

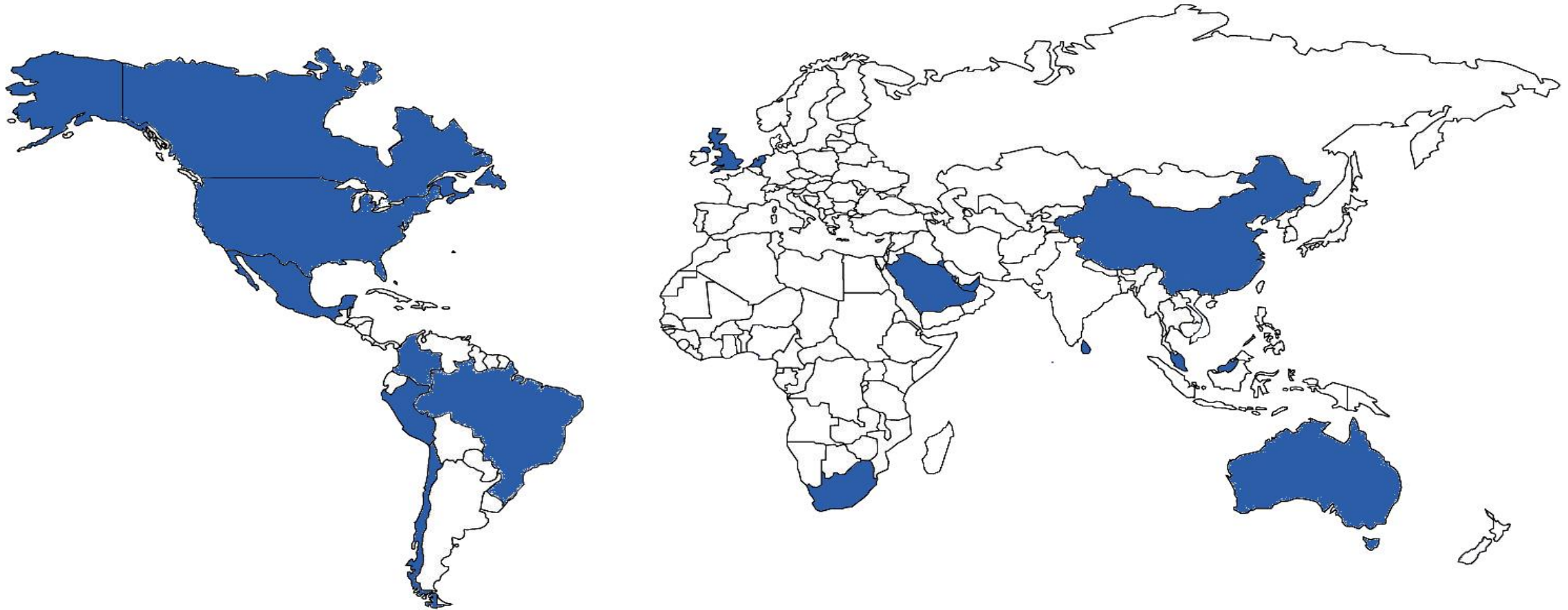


# Body Search Tradition and Technology

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Cyprus 21 - 22 May 2019

- World wide trends of using body scanners
- What kind of technology is available?
- The added value of a body scanner; a Case Study
- Are there fundamental rights at risk?
- How intrusive is a transmission body scanner?
- Body scanner from a rule of law perspective
- Which conditions should apply using a body scanner?

