

THE PRESCIT PROJECT: INTELLIGENT E-PRESCRIPTION FOR CLINICAL DECISION SUPPORT

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The PrescIT Project

Electronic prescription (e-Prescription) and Computerized Physician Order Entry (CPOE) systems are gaining attention, as they promote digital automation and cost reduction. On top of that, Clinical Decision Support Systems (CDSS) facilitate and increase robustness (e.g., by preventing Adverse Drug Reactions - ADRs) of the clinical process. Yet, they lack interoperability and integration with national healthcare systems. In this context, the PrescIT project aims to develop a CDSS platform for more interoperable, efficient, safe, standardized and affordable e-Prescription [1].

Intelligent e-Prescription Platform Overview

To assist clinical decisions in PrescIT with patient-specific recommendations, patient information is matched with a knowledge base that includes: the Galinos portal drug database, clinical protocols and computerized versions of Therapeutic Prescription Protocols (TPPs), along with a knowledge graph based on global literature and open sources (DrugBank, SIDER). To extract recommendations and alerts, the platform integrates data analysis, reasoning and rule engines.

Encoded Therapeutic Prescription Protocols

TPPs conceptualize broadly established Clinical Practice Guidelines (CPGs) to treat a disease [2]. In PrescIT, we employ the Business Process Management Notation (BPMN) to convert TPPs to a machine-interpretable format [3]. We used open source libraries to implement several TPPs (depression, dementia) and tested them with realistic, synthetic patient data.

Eliciting End-User Requirements

By extending state-of-the-art questionnaires with open and close-ended questions, we created questionnaires to elicit insights of existing e-Prescription systems (pros and cons), missing features and requirements for PrescIT. The questionnaires will be distributed to three groups of healthcare professionals: doctors, pharmacists and hospital/clinic managers. Feedback will guide development before validating the platform in pilots.

Clinical Pilots

PrescIT will be validated and evaluated in real-world conditions in multiple hospitals and clinics in Greece with enough diversity (public and private, with and without sophisticated digital systems). As a proof-of-concept, pilot protocols involve different departments and ailments including

psychiatry, neurology, cardiology. Evaluation metrics will include usability, acceptance and cost-effectiveness.

Conclusion

PrescIT follows a methodic approach to elicit requirements, cover missing features, such as interoperability, digitization of TPPs and integration, to develop an intelligent e-Prescription platform and evaluate it in real-world conditions in diverse clinical pilots in Greece.

References

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Keywords

e-Prescription, Decision Support Systems, Therapeutic Prescription Protocols, Adverse Drug Reactions

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