Distributed Cancer Data and Analysis

Using data analytics, machine learning and deep learning techniques across clinical and imaging datasets to provide the opportunity for establishing personalised medicine approaches to cancer treatment.

Competitive advantage

- Leading a strong collaboration of national and internationally linked hospital-based radiotherapy datasets
- Distributed learning to enable machine learning and advanced imaging analysis across the network of datasets
- Imaging datasets that are annotated during the routine course of radiotherapy including defined treatment regions and normal tissue structures, all in 3D

Impact

- Outcome models can provide additional clinical evidence where directly applicable clinical trial evidence is not available
- Variability in patient cohorts, treatment and outcome can be assessed in a streamlined fashion
- The impact of new technology that is unsuitable for a clinical trial, can be assessed

Successful outcomes

- Validated published prediction models using this approach to accessing data
- Used imaging datasets available in this network to incorporate radiomics features into an outcome prediction model
- Develop autosegmentation algorithms – using image datasets – for use within a radiotherapy clinical environment

Capabilities and facilities

- An established network across both national and international radiotherapy clinics
- A developed platform for undertaking machine learning on distributed datasets, and for calculating and analysing radiomics features and assessing correlation with other clinical factors or outcomes

Our partners

- NSW Local Health Districts
- Trans-Tasman Radiation Oncology Group
- Maastro clinic, Maastricht, The Netherlands
- Odense University Hospital Denmark
- Oslo University
- CSIRO
- Cancer Institute NSW

More Information

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