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EUROPEAN SOCIETY OF CLINICAL PHARMACY: 'THE PRESCRIBING PHARMACIST: A PRESCRIPTION FOR BETTER PATIENT CARE'

On the 7th and 8th of April 2025, the European Society of Clinical Pharmacy (ESCP) will host its Spring Workshop in Egmond aan Zee, the Netherlands, focusing on a highly topic for the further development of clinical pharmacy: the prescribing pharmacist. As healthcare systems face increasing pressures from aging populations, rising comorbidities, and resource constraints in both primary and secondary care, the need for innovative and sustainable approaches to patient care is more urgent than ever. Redistributing tasks and responsibilities among healthcare professionals could help maintain the quality and accessibility of patient care [1]. In this context, several countries (e.g., UK, Brazil and New Zealand) have granted (in)dependent prescribing authority to pharmacists, which has shown to be both safe and effective [2]. Independent pharmacist prescribing refers to the legal authority granted to pharmacists to prescribe medications without the need for direct supervision by a physician or other healthcare

professional. In this capacity, pharmacists can assess, make clinical decisions, and prescribe autonomously, e.g. the current prescribing model in the UK [3]. Dependent prescribing models involve prescribing in the context of protocols, agreements or collaboration with physicians, e.g. the current prescribing in New Zealand [3]. However, pharmacist prescribing rights can be different in different provinces/states within one country, e.g. USA and Canada [4, 5].

The upcoming ESCP Spring Workshop will bring together international experts and pharmacists to explore how the 'pharmacist prescribing model' can be successfully implemented and scaled across diverse healthcare settings. The workshop will feature keynote presentations, interactive sessions, and discussions that are structured around four central themes exploring the prescribing pharmacist's role:

1. Setting the scene by providing a global overview of prescribing pharmacist initiatives, different prescribing models and examining the different types of prescribing roles for pharmacists.
2. Attendees will gain insight from an experienced prescribing pharmacist, who will share practical examples of day-to-day activities, discuss evidence of the added value brought to patient care, and offer insights into the practicalities of implementation.
3. Focus will be placed upon the process of establishing prescribing pharmacist roles, key facilitators and barriers in different healthcare systems, by sharing moments of inspiration, effort, and frustration from a country at the forefront of this initiative.

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4. Further focus will be placed on the competencies required for prescribing pharmacists, including the essential knowledge, skills, and attitudes necessary to successfully navigate this expanded clinical role.

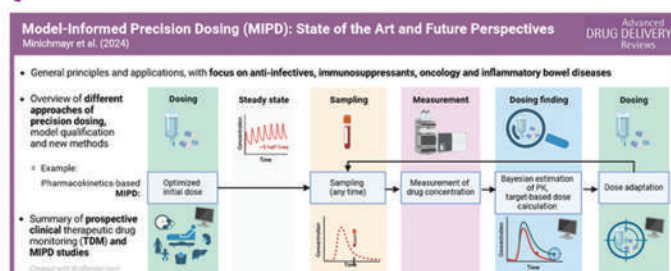
Participants will have opportunities to share research, engage in discussions on innovative clinical pharmacy practices, and network with peers. The event will foster an environment where clinical pharmacists, academics, researchers, and healthcare professionals can collaborate on shaping the future of the profession, with better access of patients to appropriate medication treatment and care.

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Model-Informed Precision Dosing (MIPD): State of the Art and Future Perspectives



