

# AT-HOME study

## **A two-step Approach for outpatient parenteral antimicrobial Therapy with vancomycin: model-based dosing and non-invasive sampling vs. traditional tHerapeutic drug mOnitoring to reduce healthcare contacts and iMprove patients' and carEgivers' satisfaction**

### ABSTRACT

The patient-centred treatment pathway for patients with severe resistant infectious diseases in Europe foresees in outpatient parenteral antimicrobial therapy at home supervised by nurses (H-OPAT), moving care from the hospital closer to home. However, for several antibiotics current H-OPAT still requires patients to frequently visit the hospital for traditional therapeutic drug monitoring (TDM) to attain the targeted concentration. TDM causes logistical burdens and avoidable costs, as well as patient discomfort due to traveling and invasive blood sampling for venipuncture. Furthermore, TDM-based dose adjustments are often driven by an 'educated guess', leading to suboptimal antibiotic exposure and more healthcare needs. To make H-OPAT a true de-institutionalised treatment while keeping high quality of care a transformative solution is needed that improves antibiotic dosing and monitoring and abandons the need for hospital visits. The AT-HOME consortium of academic hospitals, nursing organisations and industry, with the support of patients, will evaluate if H-OPAT with vancomycin can be made more efficient, effective and sustainable by integrating model-informed precision dosing (MIPD) and dried blood spot (DBS) sampling. DBS is a minimally invasive at-home method using a finger prick. With MIPD, we can optimize dosing for better antibiotic exposure using validated pharmacometric models based on patient-specific factors. DBS sampling performed by the patient after training by nurses will reduce patient burden, travel movements and hospital visits. We expect that this improvement of H-OPAT will lead to better patient outcomes and satisfaction, fewer healthcare contacts and lower costs. Using our insights, including on barriers and facilitators for implementation, we aim to implement improved H-OPAT for vancomycin and other antibiotics into clinical practice in Belgium, Sweden, Spain and the Netherlands, and promote further upscaling across Europe.

### KEYWORDS

- Outpatient parenteral antimicrobial therapy
- Vancomycin
- Model-informed precision dosing
- Dried blood spot analysis
- Care-at-home
- Health care contacts
- Patient satisfaction

### DURATION

36 months

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