# Countries That Already Use Transmission Body Scanners.



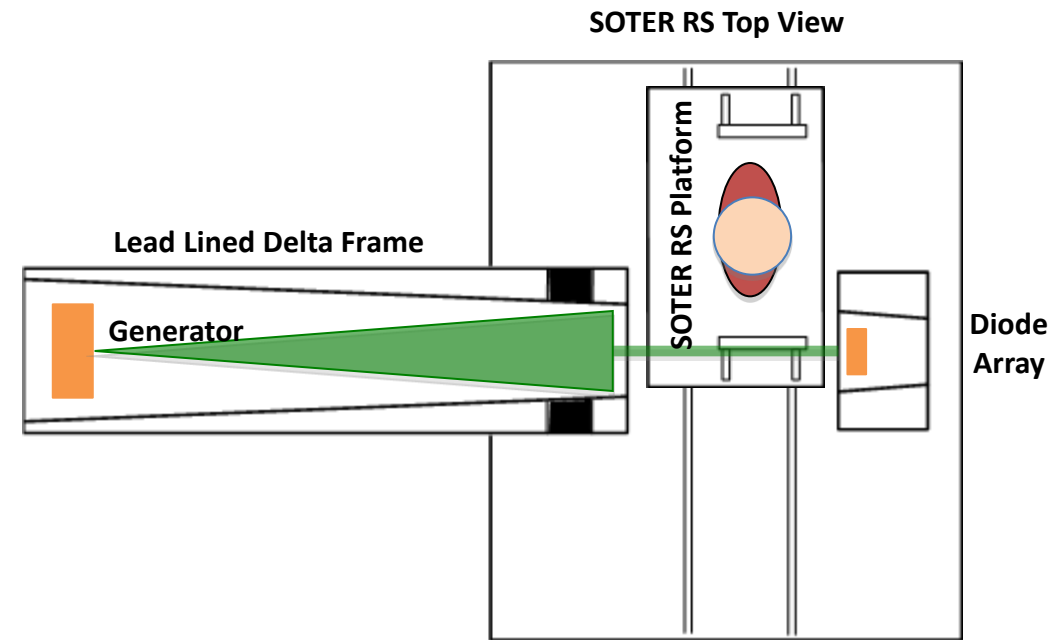
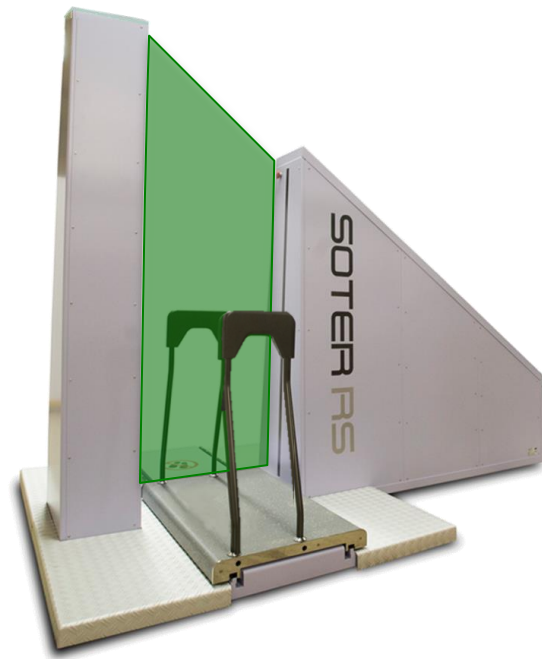
Non-Ionizing

0,02 – 0,1  $\mu\text{Sv}$  Ionizing 0,1 – 2,0  $\mu\text{Sv}$



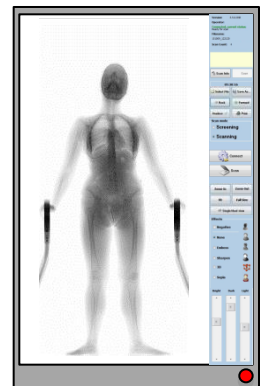
Least Detection

Greatest Detection



- Generator in Delta Frame generates x-rays
- Lead Lined Delta Frame collimates x-rays into narrow vertical curtain/beam
- Platform moves individual through the beam
- Software collects data from diode array
- Data is displayed as an image on the Operator Interface

SOTER RS Operator Interface



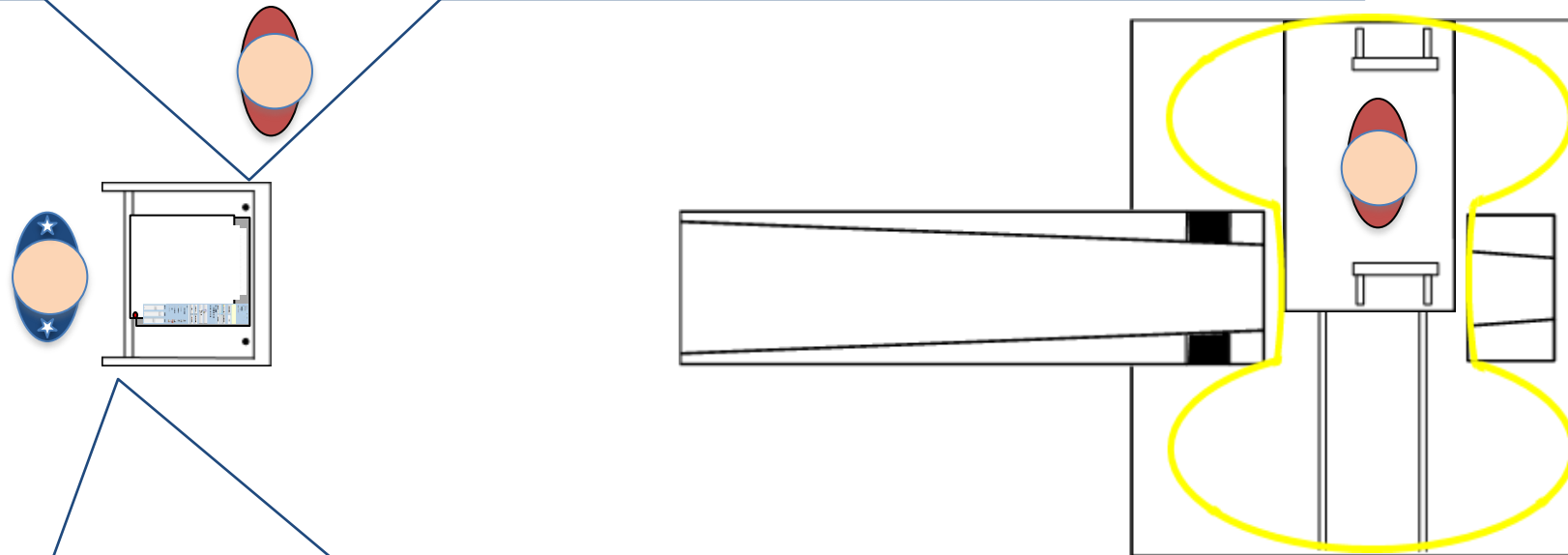
## Full Body Security Scanner

- Drugs/Narcotics
- Weapons
- Cell Phones
- Plastic Items
- Metals
- Cash
- Other Contraband
- Internal & External



