

# Personnel Radiation Monitoring Device at the University of Miami

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## Introduction

The United States Nuclear Regulatory Commission (NRC) recognizes Florida as an Agreement State. To comply with regulatory requirements that ensure occupational radiation doses are kept as low as reasonably achievable.

Dosimeters, commonly known as “badges,” are assigns to individuals who are potentially exposed to radiation, as required by regulation.

While dosimeters do not provide protection from radiation, they help determine whether wearers are taking appropriate measures to minimize unnecessary radiation exposure.

The **Radiation Control Center (RCC) 305-243-6369** at the University of Miami, led by **Dr. Maxwell Amurao**, who is the **Radiation Safety Officer and Executive Director**, monitors the radiation exposure of individuals working with radioactive materials or radiation-generating machines. Additionally, the center maintains permanent records of all occupational radiation doses for the institution.

## Problem & Importance

1. Increase the 2023-2024 radiation dosimeter exchange compliance rate.

2. A current In-house returned dosimeters database.

3. Clean the locations users list.
4. Achieve a >95% exchange compliance by end of calendar year 2025.

5. Transitioning to advance technology.

6. Education and training.
7. Wearers are required to exchange dosimeters monthly or quarterly, depending on their job/position in the **first 5 days of the month.**

Month						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7

## Who Wears Personnel Radiation Dosimeters?

- Radiologists and Cardiologists
  - Radiologic Technologists

- Nursing Staff
  - Anesthesiologists and CRNAs
  - Clinical Engineers

- Researches that use RAD materials
  - More!

## Types of Dosimetry Badges at UM



Ring (extremity)



TLD



OSL




Instadose (Smarter Radiation Monitoring)



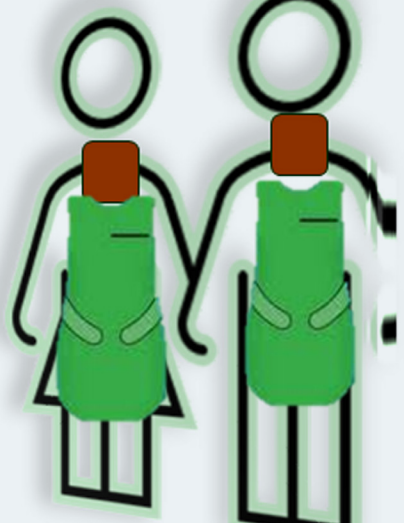
NEW!

Advanced technology allows users to capture, transmit, measure, analyze, and report radiation dose exposure wirelessly, at any time and as often as necessary.

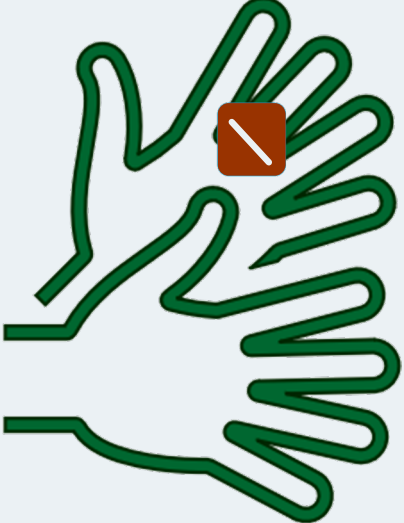
## Proper Dosimetry Badge Wear

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Whole Body Badges (worn on the part of the body between your neck and waist)

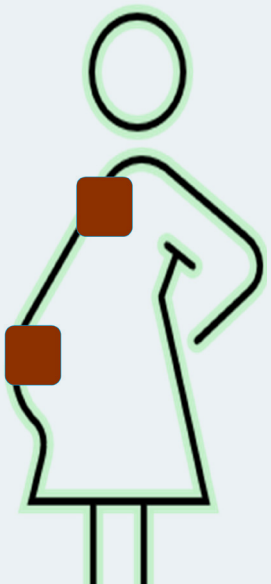


Collar Badge (worn over lead -apron or thyroid-)



Ring Badge (worn so your name is facing the source of radiation)

## Pregnancy Declaration



- Pregnancy declaration is confidential.
- The fetal monitor should be worn in the center of your body, near the fetus, and under your lead apron (if used).

