

Barriers and Facilitators for Implementing a Pharmacogenetic Passport: Lessons Learned from Reusing Sequencing Data

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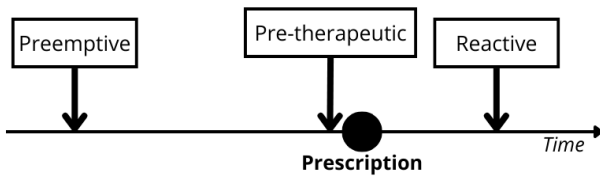
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 No potential conflict of interest was reported by the author(s)



Background

Pharmacogenetics uses individuals' genetic profiles to optimise drug treatment and prevent adverse drug reactions.

One strategy to obtain information on pharmacogenes is to reuse sequencing data for a pharmacogenetic passport, providing information preemptively to healthcare professionals for utilisation throughout a patient's lifetime.



PILOT CASE STUDIES - Amsterdam UMC

- Two pilot studies have been conducted (300 individuals) at Amsterdam UMC.
- To explore the small-scale implementation of a physical pharmacogenetic passport, which includes a QR code for the patient.
- Based on reused WES data from trios data (child, and parents).
- WES data were reused to extract the pharmacogenetic phenotypes, ranging from poor to rapid metabolizer, for 12 known pharmacogenes (e.g. CYP2D6, CYP2C19).
- QR code links to personalised medication recommendations based on a national PGx database (~130 drugs).
- Enables HCPs to access PGx profiles for patient-specific prescribing.

Aim: To explore stakeholders' perceived barriers, facilitators and future perspectives of implementing a pharmacogenetic passport based on experiences from reusing sequencing in a Dutch University Medical Center.



Methods

- Design:** Qualitative study using semi-structured interviews. Using MAXQDA to conduct thematic analysis.
- Participants:** 21 healthcare professionals at Amsterdam UMC: Clinical geneticists, lab specialists, pharmacists, bioinformaticians, healthcare managers, administrators, paediatric psychiatrists, clinical pharmacologist, oncologist, a paediatric neurologist, and privacy office.
- Recruitment:** Purposeful & snowballing sampling was used to recruit HCPs.
- Setting:** Interviews held in-person in Amsterdam UMC and online (April-October 2024).
- One interviewer (AH) and seven sessions also attended by observer (LLK).

Results

BARRIERS	FACILITATORS
Inadequate data infrastructure	Easy, efficient, and affordable to obtain PGx test results
Limited knowledge of pharmacogenetics	Positive attitudes about patient impacts
Lack of guidelines or protocols	Patient in control of own health data
Unequal access	
Unclear division of tasks, unclear procedure	
Other hospital priorities	

Key take-aways:

- When considering the implementation of a pharmacogenetic passport, strategies can be developed to diminish barriers and strengthen facilitators.
- It is important to focus on data infrastructure, (visibility of) guidelines, clear division of tasks, and pharmacogenetic education.

ENVISIONED FUTURE PERSPECTIVES

	<p>A digital or app-based pharmacogenetic passport integrated into hospital IT systems to enhance accessibility for HCPs and patients</p> <p>Ability to share genetic data with primary care providers, who are key medication prescribers</p>
	<p>Debate on scope: universal access vs. restricted (depending on cost-effectiveness etc.)</p>
	<p>Future visions include pre-emptive pharmacogenetic testing during routine care (e.g. blood tests, hospital intake)</p>

Publication

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