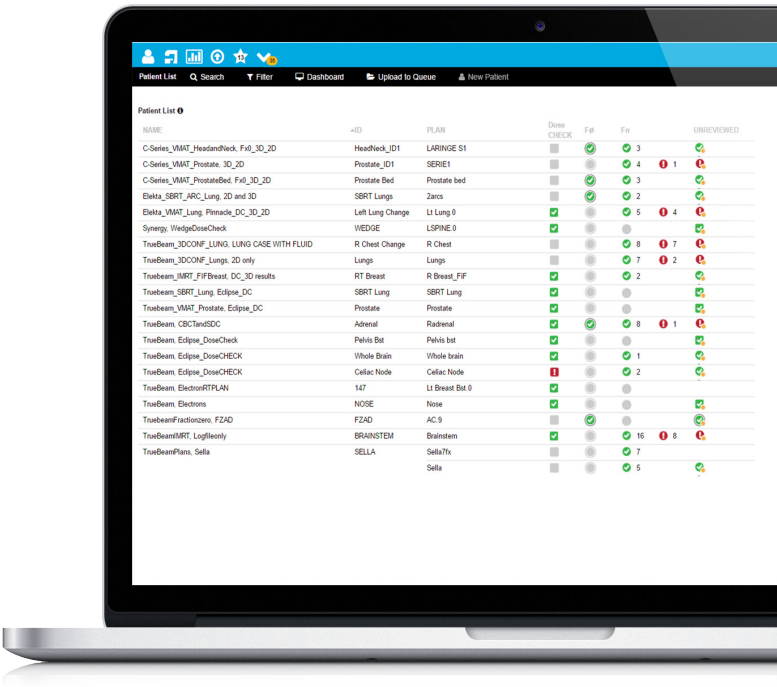
Frequently Asked Questions

DoseCHECK™ is the independent secondary 3D dose calculation solution for today's radiation oncology department. No need to manually create, register or input patient plans into the system. Upon plan approval, simply push the DICOM files from your treatment planning system (TPS) to the application. DoseCHECK then verifies the full patient dose volume.



Q: How does DoseCHECK calculate dose?

A: DoseCHECK computes dose automatically from the DICOM objects of the approved treatment plan. This is an independent, 3D dose calculation using our proprietary collapsed cone convolution/ superposition algorithm, exclusively licensed and GPU-accelerated. As a result, you get TPS-grade performance and a complete suite of comparison tools.

Q: What types of plans can I use DoseCHECK for?

A: DoseCHECK can be used for 3D conformal, IMRT, VMAT, SRS, SBRT – essentially any linac plan with standard collimation (MLC or jaws). In addition to point dose comparisons for each field, DoseCHECK provides a comprehensive 3D analysis. This includes 3D gamma analysis per total volume and individual structures, Clinical Goals for targets and organs at risk, as well as DVH comparisons and isodose displays.

Q: How does DoseCHECK handle electron density corrections?

A: DoseCHECK provides the ability to enter CT-to-electron density (CT-to-ED) values for CT scanners used for treatment planning. These CT-to-ED values are automatically assigned and applied using information from the DICOM header in the CT image during 3D dose calculation.

Q: How does DoseCHECK handle beam modeling?

A: DoseCHECK uses the same standard library of beam models as PerFRACTION™, covering most commercial linear accelerator energy and MLC configurations. The beam model library uses beam data that is more specific and accurate than universal or 'golden' beam data provided by Linac manufacturers.

SUN NUCLEAR corporation

sunnuclear.com // +1 321 259 6862

Corporate Headquarters: 3275 Suntree Boulevard, Melbourne, FL 32940 USA

Q: Why should I select DoseCHECK over some secondary calculation solutions that have existed for over a decade?

A: DoseCHECK is the independent, secondary 3D dose calculation solution for today's radiation oncology department. In other words, for non-modulated techniques, it is reasonable to conclude a calculation is correct for all points inside the patient if the MUs for each beam's calculation point are verified. However, this logic cannot be extended to IMRT or VMAT due to the complexities of the treatment fields and patient geometry. A verification of the patient dose volume could easily elucidate errors that a point-based MU verification would not, and can serve as a more robust quality check of the intended treatment plan and TPS. DoseCHECK provides a more clinically relevant analysis needed for modern delivery techniques.

Fore more information on how DoseCHECK differs from traditional verification approaches, please refer to the white paper, Secondary Calculations: Revisiting Rationale, Rethinking Methodology.

Q: Why did Sun Nuclear select a web application architecture for SNC Machine™, PerFRACTION and DoseCHECK?

A: A web application architecture was selected for the following reasons:

- Accessibility from any networked computer, with no external Internet connection needed, if used within the network
- Easier maintenance because you no longer need to download updates on multiple workstations
- Streamlined implementation on a dedicated server, with better system performance and more robust security

Q: Can I install DoseCHECK on a server that I provide?

A: Yes, DoseCHECK can be installed on a customer provided server (computer hardware) that meets the required specifications.

Q: Is DoseCHECK a Cloud application?

A: SNC Machine, PerFRACTION, and DoseCHECK are 'cloud enabled' because they are accessed from anywhere on your clinical network via the web browser. By running locally, these applications provide more automation and faster processing performance than a Cloud application. A remote Cloud data storage service will likely be available in the future.

Q: Can the beam model be customized for my machine?

A: Sun Nuclear can provide a custom beam model in situations where this is determined necessary.

Q: I am a consulting medical physicist; how will I use these applications at my client sites?

A: For optimal performance, SNC Machine, PerFRACTION, and DoseCHECK are designed to run on a local network. This is also required for the automation architecture to work correctly. Consulting physicists may use these applications by connecting to the network hosting them.

Q: Can I use DoseCHECK for wedge-based plans?

A: Yes, DoseCHECK supports Varian dynamic wedges and Elekta universal wedged beams.

Q: Can I use DoseCHECK for electron plans?

A: Yes, 2D point analysis for electron plans are supported in DoseCHECK.

SUN NUCLEAR corporation

sunnuclear.com // +1 321 259 6862

Corporate Headquarters: 3275 Suntree Boulevard, Melbourne, FL 32940 USA