Purpose: To demonstrate the feasibility of a new software applications for both PC and smartphone users to easily track patient CT doses.

Methods: Many of existing tools for reporting CT dose are based on data derived from stylistic phantoms. Based on extensive original dose data derived from Monte Carlo simulations and computational phantoms including a new set of BMI-adjustable obese patient phantoms, VirtualDose is being designed with interactive, user-friendly graphical interfaces afforded both on the PC and the smartphone platforms. Organ doses and effective doses are computed using ICRP Publication 60 and 103. The software is developed using the C# for PCs and JAVA for the Android smartphones.

Results: VirtualDose offers a modern graphical user interface (GUI) designed to allow interactive 3D phantom display and user-selectable scanning parameters. Standard scanning ranges can be selected from a pull-down menu or manually specified on the displayed phantom. The new developed morbidly obese phantom was found to have CT organ doses on average a factor of 0.76 times smaller than that of the normal weight phantom for the same tube current because of shielding by the extra fat. For the same injected activity, the average PET organ dose ratios were 0.95 and 0.65 for source organs and organs in the remainder, respectively.

Conclusions: The preliminary GUI design and reporting features of VirtualDose improve upon existing tools by considering the latest CT scanners, smartphone platform, new ICRP recommendations and anatomically realistic patient phantoms.