RTOG-0522 TRIAL

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RTOG 0522/ACRIN 4500

- Unique opportunity to investigate concurrent advanced **treatment dose plans and imaging**

- Unique opportunity to test and develop methods for **quantitative PET imaging assessment in a multi-center trial setting**

- Developing preliminary data for an **RTOG-lead U01 grant application** - **Robust quantitative imaging endpoints for cooperative radiation oncology clinical trials**
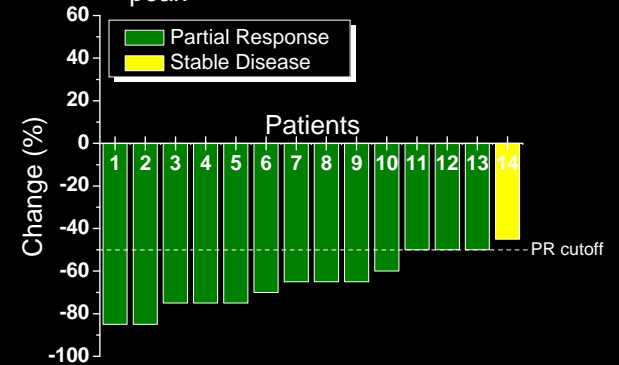
PET quantification measures

- **Single value measures:**
  - **SUV:** SUV_{max}, SUV_{mean}, SUV_{peak}, SUV_{total}, $SUV_{XX\%}$
  - **Size:** 1D, 2D, 3D
- **Distribution measures:**
  - **SUV:** SUV distribution, heterogeneity, fit, $SUV_{XX\%}$ distribution
  - **Histograms:** AVH, RDH
  - **Variability:** inter-patient, intra-patient
- **Spatial measures:**
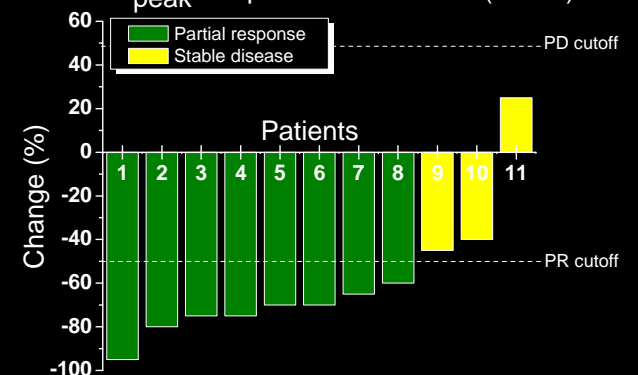 - **Spatial statistics:** Moran's I

Summary statistics (SUV$_{peak}$)

Summary statistics (SUV$_{total}$)

