Abstract:

**Purpose:** Healthcare enterprises where academic and community-based radiation oncology departments operate under the same health system are becoming prevalent. The purpose of this study is to implement an incident learning system (ILS) across multiple radiation oncology departments to improve patient safety, and the quality of patient and staff experience.

**Methods:** A voluntary, confidential, web-based ILS was implemented using hospital-supported software (Sharepoint, Microsoft Corporation). The ILS was first deployed at a single radiation oncology department (referred to as “Central”), and then expanded to departments at two additional hospitals within the health system (“North” then “South”). The ILS was designed as a central database in which the three departments could submit incident reports. All staff were encouraged to report on occurrences impacting the entire process of care, in addition to treatment-related incidents. Reports were classified as treatment deviation related (including actual or potential events) or non-treatment deviation related. Treatment deviation related reports were defined as occurrences that resulted in or could have resulted in an unintended deviation in radiation treatment delivery, e.g. a near miss or mistreatment. We further categorized the treatment deviation related reports as occurring early or late in the process of care. The reports categorized as being caught late in the process of care were defined as any deviation that either resulted in a mistreatment, or was caught while the patient was on the treatment table.

**Results:** The total number of logged reports was 591 for Central (23 month period), 409 for North (14 month period), and 85 for South (10 month period). The number of non-treatment deviation related reports was 482 (Central), 348 (North), and 57 (South). Among reports related to treatment deviation, the proportion occurring early in the process of care was 52% (Central), 59% (North), and 64% (South).

**Conclusions:** An enterprise-wide radiation oncology ILS has been developed that identifies opportunities related to the entire process of care in radiation oncology, as evidenced by robust early reporting and the large number of reports that were not specifically related to treatment delivery. The sharing of data through the ILS has motivated collaborative process improvements across the multi-hospital enterprise.