The IMRT treatment planning (IMRTP) research literature includes few comparisons between algorithms proposed by different investigators. This is a fundamental obstacle to progress. To address this problem, we have developed the basic components of an IMRTP 'collaboratory' which is designed to conveniently enable open access to shared treatment planning data, beamlet dose distributions, and collaborator results. The collaboratory is an extension of CERR ("Computational Environment for Radiotherapy Research"), based on the Matlab environment, and is the product of an NCI/NSF-funded collaborative working group on Operations Research Applications in Radiation Therapy (ORART). The collaboratory has three primary components: (1) the ORART planning test set, consisting of multiple anonymized treatment plan archives (currently head and neck or prostate plans), along with stated planning goals, (2) CERR tools for manipulating and reviewing the data, and (3) the ORART Toolbox, for generating and accessing beamlet dosimetry data needed for optimization research. The tools are compatible with several platforms (Windows, Linux, Unix). A variety of output formats for the beamlet matrices are available. New treatment plan datasets can easily be imported into the system using either the RTOG or DICOM protocol. Generated planning solutions can be compared against an accumulating range of previous results. This IMRTP Collaboratory is currently being actively improved, with continuing treatment planning data collection and software improvements. The collaboratory components will be made freely available for research.

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