NORMAL TISSUE COMPLICATION PROBABILITY MODELS ON THE REQUITE PROSTATE CANCER POPULATION

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FONDAZIONE IRCCS ISTITUTO NAZIONALE DEI TUMORI

POLITECNICO MILANO 1863

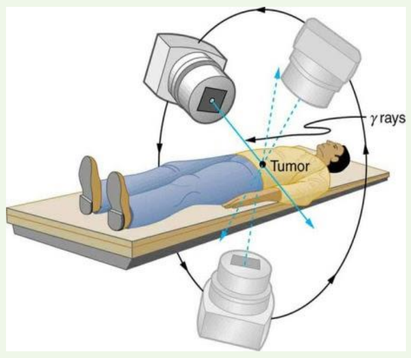
DATASET

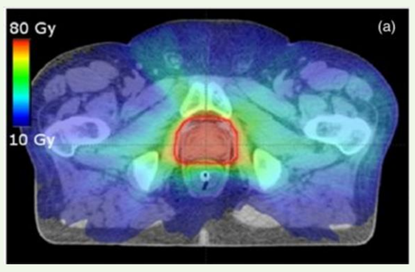
- *12 hospitals across 8 different nations*
- *Over 1000 patients with **Prostate cancer***
- ***Radiotherapy** treatment*
- *Clinical records of patients*
- *Bladder and rectum **dosimetric maps***

REQUITE

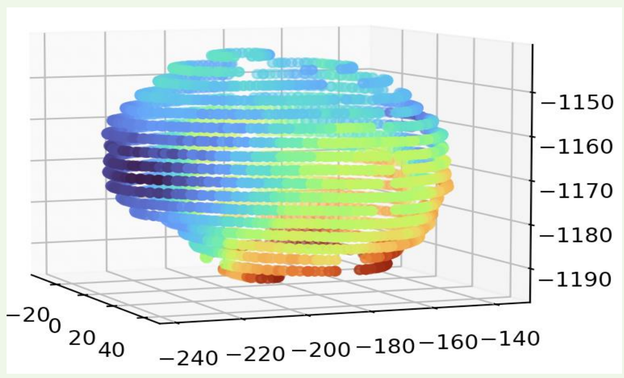
AIM OF THE PROJECT

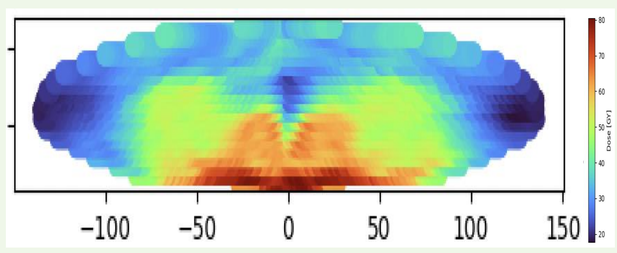
*For each side effect of the radiotherapy, a **logistic regression model** will predict wheter the patient will show that side effect or not (within a 2 years timespan)*





