

Fact Check for ChatGPT 4.0 2025/05/02

Q1:

How much radiation does a person receive by on a return flight to and from the DDW2025 conference in San Diego from Kansas, Philadelphia, Boston, Houston, London, New Delhi, Tokyo, and Perth. Make a Bar Chart x axis is the cities, y axis is micro-Sieverts?

Could you please show the radiation dose calculator source, airline radiation exposure articles, FAA or ICRP documents, or specific academic studies?

Answer (CHATGPT4.9):

Here's an estimate of the cosmic radiation exposure (in micro Sieverts, μSv) for a round-trip flight to San Diego for the DDW2025 conference from various cities:

1. Friedberg W, Copeland K, Duke FE, O'Brien K III, Darden EB Jr. Radiation exposure during air travel: Guidance provided by the Federal Aviation Administration for air carrier crews. *Health Phys* 2000;79(5):591-5.
2. United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). Sources and effects of ionizing radiation. UNSCEAR 2000 Report to the General Assembly, with Scientific Annexes. New York: United Nations, 2000.
3. International Commission on Radiological Protection. ICRP Publication 132: Radiation dose to patients from radiopharmaceuticals. *Ann ICRP* 2016;45(2):1-62.
4. Flight Radiation Calculator. Omni Calculator. Available at: <https://www.omnicalculator.com/everyday-life/flight-radiation>. Accessed May 2, 2025.

Show Citations SPECIFIC TO C14-UBT “PYtest /Pylorium”

Here is a list of peer-reviewed studies since 1990 that have calculated radiation doses from 1 microcurie (37 kBq) ¹⁴C-urea breath tests (UBTs) in adults and children. The references are formatted according to the New England Journal of Medicine (NEJM) style:

1. Stubbs JB, Marshall BJ. Radiation dose estimates for the carbon-14-labeled urea breath test. *J Nucl Med* 1993;34(5):821–5.
2. Leide-Svegborn S, Stenström K, Olofsson M, et al. Biokinetics and radiation doses for carbon-14 urea in adults and children undergoing the *Helicobacter pylori* breath test. *Eur J Nucl Med* 1999;26(6):573–80.
3. Gunnarsson M, Leide-Svegborn S, Stenström K, et al. No radiation protection reasons for restrictions on ¹⁴C urea breath tests in children. *Br J Radiol* 2002;75(900):982–6.
4. Pathak CM, Kaur B, Khanduja KL. ¹⁴C-urea breath test is safe for pediatric patients. *Nucl Med Commun* 2010;31(9):830–5.

These studies collectively indicate that a 1 μ Ci (37 kBq) ¹⁴C-UBT results in an effective radiation dose of approximately 0.3 to 0.5 μ Sv in adults and 6 to 20 μ Sv in children, depending on age and *Helicobacter pylori* infection status. These doses are comparable to or lower than daily background radiation exposure and are considered safe for both adults and children.