## Requesting Dosimetry Badges

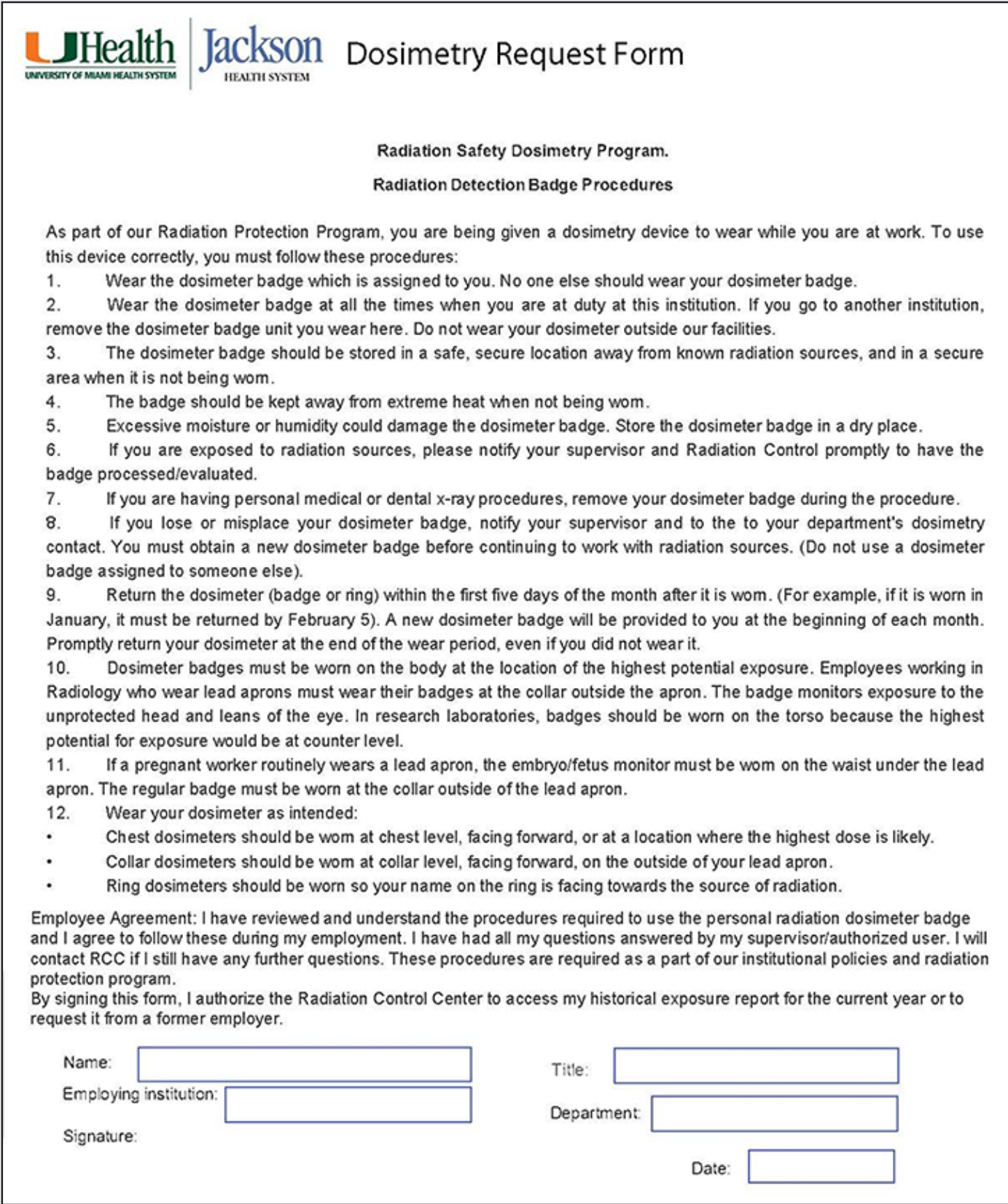
1. Dosimetry Request Form (Clinical/Research)

