



# **Radiation Information**

## **Radiobiology**

Cardiac Catheterisation with Angiography and Electro-physiology can deliver the greatest dose of x-ray radiation of any of the diagnostic medical procedures.

The physicians and techs in these specialties receive low levels of scattered radiation over a period of months to decades. The physicians performing these procedures should be familiar with the potential genetic and somatic effects of radiation and the products you provide to reduce or eliminate x-ray exposure.

The use of x-rays in the Cathlab and EP Lab is only deemed acceptable due to the patient benefits derived from these procedures which are considered to outweigh the risks to the physician.

Personnel exposures result from the primary x-ray beam being scattered by the patient's skeletal structure. The chest, thyroid and eyes of the doctors and nurses receive most of the scattered radiation.

## **Alara**

As Low As Reasonably Achievable

Occupational exposure should be AS LOW AS REASONABLY ACHIEVABLE.

Three Principles of Radiation Protection

- . ••Increase distance from the source.
- . ••Reduce exposure time.
- . ••WEAR SHIELDING AND PROTECTIVE PRODUCTS.

## **How Radiation Affects the Eye**

Relatively high doses of radiation can damage the conjunctiva, iris, sclera, and blood vessels of the retina. The lens, however, is the critical site, for it may sustain irreversible damage from a relatively low dose of radiation.

The lens, or focusing part of the eye, is where cataracts are formed.

Radiation-induced cataracts are distinct from naturally occurring cataracts in that they form in the posterior (back) pole of the lens.

## **Radiation Induced Cataracts**

The sensitivity of the lens to radiation is felt to be due to the failure of normal cell replacement.

The cell damage from low dose radiation consists of cell death and abnormal cell reproduction which produces mutated cells.

The normal metabolism of the eye cannot remove these mutated radiation damaged cells.

This results in a premature clouding of the crystalline lens causing reduced vision which can be corrected only when the cataract matures (over time) and is removed.

## **Radiation Protective Eyewear**

With the newly designed frames and ultra light lenses, protective leaded eyewear is now used by approximately 95% of the physicians and staff in Cardiac Cath and EP labs, and increasingly for urological procedures, interventional radiology, pain management and orthopaedic surgery.

Today, with the increased selection of styles and the ability to customize the eyewear with prescriptions, there is radiation protective eyewear to meet the needs of any physician or medical professional.