Purpose: It is essential for radiation oncology departments to have comprehensive patient safety and quality programs. Two years ago we undertook a systematic review of our safety/QA program. Existing policies were updated and new policies created where necessary. One crucial component of any safety/QA program is continually updating it based on current information, the 'check' and 'act' portions of the Deming Cycle. We accomplished this with a transparent variance reporting system and a safety/QA committee reviewing and acting on reported variances.

Methods: With 5 radiation oncology centers in our institution, we needed to devise a system that would allow anyone to report a variance and provide our QA committee the ability to review variances system-wide. We developed the system using web-based tools. The system allows individuals to report variances, anonymously or named, specify the nature of the variance and indicate the tools used to identify the variance.

Results: In 2011, 285 variances were reported, 102 were reported by physicists, 86 anonymously, 71 by therapists and 26 by dosimetrists. We realized the need to develop clear classifications for variances. We added a high priority category, defined as variances which resulted in or had the potential to result in harm to a patient or when a policy is purposely overridden. Of the 285 variances reported, 5 were high priority. We created a process variance category, defined as variances where a specific clinical process is not followed. Of the 285 reported variances 155 were process variances.

Conclusions: Reporting of variances through a centralized database is central toward developing a robust patient safety/quality assurance program. Anonymous reporting fosters a non-punitive environment, and promotes the 'safety culture'. The goal of such a system is to review trends in clinical processes and ultimately to improve safety/quality by reducing variances associated with these processes.