

Medical errors can arise from a wide variety of root causes. The early identification of these causes can help to reduce the incidence and likelihood of medical errors. Analytical models based on Probabilistic Risk Analysis (PRA) have been proposed to assist in identifying likely scenarios within the overall radiation treatment delivery process. It is, however, difficult for these methods to quantitatively incorporate the myriad of human factors that may be at the root of medical errors. Analysis of select medical events illustrates that many cases originate not from a single event, but are the result of a series of events identified as an error chain. Once an error chain has been initiated the opportunity remains to break the error chain if key elements can be identified early in the progression. Some common examples in case studies are used as illustrations that highlight warning signs associated with development of an error chain. Many of these initiating events have their origin in specific human risk traits. Identification of these traits can promote awareness of the possibility of error chains leading to medical events. Several examples are illustrated and related to case studies and the methodology is extended to include protective measures for individuals, health care teams and organizations.