in such therapeutic protocols need to be monitored very carefully not only for treatment outcome, but also for treatment-related morbidity.

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**Integral dose, the hidden danger that brachytherapy avoids**
A. Henry¹, A. Henry¹
¹St James Institute of Oncology, Department of Clinical Oncology, Leeds, United Kingdom

Improvements in survival after a primary cancer diagnosis mean that the risk of radiation induced second cancer and cardiovascular disease become important survivorship issues.

As well as individual patient factors, risk of late effects is known to be related to the dose distribution, volume irradiated, total dose and dose rate. Using early prostate cancer and breast cancer as clinical examples this lecture will review risks from registry data and institutional series with particular emphasis on whether specific techniques are associated with lower risks. The physical dose distributions delivered to OAR with commonly used radiation techniques will be demonstrated with a comparison of differences in integral dose, defined as mean dose times OAR volume.

In prostate and breast cancer survivors, do brachytherapy techniques improve outcome with respect to radiation induced second cancers and cardiovascular disease? Can risk prediction models be developed that allow customised follow up and evidence based interventions to reduce the risk of late side effects?