QUAL 370: Resource Management and Quality Assurance

Learning Outcomes:

Describe the principles of resource management

Explain activities that support a Quality Assurance (QA) Program

MRT Program

Introduction

- When it comes to resource management, it is important for a technologist to understand a few basic principles about running a department, this can help to improve the efficiency of a department
- This includes:
  - Budgets, workflow, inventory, scheduling and resources

Capital Budgets

- For long term financing
- Larger purchases such as major equipment or facilities
  - Typically they are not significantly 'consumed', although may depreciate in value over time
- For example: new x-ray room, renovations, South Campus Hospital (entire facility)

Operating Budgets

- Detailed estimate based on forecasted costs for a given period (usually about a year)
- Short term budget
- Smaller purchases needed for day by day
  - Often the 'consumable' products
  - For example: gloves, film, chemicals for processor, paper for printers, staff

Inventory and Resources

- Front line worker – we see it all
  - Resources need to be prioritized based on the factors that will affect workflow
- We need to monitor supplies and materials
  - E.g. Sterile trays, sterile gloves, contrast media, laundry
- These are all things that need to be ordered and stocked – if not, efficiency decreases
  - Often becomes part of startup/shutdown routine for department
- Resources like staffing are important
  - How is morale affected if one area is constantly overstaffed and another is constantly understaffed?
  - How does this affect the department?
  - Brand new technologists, experienced technologists, will this make a difference to workflow?

Workflow of a Department

- Think of what you may have experienced/observed while in practicum
- Many factors affect this:
  - Staffing
  - Level of training
  - Organization of department
  - Scheduling
  - PM-preventative maintenance
  - Equipment
  - Team work
  - Communication
  - Weather

Types of Examinations

- General Radiography
- Fluoroscopy
- Computed Tomography
- Angiography
- Each type of exam will have a different budget and cost
  - Required equipment/materials
  - Staff (radiologist, technologist, nurses, etc)
  - Time
  - Resources
    - These are all considerations that need to be addressed with scheduling of examinations

Scheduling

- Important for the process of streamlining
- Dependent on types of exams
  - E.g. contrast exams, general exams
- Dependent on patient type
  - Outpatient, inpatient, ICU patient, pediatric patient, cardiac patient
- Staffing
  - Huge effect on patient scheduling
  - Depends on type of facility and patient types
  - Without staff, patients cannot be scheduled

Quality Assurance (QA)

- QA in radiology is defined by the SC 35 as:
  - the planned and organized actions necessary to provide adequate confidence that the x-ray equipment and its related components reliably produce diagnostic information of satisfactory quality with minimum doses to patients and staff
  - More simply put:
    - Optimal image quality of diagnostic images
    - Accurate and timely diagnosis
    - ALARA

Quality Assurance Program

- QA program must examine all practices of the facility
  - Information Quality
  - Clinical Efficiency
  - Patient Dose

  - Includes:
    - QC procedures to monitor and test equipment and components
    - Administrative procedures to ensure that monitoring, evaluation and corrective actions are properly performed

Goals of the QA program

- Primary goal of a QA program is to ensure accurate and timely diagnosis at the minimum dose to the patient and staff.
- All staff in the facility must understand the goals of the program, as full participation is essential
- Critical for images to be of optimal quality
  - Consequences of poor quality may be incorrect or missed diagnosis, unnecessary repeats, increased dose and increased cost

Cost vs Benefit

- There are some upfront costs with implementation of a QA program – both monetary and time from staff
- Costs
  - staff to perform new duties, testing equipment, test images, external organizations (may need physicist or service personnel)
- Benefits
  - decreased repeats will help to reduce workload on equipment and consumption of supplies, patient wait times and care will be improved

Implementation

- To implement a QA program:
  - Establish quality control procedures
    - Four major steps
      - Equipment must be functioning properly
      - Baseline performance values must be established
      - Reference test images must be available for comparison of QC test images
      - Result evaluation – acceptable limits and corrective actions must be determined
  - Administrative methodology to ensure monitoring, evaluation and corrective actions are properly performed and documented
    - Responsibilities, record keeping, testing frequency, evaluation of data and limits of acceptability
    - Policies and guidelines must be developed

Acceptance Testing

- A process to verify compliance with the performance specifications of the equipment
- Usually performed by a medical physicist or individual trained in that particular type of equipment
- Results are used to set baseline values and acceptance limits on the operational performance of the equipment
  - These values are essential, as all future test results will be compared to the acceptance values

Readings

- Papp 6th Edition
  - Pp. 1 - 41
- Safety Code 35
  - Section C: Quality Assurance Program
  - Pp. 38 - 41