The QUANTEC review of radiation-induced normal tissue toxicity provides an attempt to synthesize published knowledge about normal tissue dose volume effects for many endpoints of clinical importance. In this review, I will briefly review the methods used by the QUANTEC group, limitations of the data, and some of the key findings. The QUANTEC reviews, although valuable, were constrained by several important limitations, for example: lack of access to the original data for joint analyses, differences in reporting methods, differences in dose calculation methods, differences in endpoint definitions, differences in endpoint measurement methods, etc. Despite these problems, some clinical recommendations have already been tested in separate data sets and shown to have validity. The solidity of the underlying data and clinical recommendations therefore necessarily varies. I will also briefly discuss recommended future directions to improve NTCP model predictions, including biomarker development, machine learning modeling, and pooled data analyses.

Educational goals include:

1. Understanding the main methods and structure of the QUANTEC reviews
2. Understanding the variability of the review results
3. Reviewing the main results, and caveats regarding their clinical use.