

## Managing Equipment Downtime: Standardized Definitions and Data Structure For Linac Service Event Reporting

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**Purpose:** To propose standardized taxonomy and definitions to facilitate centralized tracking of linac downtime across multiple radiotherapy centers.

**Methods:** The Radiation Treatment Program of Cancer Care Ontario formed a Physics Community of Practice with representation from each of the radiation therapy centers in Ontario. A working group developed standardized definitions and data structure for linac downtime events. Face-to-face meetings, tele-conferences and individual time were used to develop standardized definitions and a data structure for consistent reporting of linac downtime events. Data elements within the documents are independent of vendor.

**Results/Discussion:** The impact of linac service events on the number of affected patient fractions and financial costs were considered by the working group. Definitions include, but are not limited to, a service event, unscheduled and scheduled clinical downtime, and clinical hours. The taxonomy document includes data to be captured during a linac downtime event. The document includes three main categories (1) linac physical attributes (2) linac service event attributes and (3) part replacement attributes. Physical attributes can be used to categorize the pooled data across multiple centers. Event attributes are used to capture costs (time, cancelled fractions, monetary) related to a linac service event. Component replacement data is used for cost estimates and to identify subcomponent events.

**Conclusions:** Adoption of the standardized definitions and data structure could be used to develop a province wide linac downtime tracking tool. To support informed capital replacement cycles providing the basis for infrastructure management of radiation therapy delivery equipment within the province of Ontario.