

RADIOLOGY FOR OUR SAFETY: EDUCATION IN RADIOLOGY

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Introduction

Customs agencies around the world are using x-ray, CT, millimeter waves (MMW) scanners for humans, luggage, containers (see Fig. 1, 2, and 3). Many are concerned about exposing and taking a nude pictures for travelers through airports around the world, but this rumor is not true because the imaging systems



Figure 1: Airport machines from left to right (A) x-ray machine for luggage, (B) metal detector, and (C) MMW scanner for travelers.

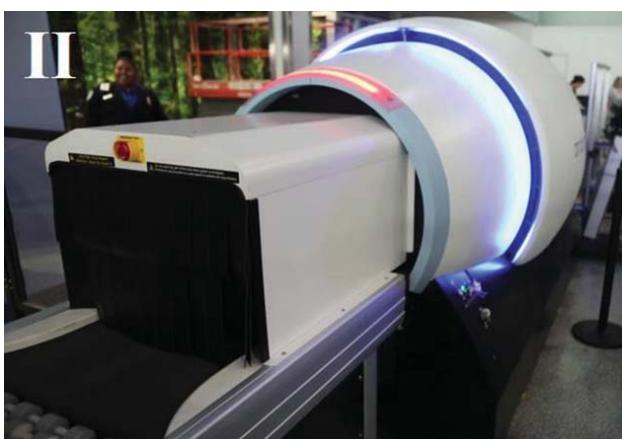


Figure 2: Luggage CT scanner in an airport which give a three dimension picture of the luggage.

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Figure 3: An x-ray scanner for containers.

in airports do not take the travelers face picture to remain anonymous (see Fig. 4 and 5). The traveler s ID can t be shown to the public and IDs are not taken (in the first place) by the x-ray or MMW machine which show that all the previous claims are not true (see Fig. 4).

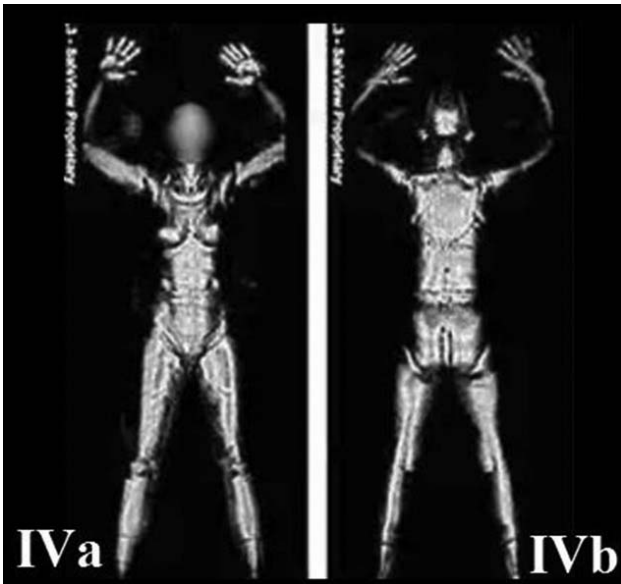


Figure 4: An MMW detector images which take only the superficial look for the body and can't show which inside the body.

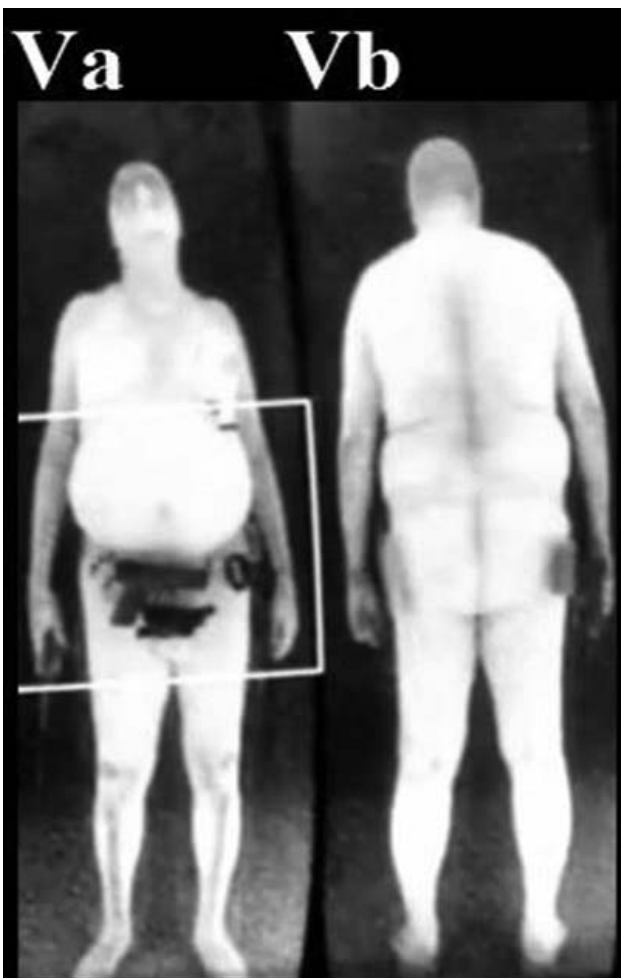


Figure 5: A person who smuggle a gun and no face can be recognize.