# The Body Scanner is a Controlled Process

- Subject presents themselves to the Operator after receiving information.
- Most of the institutions offer the right to refuse
- Subject identity is verified by ID # or our Fingerprint Reader
- Operator instructs subject to position themselves on platform and starts scan



- Subject steps off platform and is instructed to wait in scanning area
- Operator evaluates the image, and confirms negative or positive

# Case Study: Correctional Facilities Ontario - 4,774 Positive Scans

- In the 6 months since going LIVE in January 2017, 16 scanners have performed **139,600 Scans**
- Of these, 4,774 scans were recorded as **Positive** with finds of;
  - **10 mobile phones,**
  - **74 weapons (knives and shives) and the balance being drugs**
- That's a massive **4,690 packages of drugs** that have not entered Correctional Facilities in Ontario!



The Prison Policy Initiative: 17% of the prison population in the USA is drug related

The UK Prison Populations Statistics : 15% of the prison population in the UK is drug related.



## Most Human Rights Organizations Support The Use of a Body Scanner.

- A controlled process
- A body search in case the scanner indicates contraband

## Limited Use of X-ray Is Not An Infringement on Physical Integrity In Case:

- License
- Administrative controls to ensure the professional use and data protection
- The scanner is compliant with the regulations

# How Intrusive Is a Body Scanner

Activity / Situation	Radiation Exposure (Microsieverts)
Exposure by body x-ray per scan	0.25 – 2,5
Eating 2 bananas	0.2
135 grams of Brazil nuts	0.5
Typical airplane flight (= 80 scans)	20
Medical chest x-ray (= 400 scans)	100
Average annual dose from Natural Background Radiation	1000
Typical CT scan (chest) (= 28000 scans)	7000

## **Since 1993 X-ray technology can be used outside of medical uses**

National Council on Radiation Protection and Measurements (NCRP) (1993) recommends that the annual dose limit for frequent exposure should not exceed an effective dose of 1 mSv (millisievert), excluding exposures from natural background and from medical care.

NCRP commentary no 16, (December 2003)

0.25 mSv effective dose (or less) per year for individuals undergoing security screening procedures with x-ray scanning devices

International Commission on Radiological Protection (ICRP) publication 125, (2014).

If a decision is made that its use is justified, the framework for protection as a planned exposure situation should be employed, including optimization of protection with the use of dose constraints and the appropriate provisions for authorization and inspection.

# Which Conditions Should Apply For a License



- Optimisation: As low as reasonably achievable
- Must comply with regulations; ANSI 43.17-2009 and IEC 62463-2010
  - Technical requirements for the scanner
  - Rules for inspection
  - Administrative controls for the user
    - Limited use
    - Employee trained on radiation hygiene
- Justification: Any use of radiation must have benefits exceeding potential harms
  - Security scanning is a controlled process
  - Risk control by limited use
  - Collective benefit based on a risk assessment vs individual benefit

# Limited Use



Dose (uSv)	Annual Number of Scans	Maximum Annual Dosage
0.05	5,000	250
0.10	2,500	250
0.15	1,667	250
0.20	1,250	250
0.25	1,000	250
0.50	500	250
1.00	250	250
1.50	167	250
2.00	125	250

# Data Processing

Managing cumulative dose per person to be compliant with the regulations.

Deleting negative images within a timeframe.

Overall statistics.

Data protection within the existing standards.

Scans Summary

From:

To:

Total Scans : 49

Total Positive Scans : 6

Total Scans Per Reason

Routine Scan	48
System Test	1

Total Positive:

Total Negative:

Positive Only:

Scans Summary

Inmate Name / ID:

Scanned By:

From:   To:

Scan Reason:  Scan Result:

Timestamp	Operator	Inmate Name	Gender	Pos./Neg.	Comments	Dose	Reason for scan	Result Of Scan	Orientation
Wednesday, 6 June 2018 08:43	S Eijgenhuijsen	ODS Holland	M	Negative		1,8	Admission	Negative	LF
Wednesday, 13 June 2018 00:41	S Eijgenhuijsen	Man Boom	M	Negative		1,8	Admission	Negative	LF
Monday, 11 June 2018 07:25	S Eijgenhuijsen	Rob Country	M	Negative		0	Admission	Negative	LF

# Questions



Thank you for your attention