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### Reducing toxicity through advanced radiotherapy prostate cancer treatment planning

#### Abstract

External beam radiotherapy (RT) is a curative treatment option for patients with localized prostate cancer, both as definitive treatment and in patients relapsing after radical prostatectomy and it also prolongs overall survival in patients with low burden metastatic disease.

Dose escalation is now the standard of care for the treatment of prostate cancer with radiation therapy and it leads to improved tumour control rates. But after prostate RT, anorectal toxicity has the largest impact on patients' quality of life. Even with modern treatment techniques and dosimetry plan optimization, anorectal toxicity is high. To further spare anorectal structures additional devices need to be applied.

My primary objective will be to learn how to appropriately use external beam radiotherapy and transperineally inserted spacers in everyday clinical practice together with modern radiotherapy techniques in order to reduce toxicity caused by radiotherapy.

Upon my return and when new equipment is placed, in addition to standard treatments, we will be able to offer many novel treatments that have been highly successful for prostate cancer patients worldwide, while selectively sparing surrounding tissues. The benefits to the healthcare system and society will be evident, both with respect to improvements in patient management and in reducing the cost due to chronic conditions.

As a high-volume prostate radiotherapy center we owe our patients the possibility to offer advanced radiotherapy treatment techniques/devices by which we can reduce rectal toxicity and provide them with satisfactory quality of life.