

## **Q.A. Collectible**

*Sponsored by CRCPD's Committee on Quality Assurance  
In Diagnostic X-Ray (H-7)*

### **Repeat Analysis**

Every facility, regardless of its size, should account for each x-ray film it uses. A program to analyze film use (sometimes called a Repeat or Reject Analysis Program) provides a framework to manage film use, monitor equipment performance, and measure the effectiveness of the facility's quality assurance program, and most importantly control patient dose. All films not read by the health care practitioner or that are repeated for some reason should be counted in this analysis. A Film Use Worksheet is provided for use in analyzing the reasons for repeat x-rays. On the worksheet, categories are included for patient motion, positioning, etc. Other important categories that need to be analyzed but are sometimes omitted include non-medical films, QC films, and scout films. Analyzing all aspects of film use is important for a facility because it may identify specific problem areas.

Film use analysis separates non-diagnostic films into two basic areas: repeat films and all other films. REPEAT FILM is defined as a film that was not acceptable and required an additional exposure to the patient. Even if the film is kept (not put in the reject bin), it should be counted as a repeat if it resulted in additional exposure to the patient. ALL OTHER FILMS includes test (QC) films, clear films, and any others that do not fit the definition of "repeat film."

#### **General Procedure for Film Radiography:**

Collect and save all films that are not sent to the health care practitioner for reading. Make a note of the films that were repeated, but both films were sent through to the practitioner for reading (these are still considered repeats).

After a period of time (recommend a minimal sample size of 250 patients or quarterly) analyze all of the films and record the reason that each film was placed in the collection box. The worksheet has several categories listed that are important in the management of an x-ray facility. For each film, place a mark in the box next to the appropriate cause. Record the total number of films that are checked for each category on the worksheet.

It is also important to record the total number of films used by the facility during the time period in order to determine total film usage.

Add up rows 1-10 on the worksheet to determine the total number of repeat or reject films and rows 11-14 to determine the total number of the other films. Also add these two numbers to

determine the total number of non-diagnostic films. Determine the percentage of non-diagnostic films for each category.

### **Digital Radiography:**

Digital Radiography (DR/CR/picture archiving and communication systems [PACS]) may reduce repeated exposures, but they do not eliminate them. A repeat analysis is just as important in these systems as it is in analog systems. The methodology must be changed as there usually is not a "film" to be analyzed. Some systems may have a repeat exposure analysis capability built into the software. If so, one should follow the manufacturer's suggested procedures. Lacking this, a tally sheet may be maintained to record repeated exposures as they occur and the reason for the repeat. Again, periodic analysis of repeat exposures can be made on the attached Film Use Worksheet. The form may be modified with different causes, as digital systems have some unique artifacts and several of the "causes" on the form will not be present in a digital system.

### **Analysis of Results:**

In order for this program to be of any value to the facility, the results must be reviewed PERIODICALLY! The overall rate should be less than 10%. The percentage of films in each category also needs to be reviewed to determine if a particular problem exists. If so, steps should be taken to correct that problem. As conditions improve, the overall percentages should decrease.

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## Film Use Worksheet

Time Period: From: \_\_\_\_\_ To: \_\_\_\_\_ Total Films Used: \_\_\_\_\_

Cause	Number of Films in Each Category	Total Number	Percentage
1. Positioning			
2. Patient Motion			
3. Light Film			
4. Dark Film			
5. Black Film			
6. Static			
7. Fog – Darkroom			
8. Fog – Cassette			
9. Mechanical			
10. Good Film			
11. Other			

Total Number of Repeat Films: \_\_\_\_\_

Percentage: \_\_\_\_\_

Cause	Number of Films in Each Category	Total Number	Percentage
12. Clear Film			
13. QC Film			
14. Other			

Total Number of Other Films: \_\_\_\_\_

Percentage: \_\_\_\_\_

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Total Number of All Categories: \_\_\_\_\_

Percentage: \_\_\_\_\_

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