



Universiteit
Leiden

The Netherlands

Leveraging AI-based prediction in perioperative and critical care: from model development to clinical implementation

Meijden, S.L. van der

Citation

Meijden, S. L. van der. (2025, May 6). *Leveraging AI-based prediction in perioperative and critical care: from model development to clinical implementation*. Retrieved from <https://hdl.handle.net/1887/4245255>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4245255>

Note: To cite this publication please use the final published version (if applicable).

STELLINGEN

behorende bij het proefschrift getiteld

Leveraging AI-based prediction in perioperative and critical care

From model development to clinical implementation

1. A significant opportunity exists for AI-based prediction models to improve patient outcomes, reduce costs and increase efficiency in the domains of critical and perioperative care. *(this thesis)*
2. A clinically relevant and reliable labeling method for the outcome of interest is essential to train, validate and monitor a prediction model. *(this thesis)*
3. Local model validation and, if performance declines, model updating is imperative before a model is implemented in another institution. *(this thesis)*
4. AI ‘fairness’ is complex due to a multitude of contradictory definitions, and the applicable definition depends on the use case. *(this thesis)*
5. A flawlessly performing AI-based prediction model holds no value if it is not integrated into the clinical workflow with a well-planned implementation strategy. *(this thesis)*
6. Less experienced physicians benefit most from AI-based prediction models such as PERISCOPE. *(adapted from Knop et al. 2022)*
7. The ‘myth of generalizability’ argues for locally updated AI-based prediction models over universal ‘off-the-shelf’ ones. *(adapted from van Calster et al., 2023 and Futoma et al., 2020)*
8. “I was not predicting the future, I was trying to prevent it” relates to PERISCOPE as it aims not just to predict the future, but by doing so to reduce the impact of infectious complications. *(Ray Bradbury)*
9. As Confucius said, “Study the past if you would define the future”: prediction models require assessing the reliability of historical data along with its inherent biases.
10. We tend to overestimate the impact of AI in healthcare in the short term and underestimate the effect in the long term. *(adapted from Roy Amara, ‘Amara’s law’)*
11. Humans have the power to shape the world, as seen with the widespread use of AI, yet they cannot fully manage its consequences. *(adapted from Bruno Latour)*
12. While AI aims to substitute or complement human capabilities, it instead holds the most value when allowing for more time for human interaction and connection.