

## Dose Calculator Limitations

Patients who have radiation exposure concerns may use online resources to calculate how much radiation their imaging exams use. *RadiologyInfo.org* provides information on the *typical* amount of exam radiation (see the *Effective radiation dose chart* (<https://www.radiologyinfo.org/en/info/safety-xray>)). Other websites offer online tools that allow users to "calculate" a total radiation dose for up to multiple exams.

However, dose charts and calculators provide only *typical* estimates of radiation dose. They do not provide the *actual* dose individual patients receive. Radiologists use the lowest amount of radiation necessary to perform a successful exam. As a result, one cannot determine an exam's actual amount of radiation using typical radiation dose charts or online dose calculators.

It is not easy to obtain accurate dose numbers for your exam. They are only available from your imaging facility. Several factors determine your actual dose. These include your size, exam techniques, the specific machine used and its manufacturer, and other considerations.

Typical dose information helps patients understand how exam radiation compares to natural, background radiation. Most imaging exams have a relatively low risk. Plus, doctors make sure to give patients the right exam with as little radiation as possible.

If you have concerns about your exam, talk to your doctor about the benefits and risks. Consider keeping a medical imaging history and sharing it with your doctor and radiologist. Image Wisely (<https://www.imagewisely.org/>) suggests you:

- Track your medical imaging history. Note the date, exam, and facility (see Patient Medical Imaging Record ([https://www.imagewisely.org/~media/ImageWisely%20Files/IW%20Medical%20Imaging%20Card\\_F.pdf](https://www.imagewisely.org/~media/ImageWisely%20Files/IW%20Medical%20Imaging%20Card_F.pdf)) card and My Child's Medical Imaging Record ([https://www.imagegently.org/Portals/6/Parents/Dose\\_Record\\_8.5x11\\_fold.pdf?ver=2013-12-10-154113-067](https://www.imagegently.org/Portals/6/Parents/Dose_Record_8.5x11_fold.pdf?ver=2013-12-10-154113-067)) for sample records).
- Ask your doctor about benefits and risks, such as:
  - How will you use this exam to evaluate my condition or guide my treatment (or that of my child)?
  - Are there other exams that do not use radiation that are equally useful?
- Ask the imaging facility:
  - Do you use techniques to reduce radiation dose (especially for children)?
  - Does the exam include any additional steps (such as contrast material, sedation, or advanced preparation)?

For more information, visit the *Radiation Dose in X-ray and CT Exams* (<https://www.radiologyinfo.org/en/info/safety-xray>) page.

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