Radiation Dosimetry Badge Primer
Radiation Safety is committed to maintaining radiation doses As Low As Reasonably Achievable (ALARA)

Badges are issued to assess occupational exposure and help develop strategies to reduce dose
Annual Limits On Radiation Exposure

- Whole body deep dose – 50 mSv
- Lens of the eye – 150 mSv
- Extremities – 500 mSv
- Skin of the whole body – 500 mSv
- Fetus – 5 mSv/9 mos (~0.5 mSv/month)
Who Receives Dosimetry Badges?

- Any occupationally exposed individual who is likely to receive 10% of their annual limit (5 mSv)
- Any occupationally exposed individual who enters a room posted as “Radiation Area” or “Very High Radiation Area”
- Any occupationally exposed individual entering a radiopharmaceutical therapy room
- An occupationally exposed individual who has declared their pregnancy
How To Wear A Dosimetry Badge

- Columbia University issues personnel dosimeters to any individual likely to receive 10% of the annual occupational radiation dose limit (5 mSv)

- Individuals handling radioactive material will be issued ring dosimeters
How To Wear A Dosimetry Badge

- If you are issued a single body dosimeter, you can wear it either attached to the lapel or at the waist
- If you use a ring badge, be sure to wear it underneath a glove with the label facing out (anterior)
How To Wear A Dosimetry Badge

- Workers wearing protective lead aprons and issued a *single* dosimeter must wear the dosimeter at the collar outside the lead apron.
- Workers wearing protective lead aprons and issued *two* dosimeters must wear the second dosimeter at their waist **under** the lead apron.
Why Wear A Badge?

The Radiation Safety Office can:

- Provide continuing feedback to individuals about occupational exposure
- Notify management when additional measures should be taken to reduce dose (ALARA)
- Track dose to ensure annual limits are not exceeded
Optimum Number Of Dosimetry Badges

- Maximize issuing dosimetry badges to people who must have them
  - Nuclear Medicine / PET workers
  - P-32 / Irradiator workers
  - X-Ray / Fluoroscopy users

- Minimize issuing dosimetry badges to people that do not need them
  - Tritium users, S-35, C-14, etc.
What Does A Dosimetry Badge Tell Us?

- The amount of radiation exposure received (by the dosimetry badge)
- The type of radiation that caused the exposure
Return Dosimetry Badges

Dosimetry badges must be returned within 22 calendar days after the end of the wear period.
Why Return Dosimetry Badges On Time?

- **Safety issue**
  - If exposure information comes too late, it is considered less valuable to act on

- **Monetary issue**
  - Delayed and lost dosimetry badges accrue a penalty fee from the processing company (Landauer)
Responsibilities And Rights

- Wear the dosimetry badge when working
- When not in use, keep the dosimetry badge away from radiation and heat
- Return the dosimetry badge in a timely fashion
- It is your right to inquire about your radiation exposure at any time
Return Dosimetry Badges For Safety

- The badges are our main tool for determining and tracking occupational exposures
  - Badges are used as safety devices
  - If badges are returned late/not returned, information becomes less valuable
  - Radiation safety ALARA principles
    - Time
    - Distance
    - Shielding
What You Should Know

- If a department uses & orders radioactive materials/x-rays: **must return badges!**
  - Safety purposes: exposure tracking
- Workers receiving new badges **must** return old badges
- Return in a timely manner (as soon as new badges are received)
- Update/change information promptly
Ways To Achieve Good Return Rates

Communicate with the dosimetry coordinator

- Identify who has left Columbia/NYPH/NYSPI
- Identify who has transferred departments / labs
  - Notify the Radiation Safety Office when a staff member is transferring
- Deactivate appropriately
  - Many participants who are no longer at Columbia/NYPH/NYSPI continue to receive badges
Ways To Achieve Good Return Rates

➢ To delete a participant, place a “D” in the “DELETE” column on the packing slip that is mailed with the badges
Ways To Achieve Good Return Rates

- Urge badge users to return badges to a central location
  - Have a drop box at a designated location within the department
  - Wall mounted holders are available (contact the Dosimetry Coordinator if interested)