well as the communication dynamics during the plan review process.

**Material and Methods:** A safety checklist was developed and implemented using checklist’s best practices as well as input from physicians, physicists and treatment planners (Figure 1).

We used the “Static sequential with verification and confirmation” method to perform the checklist. This method uses both initial configuration and redundant redundancy; the treatment planner writes down and calls the values on the checklist and the physician confirms that those values match the treatment intent. As part of a department practice quality improvement (PQI) project, we used a series of Plan, Do, Study, Act (PSDA) quality improvement cycles, and assessed the effectiveness of the safety checklist and the success of the project implementation. During each plan reviewed by the physician, we tracked two metrics: 1) Effectiveness of the checklist to catch a deviation and 2) Compliance of the physician to the checklist process. Additionally, we used a survey to assess communication dynamics between physician and planner.

**Results:** The safety checklist was used during a period of 6 months across our entire practice: 40 physicians and 24 planners. 1773 treatments plans were reviewed using the safety checklist process. This sample represents close to 95% of all clinical plans done in our practice during this period of time. The safety checklist helped catching 19 near-misses and also helped achieving 99% overall compliance to the plan review process. Pre- and post-implementation surveys shows improvement on communication dynamics and interaction between physician and treatment planner. Upon completion of the PQI, this safety checklist has become our standard operating procedure for the physician plan review process.

**Conclusion:** A safety checklist was successfully implemented as a safety barrier as part of the physician plan review process. The utilization of the safety checklist improved communication dynamics, process compliance and standardization, thus, improving the quality of the review process and the overall safety of our practice. This work presents evidence that Safety Checklists are an effective tool in error management as well as a tool to improve process compliance and team communication.

**Material and Methods:** The software was used simultaneously by multiple users on different computers to add, modify or view patient data, treatment information and adverse events. The software supports the National Cancer Institute Common Toxicity Criteria Adverse Event (CTCAE v4.03), Late Effects of Normal Tissue (LENT-SOMA) classification systems, laboratory values and other special data types, e.g. tone audiograms. The user can look up the definition of each item while entering values and get a graphical representation. Data for adverse events is collected every week for acute and every 3 months for late effects.

**Conclusion:** Our first experience with the “Toxicity” software demonstrates favorable accuracy of adverse events documentation of patients undergoing radiochemotherapy and its applicability as a tool for clinical trials.