# APPH 226 Apparatus and Image Management Reflection
# Reflection: Collimation of the X-ray Beam

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# 1. What is collimation in medical imaging, and why is it used?

Collimation in medical imaging refers to the process of narrowing and shaping the X-ray beam so that it only covers the specific area of interest. This is achieved through adjustable lead shutters inside the collimator device.

By limiting the size and shape of the beam, collimation reduces the amount of unnecessary radiation exposure to surrounding tissues while ensuring that the anatomy being examined is clearly visualized.

Collimation is not only a technical adjustment but also an essential radiation protection principle that reflects the professional responsibility of medical imaging technologists.

# 2. How does proper collimation benefit both the patient and the quality of the X-ray image?

Proper collimation benefits both patients and image quality in several important ways.

For the patient, the primary advantage is radiation safety. By restricting the X-ray beam, the technologist follows the ALARA principle—keeping radiation “as low as reasonably achievable.” This reduces the risk of long-term biological effects and avoids exposing body parts that are not medically necessary for the examination.

For image quality, collimation helps decrease scatter radiation, which often leads to fog or haze on the image. Less scatter results in better contrast and sharper visualization of anatomical structures, making it easier for radiologists to interpret findings accurately.

# LESSONS LEARNED:

In practice, I have observed how thoughtful collimation reflects both technical skill and patient care. For example, during chest or abdominal imaging, it can be tempting to leave a larger field to “make sure everything is included.” However, this approach compromises both safety and image quality. Instead, carefully positioning and collimating to the area of interest not only meets diagnostic needs but also demonstrates respect for the patient’s well-being.

Collimation is therefore more than a mechanical adjustment—it is a professional habit that combines knowledge, precision, and ethical responsibility. As I continue developing my skills as a medical imaging technologist, I see collimation as a clear example of how small technical choices make a significant difference in patient safety and diagnostic outcomes.




THANK
YOU