction or plan.”

The Reporting Process



- Don'ts
 - Don't be a DRIP- Data Rich, but Information Poor
 - Don't imply inferences that you have not validated.
 - Don't make recommendations that will conflict with the organization's business plan.
 - Don't make it too long.
 - Don't identify specific individuals in a report that will be widely distributed.

The Reporting Process



Things to consider:

- Recommendations should include opportunities for improvement.
 - The COST associated with the Poor Quality should be established.
- If process is performing as it was designed, no improvements may be necessary.
- A cost/benefit analysis should always be conducted if major changes are recommended.
- Outline the risks for management.

Process Improvement



- Identify the capability of the process.
 - Is the process capable of improving?
 - Must it be redesigned.
- Measurement tools and theories
 - Reengineering
 - Process is too bad to fix, must be redone.
 - Streamlining
 - Use of technology
 - Six Sigma
 - Every process has random variation. Are variations systemic or random.
 - Random variations cannot be controlled
 - Establish control limits that identify when issues cause process to be out of control.