The Medical University of South Carolina endures to maintain the radiation exposure from radioactive materials and radiation generating equipment As Low As Reasonably Achievable. The ALARA policy is managed through the use of good practices involving the use of radiation generating equipment by reducing fluoro times, increasing available shielding (where possible), and increasing distance when possible. Nurses and technical staff within the fluoroscopic suite typically do not exceed the 2000 mR limit established by MUSC for issuing an under apron badge and instituting the Double Badge Program and the EDE 1 Calculation. The Effective Dose Equivalent calculation program was developed to reflect a truer dose exposure for those physicians and employees that are typically exposed to higher doses of radiation due to the nature of their duties in a fluoroscopic procedure.

The implementation of the Double Badge program and EDE calculation is dependent upon a physician or employee exceeding 3 Level II exposures (as indicated in the MUSC ALARA Program) or at the discretion of the RSO over the course of a calendar year as follows;

1. The RSO or the Assistant RSO will review and evaluate the dosimetry badge reports on a monthly basis and will initial each. The Assistant RSO will report any unusual or high readings to the RSO.
2. Based on the dosimetry history and any “METER” activities the Radiation Safety Officer (RSO) will determine if an individual should be placed on the Double Badge Program.
3. During the course of the year individuals that are likely to receive 3 level II or above measured exposures as reported on the collar badge will be observed to see if secondary methods of attenuation are available or practical.
4. The implementation of the double badge program is solely at the discretion of SC DHEC.
5. At no time will an individual that has been deemed in need of being placed into the EDE Program be issued a second badge unless an approval has been received by SC DHEC to place the individual(s) into that program.
6. If an employee’s collar badge report indicates 3 consecutive Level II exposures (as outlined in the MUSC ALARA Program) during the calendar year the RSO will make the determination regarding placing the individual in the Double Badge Program and initiation of the EDE Calculations.
7. Upon determination of the need to place an individual in the Double Badge program, the RSO will gather all pertinent and necessary information to be submitted to SC DHEC for approval per RHB 3.12.3.1.3.
   a. Information that must be sent will include but not limited to
      i. Current dosimetry history for most recent exposure
ii. Dosimetry History for past year if applicable
iii. Signed Double Badge policy agreement
iv. METER Reports as necessary
v. Any correspondence with the individual regarding increased exposure reports.

b. Other information as deemed necessary by SC DHEC

8. The individual does not apply for a second badge (waist badge) but the RSO will direct the dosimetry coordinator to issue a second badge upon approval from SC DHEC because that individual could possibly reach or exceed the ALARA limit of 5000 mR.

9. The individual that is issued a second badge will be required to have reviewed and signed the double badge policy documents prior to being issued (provided) the badge.

10. When the Double Badge Policy is implemented the EDE 1 Calculation will actually be implemented by the dosimetry vendor.

11. The wearer will wear the collar badge on the lapel or edge of the apron and the second (waist) badge at the waist or torso of the body.

12. The EDE 1 Calculation takes into account a set percentage calculation of the outer badge reading and inner badge reading as follows;
   i. EDE 1 two dosimeters; one dosimeter worn at waist level under the apron and one dosimeter worn at collar level outside the lead apron. 1.5*(waist DDE) +0.04 *(Collar DDE) = Assigned Deep Dose Equivalent.
   ii. The EDE 2 Calculation is designed to calculate the dose based on a single badge being worn on the outside of the collar and can be implemented upon approval of SCDHEC if necessary

13. The assigned double badge wearer will have his/her dosimetry records reviewed annually to insure that he/she is still required to participate in the double badge program.

14. The RSO will determine, based on current dosimetry records, past history, METER reports (if applicable) and current work environment, whether an individual will remain in the Double Badge Program.

15. Double Badge participants will be observed periodically to insure proper badge placement, dosimetry use, and use of Proper Protective Equipment (PPE’s).

16. If a double Badge Participant is found to be non-compliant, the individual will be warned/reprimanded prior to being removed from the program.

17. If a participant is removed from the program their dosimetry record will revert to the single badge program and calculations.

18. Under such conditions where an individual has failed to comply with the double badge requirements and is likely to exceed the 5000 mR limit that individual will have all privileges pertaining to the use or operation of radiation generating equipment revoked until such time that the new calendar year has arrived.

19. Under certain circumstances a variance request to SCDHEC may be sent with documentation regarding an individual’s exposure that indicates that the actual
whole body dose is contrary to the reported collar badge measurement and a need to have the dose recalculated using the EDE2 calculation may be requested.