



# Diagnostic Imaging and Ionizing Radiation

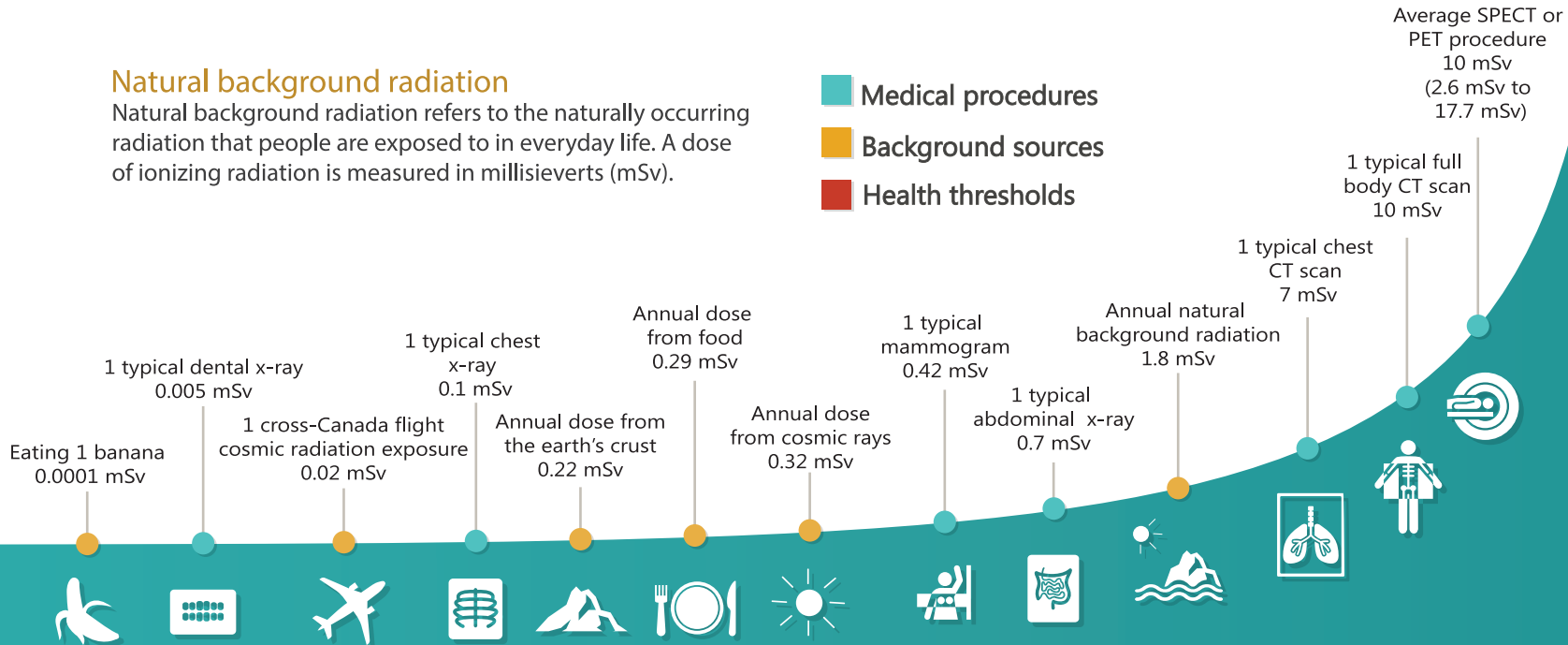
## Diagnostic imaging techniques

Every day, people undergo medical tests to diagnose diseases and injuries. Some of these tests involve exposure to ionizing radiation. X-rays and CT scans expose patients to radiation externally (from outside the body), while PET and SPECT scans involve administering short-lived radioisotopes to the patients. A gamma camera is then used to take pictures of internal organs and tissues using the radiation emitted by the injected substance. Other tests, such as magnetic resonance imaging (MRI) and ultrasound, do not involve such exposure.

## Natural background radiation

Natural background radiation refers to the naturally occurring radiation that people are exposed to in everyday life. A dose of ionizing radiation is measured in millisieverts (mSv).

- Medical procedures
- Background sources
- Health thresholds



Dose that could lead to death if it was received all at once and was not medically treated: 5000 mSv

Lowest dose which may cause symptoms of radiation sickness (e.g., nausea, vomiting) if received within 24 hours: 1,000 mSv

Lowest dose at which damage to organs and tissues has been observed following an acute exposure: 100 mSv

If you're concerned about a medical procedure that involves radiation, discuss it with your doctor or a qualified radiation technologist.

The Canadian Nuclear Safety Commission (CNSC) regulates the production, transport, uses and disposal of radioisotopes in Canada to protect the health and safety of patients and medical staff.

Canada's Nuclear Regulator  [nuclearsafety.gc.ca](http://nuclearsafety.gc.ca)