

Purpose:

To evaluate the effectiveness of our CR mammography QA program within the recommendations of the manufacturers' required testing.

Methods:

The Contrast Noise Ratio (CNR) and S value of each of three mammography units from different manufactures attached to a single CR reader is collected weekly by the technologist. The tests are performed according to the Fuji CR for Mammography Quality Control Manual 3rd edition. Although the CNR test is a required weekly test, S value is not. S value numbers were collected from the required weekly mammographic phantom test. Results over a period of two years were collected establish the trend of the imaging system.

Results:

Even though all of the CNR values are within the manufacturer's limits, when the data over two years is analyzed a definite downward trend is obvious. When viewed on a monthly basis, the downward CNR trend is unnoticeable. At one point, one of the units underwent a mAs adjustment (raising it to be consistent with the other units), which was noticeable in the S value data, but did not affect the downward trend of the CNR

Conclusions:

Our measurements show that short term fluctuations in the CNR are too small to be noticed or to affect image quality, or to exceed the manufacturer's suggested action limits. If the data were not compared over the whole collection period, this gradual decline in the CNR from the units would have gone unnoticed. We suggest that CNR measurements at 3 month intervals will be sufficient to detect any gradual deterioration in image quality before it has a significant impact. We do not agree with the CR manufacturer recommendation that a new baseline be established after major service or replacement events of the mammographic units, since re-establishing a baseline masks any long term drift in image quality.