# Films Retake and Reject Analysis for Conventional Radiography in Some Iranian main Hospitals

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# Introduction



- The employment of reject analysis in the evaluation of image quality has quite a long history. It is an important component of quality assurance programs .The role of reject analysis in providing relevant information that would help achieve sound reduction in radiation exposure and cost as well as

develop acceptable image quality was explored .

# Purpose

- To evaluate image quality
- To measure the reject an retake films rate in conventional radiology and monitor over time.
- To find major reasons for rejects and hence reduce the reject rate
- To compare reject and retake rates after and before
- Quality Control (QC)

# Materials and Methods



- 4 hospitals and 6 routine examinations (chest-PA, abdomen LS-AP, LS-Lat, Skull, Pelvic) were considered for collecting data
- 50 radiographs were selected in each radiographic examination or carried out for 2 weeks

This survey was done in 3 main steps:

***Step (1)***: evaluation of base-line data on film retake (at radiographer level), and image quality (by radiologist),

***Step (2)***: performing of Quality Control (QC) tests and doing corrective actions (if required),

***Step (3)***: Repeat of stage (1) in order to evaluate QC and corrective actions effects on improving the quality of films and reducing the number of reject and retake film

# Materials and Methods (cont,)



## *Criteria*

-Retake and reject of radiographs were done according to radiographer's experiment and view,

- Image quality was surveyed according to EN (European National) Criteria in three grades as A, B, C.

Three grades definition:

A: radiograph clearly accepted without any remarks

B: radiograph accepted with some remarks, and

C: radiograph should be rejected

# Results



**Table1**

**The results of Reject analysis at the level of radiographer before and after QC**

| | Before QC | After QC |
|---|---|---|
| Total number of films used | **353** | **254** |
| Number of films rejected by radiographer | **62** | **29** |
| Percentage of films rejected by radiographer | **17.56** | **11.43** |

# Results(cont,)



**Table 2**

**The results of grading films by radiologist before and after QC**

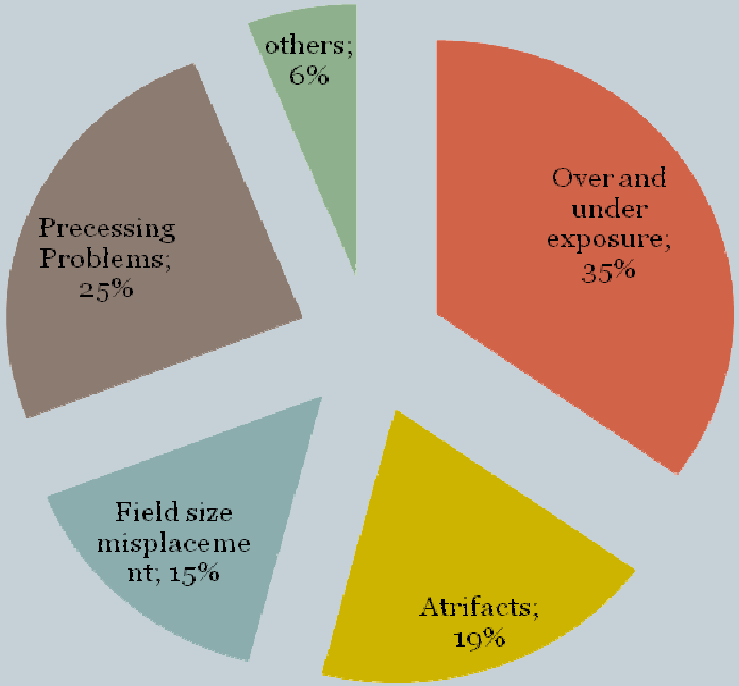
| | Number (before QC) | Percentage (before QC) | Number (after QC) | Percentage (after QC) |
|---|---|---|---|---|
| A graded films | **148** | **50.86%** | **137** | **60.88%** |
| B graded films | **99** | **34.02%** | **68** | **30.23%** |
| C graded films | **44** | **15.12%** | **20** | **8.89%** |
| total | **291** | **100%** | **225** | **100%** |

- The image quality improvement was achieved up to 10%.

# Results(cont,)

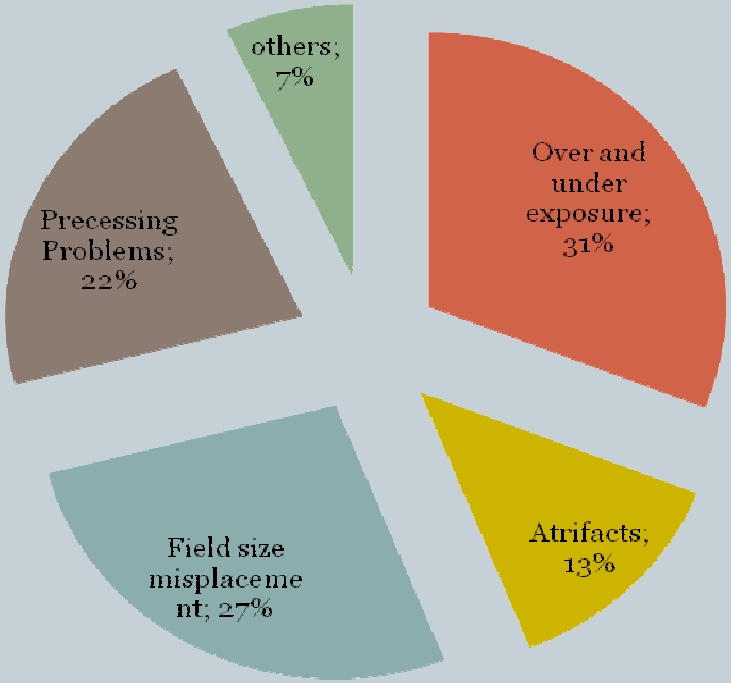


## The percentage of each causes before QC




**A grade films 50.8%**

## The percentage of each causes after QC




**A grade films 60.8%**

# Conclusion



- Over and under exposure, artifacts, field size misplacement and the processing problems have the enormous share of producing deficiencies, respectively.
- Corrective actions have a positive effect on image quality.