



# C27: Safety Challenges for Radiographers Imaging Forensic Patients

# Objectives:

- Who are incarcerated patients?
- How do Rad techs play a role in an incarcerated patients' investigation?
- Safety precautions needed to be taken for technologists and patients
- MRI safety with forensic patients
- How mobile imaging can make imaging forensic patients safer
- Forensic pediatric imaging

# Who are incarcerated patients?



Patients in custody of law enforcement or government officials



1.7 million of the U.S. population



Commonly transported to outside medical facilities for care & imaging



# Why forensic patients are brought to hospitals:

- Correctional facilities lack medical equipment and the needed staff to perform medical exams.
- Jail facilities may only have a portable x-ray machine or outdated equipment (film) that does not produce diagnostic level imaging.
- Patients may need to be transported to medical facilities for care such as MR or PET scans, lab work, x-rays, surgeries.

An ECG (heart rate) graphic is visible on the left side of the slide, overlaid on a light blue background. The ECG line is black and shows several distinct peaks and troughs. The background has a grid pattern.

# Why forensic patients are brought to hospitals:

- Common conditions for forensic patients include:
  - Cardiac-associated chest pain and arrhythmias
  - Epilepsy
  - Head injuries
  - TB
  - Acute altered mental status
  - Overdoses
- Most of these conditions require medical imaging as part of the diagnosis and continuation of care (Rarey, 2011).



## When transporting forensic patients:

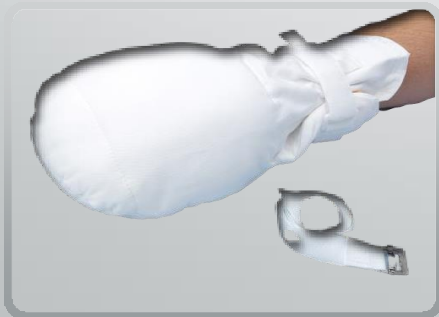
- The patient is always accompanied by police officers or government official.
- They are always in some form of restraint.
- The restraints vary based on the medical/jail facilities' policies.

# Restraints during medical imaging

- The type of restraint a patient has depends on the facility they are coming from and their sentence.
- For some imaging like x-rays and CT, restraints could be left on or partial removed.
- For more advanced imaging like MR or surgery, restraints may need to be completely removed or restraints of a different material may be used instead.

# Types of restraints

- These are types of physical restraints that can be used when imaging an incarcerated patient.
- First image is a glove for those that may try to grab things or hurt themselves.
- Second image are handcuffs police officers use to keep the patient secure to beds, wheelchairs, carts.
- Third image is an MRI safe restraint made with safe, non-metal materials.





# MRI Safety

One of the main concerns in MR is the risk of projectiles.

There were 389 MR-related incidents in 2005, including nine deaths.

10% of those were projectile related, 70% of those were burn related (Beam, 2019).

## MRI Incident

- In May of 2022, shackles were not taken off of an inmate, pinning her to the MR scanner. A guard went in the room to help but was also pinned to the scanner when his gun got close to the magnet (Van Alstin, 2023).



Injuries the inmate got from the incident (Source: Kovaleski, 2023).

# MRI Safety

Police officers working with forensic patients are sometimes uneducated on the power of the MRI magnet.

A technologists' role is to ensure everyone who is getting close to the scanner has been properly screened to prevent these incidents from occurring.

# Mobile Imaging: Safer than transporting inmates to medical facilities?



Mobile imaging eliminates the need for transportation to medical facilities, decreasing costs.



It allows facilities to provide comprehensive, on-site care that increases safety for everyone.



Attends to medical care in a timely manner, increasing effectiveness of care.



There are more staff and guards around to keep the patient and technologist safe.

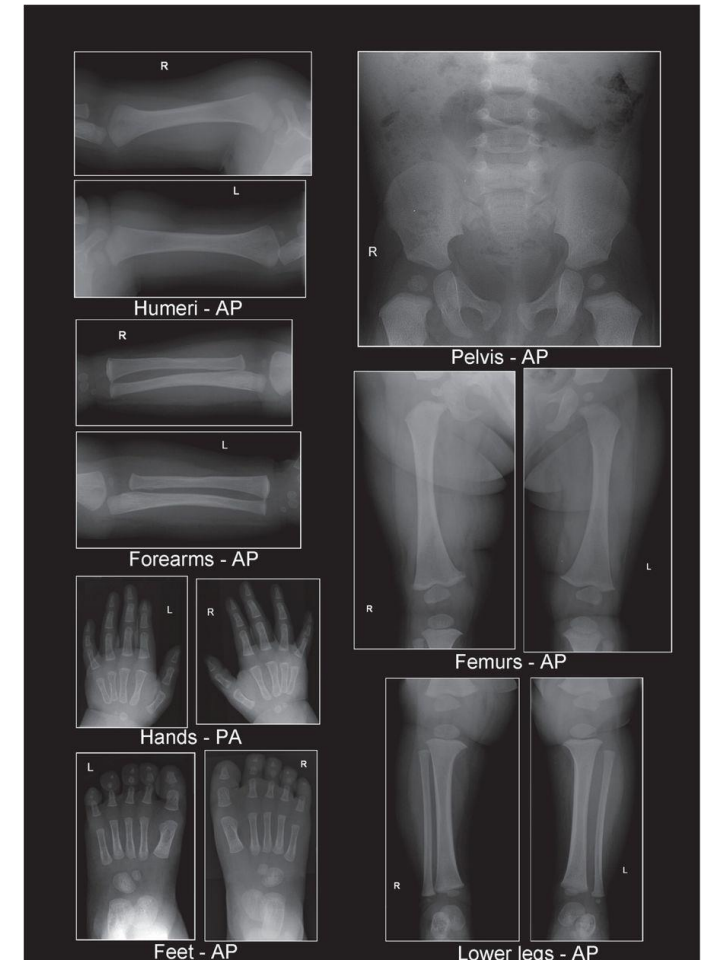
A stethoscope is positioned diagonally across the frame, with its chest piece resting on a white computer keyboard in the upper right corner. The stethoscope's tubing and earpieces extend towards the bottom right. The background is a plain, light-colored surface.

## Pediatric case imaging

- A technologist may take x-rays of a child to see that their injuries are not consistent with the history the parents gave or an injury that would not be possible for the child to inflict on themselves.
- Technologists may also observe physical injuries such as burns, bruises, or cuts while performing medical imaging.

# Pediatric case imaging

- It is not uncommon for providers to order imaging specifically designed for detecting abuse.
- A skeletal survey is the recommended best practice for detecting abuse.
- This requires multiple images of the skull, ribs and metaphysis. (Rao, 2019)





# Technologist's role in Pediatric Imaging

- Observe the child's behavior around and not around their guardian.
- Do not question the child or interfere with a potential investigation.
- Document and report anything that may seem like a concern.

# Conclusion

- Many radiographers will encounter a forensics patient. Whether it is imaging an incarcerated patient, or imaging a child for suspected non-accidental trauma, it is good to know the possible risks, and what safety precautions can be taken. Understanding what extra safety precautions need to be met when working with forensic patients is crucial in preventing safety-related incidents from occurring.



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