SUV$_{total}$ Response Assessment (primary+nodes)
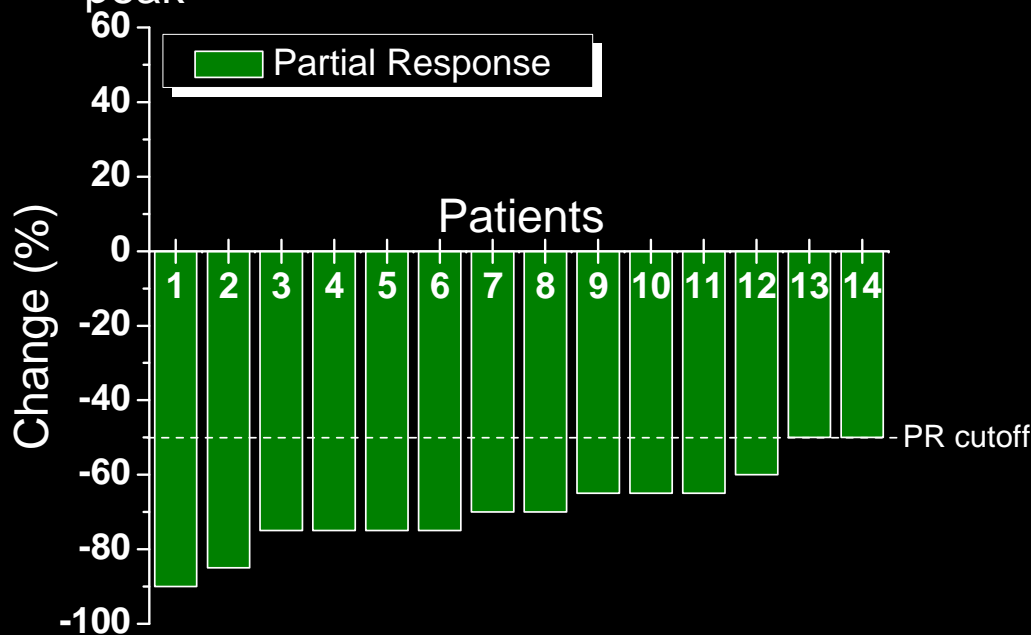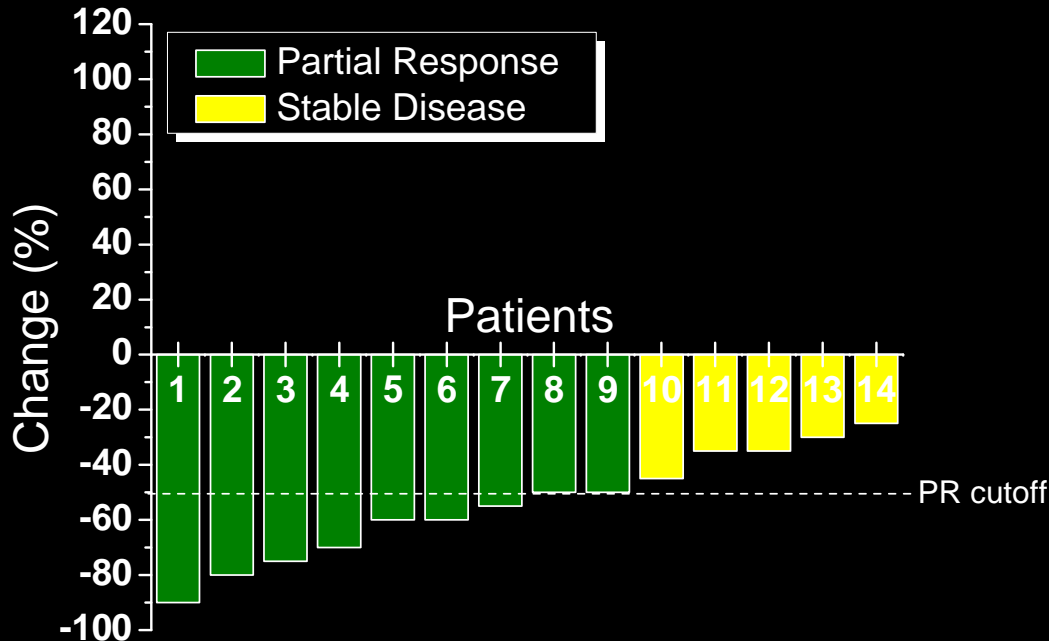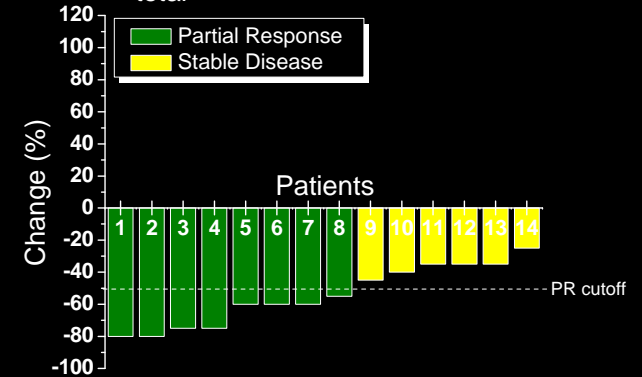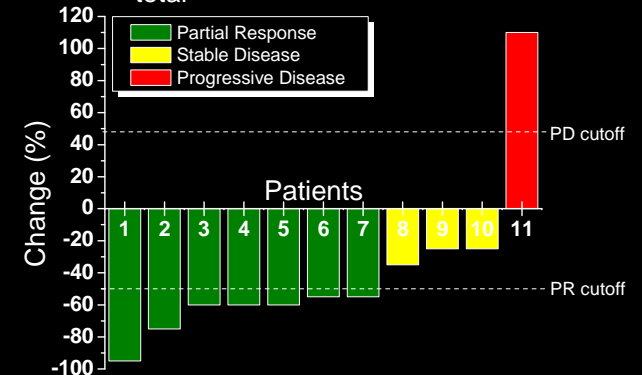
SUV$_{total}$ Response Assessment (primary)