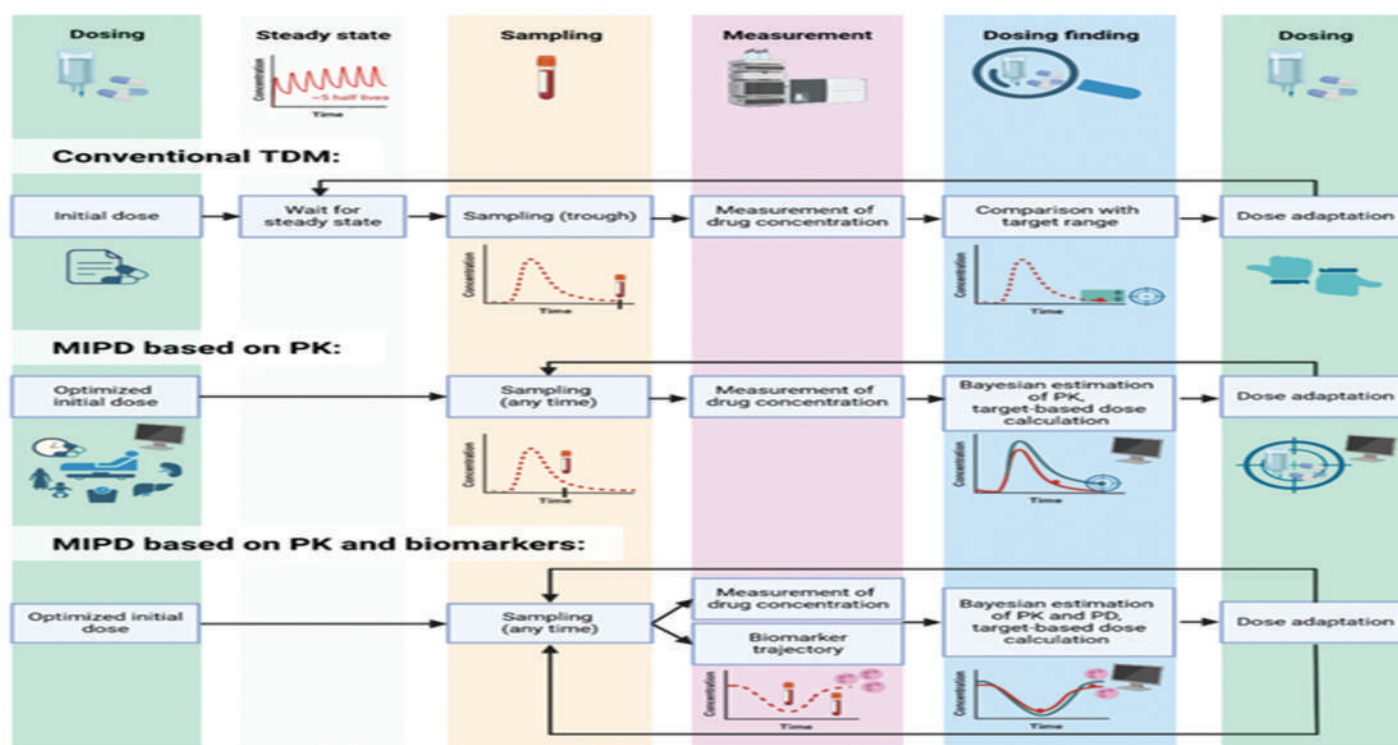
Model-informed precision dosing (MIPD) is an advanced quantitative approach focusing on individualized dosage optimization, integrating complex mathematical and statistical models of drugs and disease combined with individual demo

graphic and clinical patient characteristics. MIPD has been highlighted as a current and useful tool for drug dosage optimization in drug development processes and clinical practice. Population pharmacokinetics (popPK) and dose optimization in different types of patients constitutes a useful working tool within the framework of the MIPD approach. Population pharmacokinetic models are of essential in the selection of doses of a wide variety of drugs and especially drugs with a narrow therapeutic margin in special populations, such as pediatric patients, critically ill patients, etc.

A multitude of population models are often available for a single drug (mainly population PK models to date), and meticulous selection of the appropriate model for patient dosing adjustments is crucial. Factors such as age groups, indications, disease states (e.g., general ward or critically ill), body composition (e.g., normal, obese, cachectic), genetic attributes, studied dose levels, route of administration, sampling scheme (first dose and/or steady state), covariate ranges, and analytical methodologies must be considered when selecting a model for MIPD. Ideally, the chosen model and modalities align perfectly with the target population in which the model shall be used [1]. Even when the population model matches the target population, it is important to note that these models were not always developed with MIPD in mind. Therefore, a fit-for-purpose evaluation is typically necessary, assessing the predictive performance of the models within the MIPD framework. This evaluation encompasses various aspects, including a priori prediction, accurate representation of PK/PD variability components (verified through simulation-based diagnostics), and, notably, performance in Bayesian forecasting [2]. Retrospectively collected datasets, e.g. containing several measured drug concentrations from the same individual, can aid in this evaluation. A portion of the dataset remains hidden from the models, and these concentrations are predicted using earlier measurements, mimicking the TDM process retrospectively [3]. Remarkably, among 35 external evaluation studies on antibiotic population models for MIPD, only 8 evaluated Bayesian forecasting performance in this manner. The evaluating metrics can extend beyond bias and imprecision of the forecasted concentrations; they should also encompass their impact on calculated PK/PD target attainment and subsequent dosing decisions [28]. A study by Broeker et al., for instance, systematically assessed 31 population models for vancomycin in a general ward setting, revealing significant variations in predictive performance between the models [3].

Comparison of MIPD and conventional TDM.

	MIPD	TDM
Sampling scheme	Not required, any timed sample can be used	Most commonly trough sample, strict adherence to sampling scheme required
Mode of operation	Requires specific software	Simple mathematics
Time of intervention	Any time, from before the first dose to steady state	After reaching steady state
Mode of intervention	Calculation of a dose that reaches a predefined PK/PD target	Comparison of exposure with a target range; if outside, dose adjustment assuming dose-exposure-proportionality in steady state or clinical experience
Nonlinear PK	Can be considered in the model underlying MIPD	Dose adjustment using proportionality principles requires linear PK
Biomarkers and PD Target attainment rates	Can be considered in the model Often higher than TDM	Focus mainly on PK Often lower than MIPD



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