Medical imaging modalities now are not used only for radiology, but used by customs agencies around the world to detect illegal drugs, smuggling illegal money (including gold plates, silver plates, cash in large amounts, etc.), illegal guns, white arms, and endless list of prohibited items depends on which countries rules and regulations (see Fig. 5, 6, 7, 8, and 9).

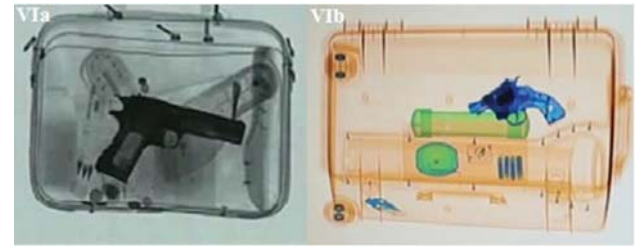


Figure 6: (VIa) a gun inside a traveler's bag and (VIb) a prohibited objects inside a traveler's bag including a gun.



Figure 7: Volume rendering technique (VRT) CT scan show a traveler's abdominal region. This traveler swallowed a 72 pieces of thumb size packet of cocaine which estimate a 130 grams in weight which are placed in his lower digestive tract.

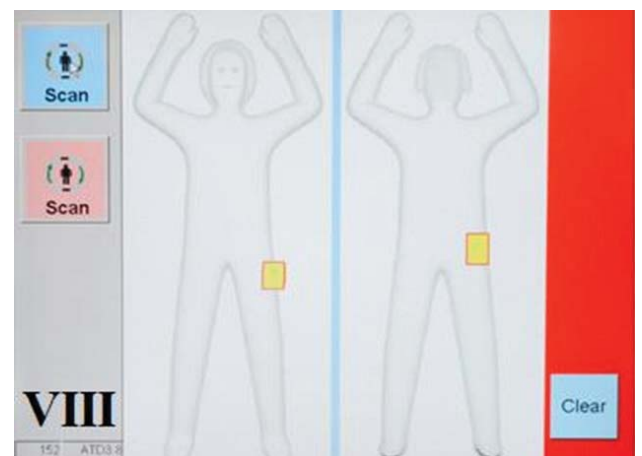


Figure 8: Millimeter waves detectors does not show a nude picture of the traveler, but which area is reflecting the waves off (it can detect metallic or non-metallic object).



Figure 9: Fluoroscopic picture (positive picture) showing round structures filling the stomach and upper digestive tract which found to be a 27 balloons filled with cocaine.

The issue is all the radiography curriculums for Radiographers around the world do not covers imaging modalities in airports, ports, or customs. According to European union (EU) regulations, the initial training for Radiographers should be a 10 hours of a computer-based training to interpret illegal objects and practice how to detect them.¹ As well, customs Radiographers need a continues training for 6 hour daily for 6 months period under supervision of a senior Radiographer.¹ The employee works during the training program on imaging modalities at their airport, customs port, etc. After graduation from this program, the Radiographers who took this program will be qualified to conduct the scan and identify the illegal objects by themselves without any supervision.¹

The radiation dose for the public and workers are very low than a dental x-ray due to the good shielding and low exposure factors. The radiation dose of airports x-ray scanner is 0.01 mrem which is equal

to a natural background radiation dose.² Furthermore, the Transportation Security Administration (TSA) in the United States replaced many x-ray machines with MMW detectors which are a non-ionizing radiation machines.³

In many cases, x-ray machines replaced manual inspection, cavity search, dogs search, etc. As well, x-ray machines itself is being replaced with non-ionizing radiation machines like MMW.³ The benefits of x-ray machines, it can detect the illegal materials and objects inside the body, where MMW is able to detect the reflected waves off the body to generate a superficial picture of the body which is not a nude pornographic picture (Fig. 4). Some machines do not even take a picture, but identify the region which has a foreign body attached to the traveler s body (Fig. 8). Some airports used only metal detector for the travelers and x-ray machine for bags (Fig. 1). As well, x-ray machine is not limited to travelers or bags only, but x-ray machines can be big to be able to scan a huge containers to detect any illegal shipments (Fig. 3). Radiology is beyond being used for helping patients only, but for the public safety and the greater good of all of us.

References

1. Lex Access to European Union law [Internet]. EUR. Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R1998>
2. Achutan C, Mueller C. Evaluation of Radiation Exposure to TSA Baggage Screeners. Heal. Hazard Eval. Rep. 2008 Sep.
3. Schoofs M. TSA Removes X-Ray Body Scanners from Airports [Internet]. ProPublica. 2019. Available from: <https://www.propublica.org/article/tsa-removes-x-ray-body-scanners-from-airports>.