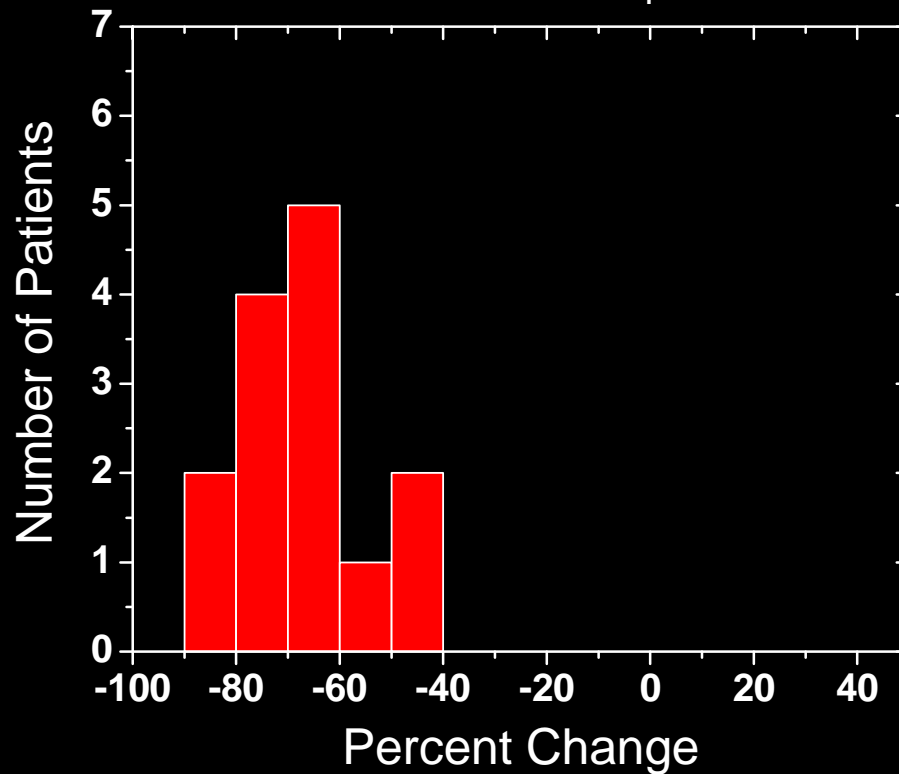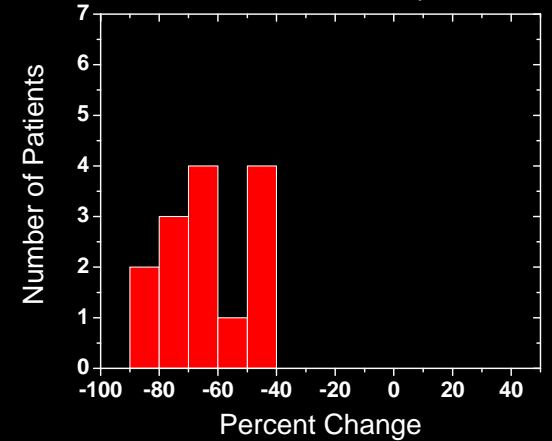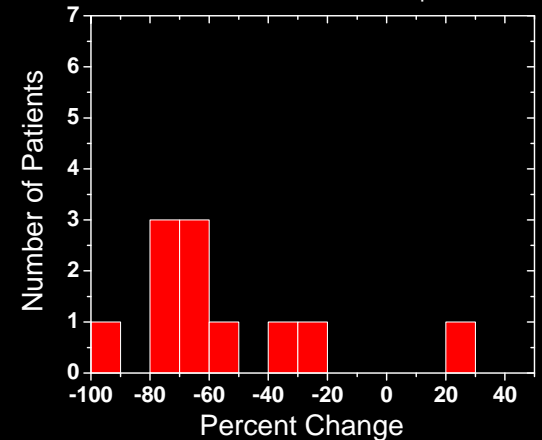SUV$_{total}$ Response Assessment (nodes)

