

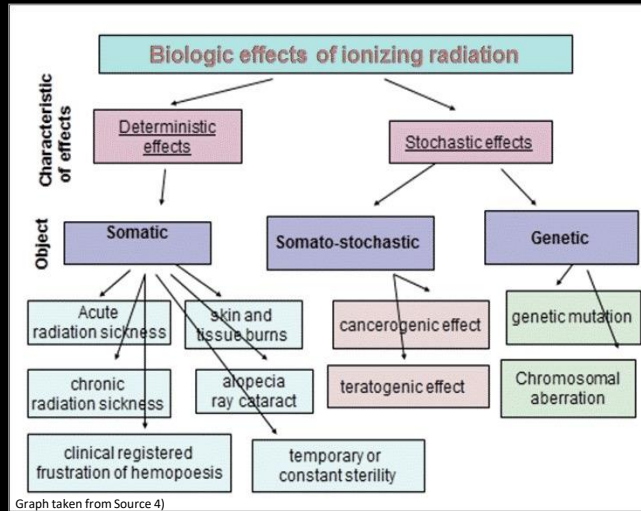
# Trends In Occupational Radiation Exposure

## Introduction

As radiographers, and individuals who risk exposure to radiation as an occupation, how have our exposure trends been over the years. Have they increased/decreased? Where does our source of exposure come from? How do we protect/monitor ourselves and what are the risks?

## Source of Operator Radiation

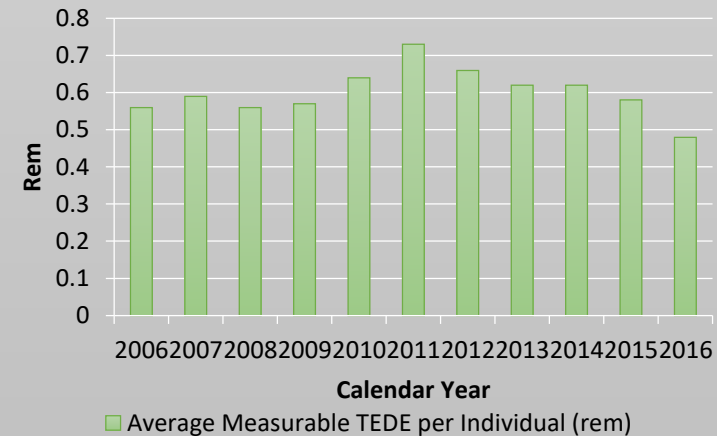
Radiographers are exposed to a secondary source of radiation known as scatter radiation. Scatter radiation is radiation that spreads out in different directions from the primary radiation beam when it interacts with a substance, such as body tissue. (NCI)



## Effective Dose Limits (NRC)

Annual	50 mSv (5 rem)
Cumulative	10 mSv (1 rem) x age

## Total Effective Dose Equivalent Trends In Radiographers



\*According to the Office of Nuclear Regulatory Research, Forty-Ninth Annual Report

## Radiation Protection

**Cardinal Principles** – Time (exposure is directly proportional with time), Distance (doubling the distance from the source will decrease the exposure by four), Shielding (barriers, protective apparel, etc.) (Sackett)  
**Collimation** – tight collimation reduces patient total entrance skin exposure and reduces the amount of scattered radiation (Sackett)  
**Technical Factors** – appropriate technical factors can reduce time, dose, and repeats (Sackett)

## Radiation Monitoring

Dosimeters are worn in order to maintain a record of the amount of exposure an individual receives. Dosimeters don't offer protection, only monitoring. Dose reports are maintained indefinitely. (Sackett)

## Conclusion

Overall, throughout the years, the average total effective dose equivalent trends in radiographers nationwide have decreased since 2011. Leading up to 2011 the exposure rates were increasing.

## Sources

- <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/scatter-radiation>
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- <http://issphysics.com/wp-content/uploads/2012/11/Radiation-Safety-Issues-for-Radiologic-Technologists.pdf>
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