

Clinical data science in Radiotherapy

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Propositions belonging to the Dissertation

Clinical data science in Radiotherapy: data extraction and quantitative analysis

By Johan van Soest

1. Medicine is a science of uncertainty and an art of probability (W. Osler)
2. Data is a precious thing and will last longer than the systems themselves (Tim Berners-Lee)
3. Prognostic or predictive models have a shelf life (A. Abu-Hanna / N. Peek)
4. Maslow's hammer ("To a man who only has a hammer, everything he encounters begins to look like a nail.") also applies to data science. Trying to solve all problems with AI or Machine Learning may not be efficient.
5. Data is an abstraction of language, and hence will change over time.
6. Reuse of data should consider the factors involved in recording the data. Otherwise we don't know if we can reuse the data.
7. Prediction models don't sell themselves, the applications which use them do.
8. Predictions close to the outcome timepoint are generally more accurate than predictions far from the outcome timepoint.
9. Everyone develops their own standard before adoption, as it is deemed to be more time-efficient in the short-term.
10. (Clinical) data science attempts to find a trade-off between (a) the scientific question, (b) the technical possibilities and (c) societal acceptance including ethical and legal considerations.
11. The perception of distance for the person at the destination is always much smaller than for the person who needs to travel toward this destination. Hence, I am thankful for the effort of everyone who had to travel to get here this morning.