Inter-patient response variation

Intra-patient response variation

Inter-patient response variation: SUV_{peak} range
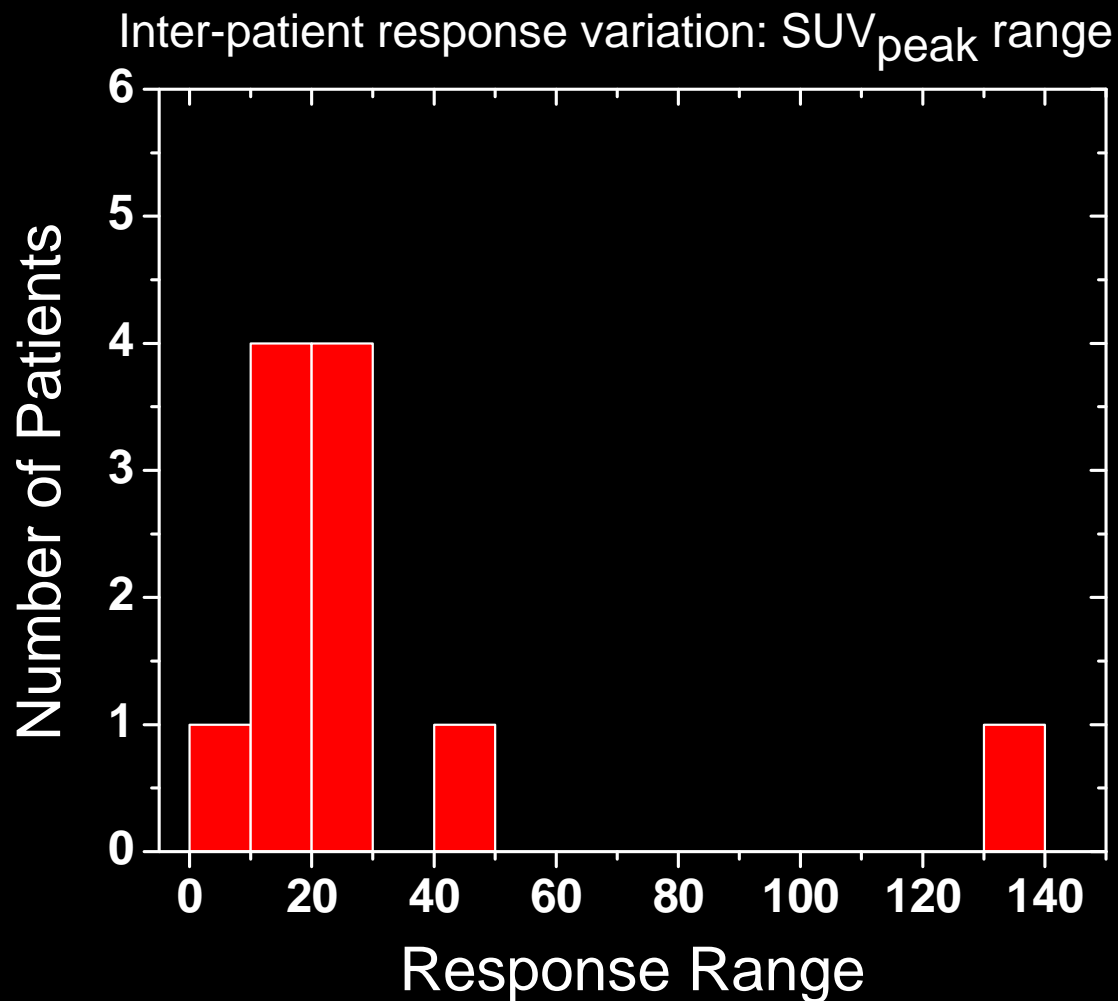
Conclusions

- **Successful combination** of both, the imaging and dosimetry data!

- Most of the technical glitches resolved – **need updated NBIA database**

- **U01 proposal:**
  - Gather preliminary data
  - Obtain data sharing permits
  - Grant submission

Thanks everyone
for making this possible !