

Papp: Quality Management in the Imaging Sciences, 5th Edition

Chapter 2: Quality Management Tools and Procedures

Instructor's Manual

Most of the material in Chapter 2 (except for the radiation safety program) is not found in the content specifications for the entry-level radiography examination offered by the ARRT. However, all radiographers should have a basic knowledge of this material to provide better care for their patients and to enable them to be more effective employees of their healthcare organization. Therefore, I recommend that all radiography programs spend some time on the material in this chapter, especially the section dealing with the radiation safety program, because this is part of the content specifications for the radiography examination. It also should serve as a useful review for second-year and baccalaureate program students.

Students enrolled in a baccalaureate program should spend additional time on the sections dealing with information analysis, miscellaneous administrative responsibilities, and risk management, because they are essential for those who anticipate holding a future management position. The instructor should allow 2 to 4 hours of lecture time (especially if group discussions are incorporated) to cover this material adequately. Appropriate lab experiments for this chapter can be found on the Evolve website.

OBJECTIVES

At the completion of this chapter, the reader should be able to do the following:

- Describe the four main components of a quality management program.
- List and define the basic terms used in statistical analysis.
- Discuss the seven types of graphs and charts used to organize and present data in total quality management.
- List the basic administrative responsibilities of a quality management program.
- Describe the various components of a risk management program.
- Describe the radiation safety protocols for patients and radiation personnel.

OUTLINE

Information Analysis

Terminology Used in Statistical Analysis

Information Analysis Tools

Miscellaneous Administrative Responsibilities

Threshold of Acceptability

Communication Network

Patient Comfort

Personnel Performance

Record-Keeping System

Corrective Action

Risk Management

Risk Analysis

Policies and Procedures

Radiation Safety Program

Patient Radiation Protection
 Radiographic Examinations
 Fluoroscopic Examinations
Visitor Protection
Personnel Protection
 Time
 Distance
 Shielding
Summary

QUESTIONS FOR ANALYSIS AND CRITICAL THINKING

1. Explain the difference between mean, median, and mode.
2. State the five methods of reducing patient exposure during radiographic procedures.
3. What are the main principles of radiation protection for personnel?
4. What is the annual effective dose equivalent for radiation workers?
5. Find a process that you use frequently in your diagnostic imaging department and create a flowchart that outlines this process.
6. What is the first step in developing risk management policies and procedures for diagnostic imaging departments?
7. List the key concepts of an effective risk management program.
8. What is the most effective method of reducing patient exposure?
9. What is the dose area product for a 10- × 10-cm area that receives an exposure of 2 R?
10. What is the maximum effective dose equivalent limit for radiography students younger than 18 years old?

CHAPTER REVIEW QUESTIONS

1. Which of the following terms best describes the entire set or group of items that is being measured?
 - a. Population
 - b. Sample
 - c. Frequency
 - d. Central tendency
2. Which of the following terms best describes the average set of observations?
 - a. Mean
 - b. Median
 - c. Mode
 - d. Variance
3. Which of the following terms best describes variables that have only two values or choices?
 - a. Continuous variables
 - b. Dichotomous variables
 - c. Stochastic variables
 - d. Statistical variables
4. A cause-and-effect diagram is also known as which of the following?

- a. Fishbone chart
 - b. Pareto chart
 - c. Trend chart
 - d. Scatter plot
5. Which of the following terms best describes a chart that pictorially demonstrates whether key indicators are increasing or decreasing over a given period of time?
- a. Histogram
 - b. Pareto chart
 - c. Trend chart
 - d. Scatter plot
6. The distribution of continuous data can best be demonstrated by the use of which of the following?
- a. Histograms
 - b. Control charts
 - c. Scatter diagrams
 - d. Pareto charts
7. Which of the following is not a tool for data presentation?
- a. Control chart
 - b. Brainstorming
 - c. Pareto chart
 - d. Cause-and-effect diagram
8. The unit of measure used to express the dose equivalent to occupational workers is which of the following?
- a. Roentgen
 - b. Rad
 - c. Rem
 - d. Relative biologic effectiveness (RBE)
9. Which of the following terms best describes the square of the standard deviation?
- a. Range
 - b. Mode
 - c. Variance
 - d. Frequency
10. Which of the following factors does not affect the patient dose during diagnostic radiography?
- a. Inherent filtration
 - b. Added filtration
 - c. Focal spot size
 - d. Source-to-image distance (SID)

ANSWERS TO CHAPTER REVIEW QUESTIONS

1. a
2. a
3. b
4. a
5. c
6. a
7. b
8. c
9. c
10. c