

Propositions accompanying the thesis:

**Beta-lactams and Fluoroquinolones Dose Optimization in Critically Ill Patients
To TDM or not to TDM**

1. The significant inter- and intra-patient pharmacokinetic variability of antibiotics in critically ill patients necessitates individualized antibiotic therapy. [This thesis]
2. Based on readily available demographic and clinical factors, patients at risk for target non-attainment can be identified and this could guide clinicians in considering individualized dosing regimens, including therapeutic drug monitoring of antibiotics. [This thesis]
3. To enable optimal implementation of beta-lactams and fluoroquinolones therapeutic drug monitoring, several barriers should be overcome regarding logistics, equipment availability, clinical evidence, and proof of cost-effectiveness. [This thesis]
4. With model-informed precision dosing, we aim to achieve adequate antibiotic exposure in each individual patient as quickly as possible, that is, to achieve drug concentrations associated with maximum efficacy while avoiding toxicity. [This thesis]
5. Scavenged sampling can be a suitable approach for antibiotic quantification, to perform pharmacokinetic studies, and to explore the value of therapeutic drug monitoring without additional sample collection. [This thesis]
6. Population pharmacokinetic models not only provide answers but should also generate questions. [Diane R. Mould and Richard N. Upton, 2013]
7. We must free ourselves from the misconception that there is such a thing as a 'true' minimum inhibitory concentration for a strain. [Johan W. Mouton et al., 2017]
8. Sometimes, the step from best evidence to best practice is simple; however, most of the time it is not, and we need various strategies targeting obstacles to change at different levels, which could even present conflicting values for individual practitioners. [Jan M. de Maeseneer et al., 2003]
9. Professional development needs to be built into daily patients' care as much as possible, and preferably should take place at the point of time with clinical decision-support tools and real-time patient-specific reminders to help clinicians to make the best decisions. [Richard Grol and Jeremy Grimshaw, 2003]
10. Just as we needed new tests, treatments, and vaccines for the novel coronavirus, we need new tools for fighting climate change: zero-carbon ways to produce electricity, make things, grow food, keep our buildings cool and warm, and move people and goods around the world. [Bill Gates, 2021]
11. Often when you think you're at the end of something, you're at the beginning of something else. [Fred Rogers]