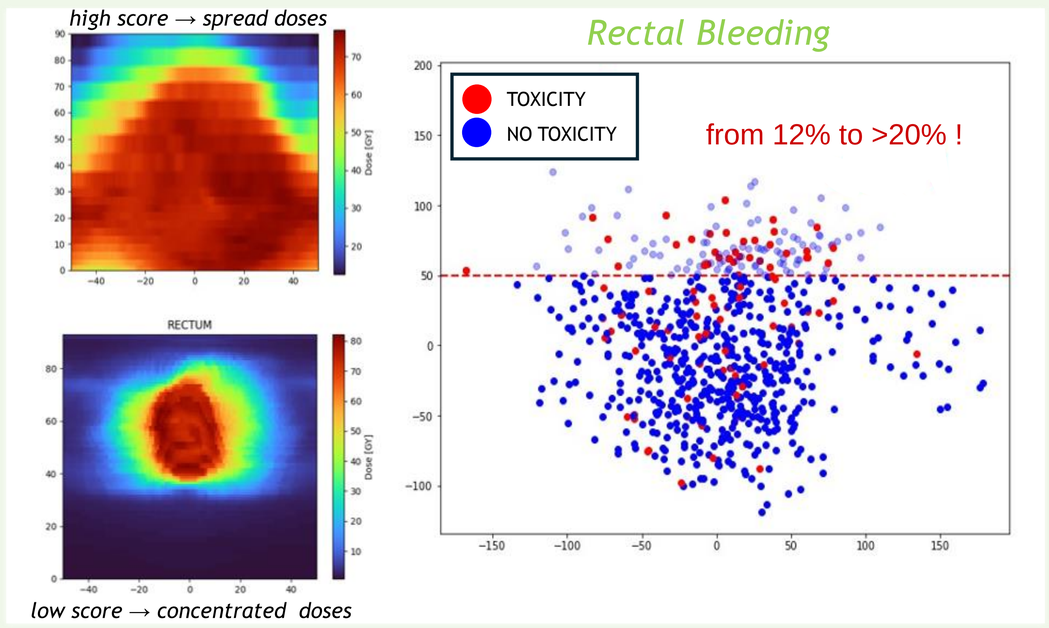
DOSIMETRIC MAPS



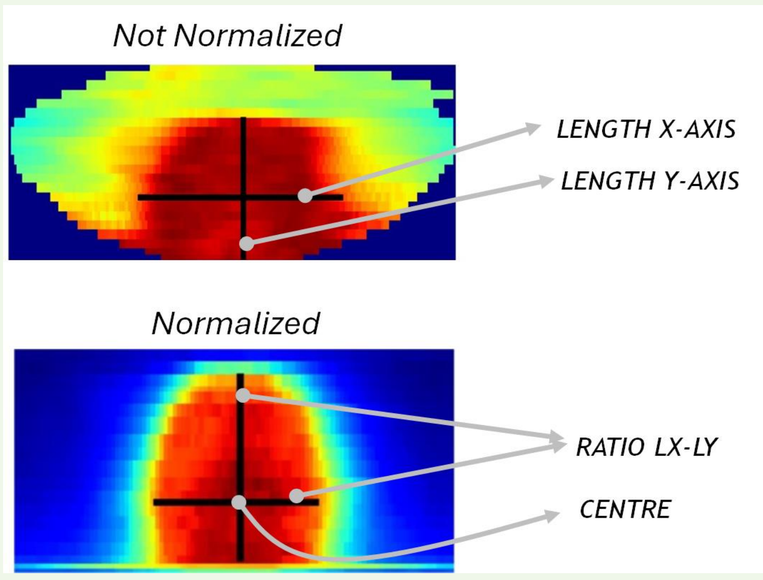


FROM MAPS TO INDEXES

- *Scores of PCA*



- *By design indexes*

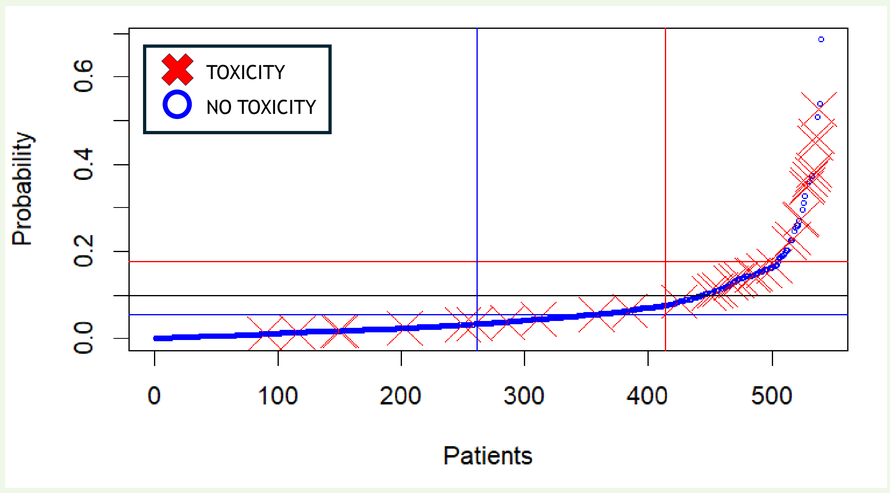


Indexes are calculated at multiple levels of dose

MODELS

*Specific **logistic mixed models** for each side effect of the radiotherapy, hospital **site** as **random intercept***

AN EXAMPLE: HAEMATURIA (2 years)



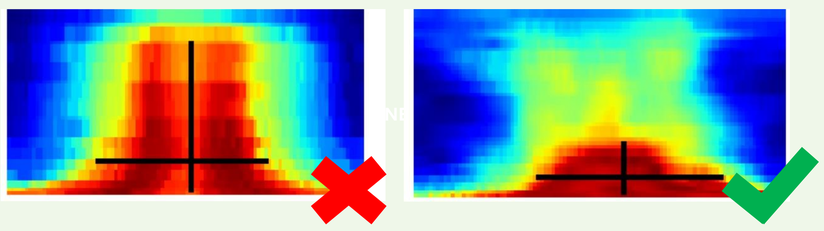
What's in the model?

- *PRSi_Haematuria*
- *Turp*
- *Ace-inhibitor*

Clinical records, unchangeable

- *Length_x_75_nn*
- *Length_y_70*
- *Ratio_Lx.Ly_40*

Map indexes, changeable → plan maps with doses concentrated in the lower central part of the bladder



*Being under the threshold **reduces the risk** of haematuria up to 8 times!*