2. Dosimetry Cancellation Form (Clinical/Research)

3. Radiation Protective Eyewear and Garments Attestation Form

4. Pregnancy Notification Form

5. Educational and Contract agreement between the employee and the institution

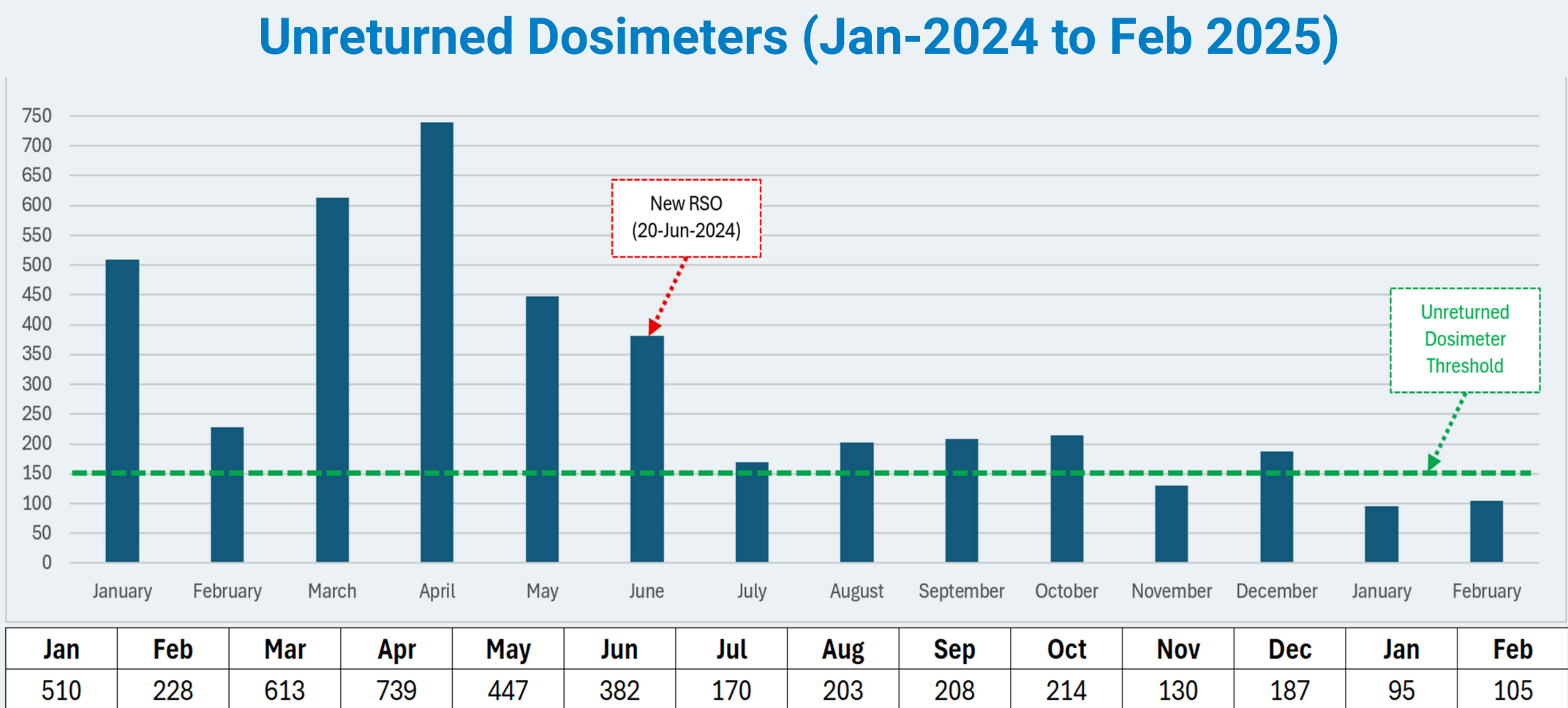


## What is an Acceptable Dose Limit? A.L.A.R.A.

Dose Type	ALARA Level 1 (mrem)	ALARA Level 2 (mrem)
DDE or EDE	125	375
LDE	375	1125
SDE	1250	3750
Extremity	1250	3750

## Results and Outcome Achieved

3265 employees wear dosimetry badges across 201 different location/department per month



## Now What? Problem To Be Solved: Continue Increasing Exchange Compliance

1. New Forms/New Dosimetry Charter implementation.

2. 37/201 different department were turned to monthly to quarterly.

3. 50/201 different department were clean the users list.

4. 8/201 different department were turned to advance technology dosimeters.

5. Cumulative occupational dose levels that exceed ALARA I (10%\* of annual limit) trigger a notification to the employee and supervisor.

6. Cumulative levels that exceed ALARA II (30%\* of annual limit) trigger an investigation by Radiation Control Center.

7. More than 94% exchange compliance for the last two quarters of 2024.

## Team Members/Contact Info

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