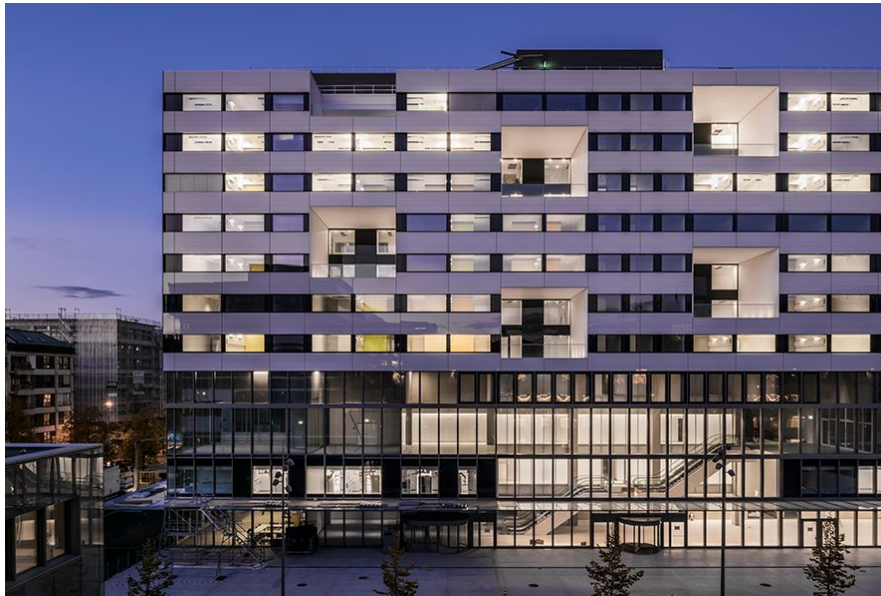


# Implementation Case Study: Geneva, Switzerland - Shared Medication Treatment Plan

## Project Name

MonDossierMedical.ch - Shared Medication Treatment Plan



*University Hospitals of Geneva - Gustave Julliard hospital building*

## Location

Geneva, Switzerland Region

## Contact Information

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## Project Description

The Canton of Geneva Switzerland has built an Electronic Patient Record system aiming at regrouping all important documents for the patient's care. Documents are provided by all stakeholders. The patient is the owner of the patient record (patient centered). An added-value service exists for 3 years now enabling care providers to manage the medication treatment plan. The goal is to have a complete view of all medications taken by the patient.

The ongoing project is to link stakeholders' applications (prescription systems, dispensing systems, home care systems) directly with the core system in order to avoid any duplication of data entry and to have a true integration of all primary systems with the central shared medication treatment plan tool.

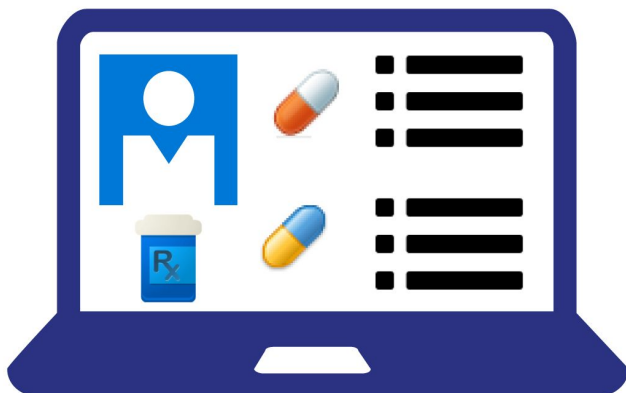
## Project Scope/Scale

- Focus: medication treatment plan
- Partners: main hospital, GPs, pharmacists, home care nurses
- Population: long term (5 years): ~400K patients; currently: 25K patients
- Geographical region: Geneva State for the project, but national for the strategy / adoption of standard
- Funding: State of Geneva and partners

## Goals, Benefits and Achievements

The primary goal of implementing the Shared Medication Treatment Plan is to achieve a real-time, global view of the past, current and planned medications taken by all patients. Creating this comprehensive picture of patients' medication history will create more complete and up-to-date medical histories that can be accessed anywhere that patient goes to receive care.

“It is quite rare to have the complete list of active drugs during a consultation for various reasons: prescriptions can be made on paper media and will not increment the patient's medication plan and the prescriptions can be made on a different EHR than that used by the doctor during the consultation,” says Nicolas Perone, medical director of PRISM and medical practitioner in the community department of Hôpitaux universitaires de Genève.



At the hospital level, this project will play an important role in medication anamnesis during patient admission and medication reconciliation at the end of patient stays (discharge medication treatment). The Shared

Medication Treatment Plan represents the crucial first steps in building a full e-prescription/e-dispense system.

Pulling back to look at the long-term goals of the project, the Shared Medication Treatment Plan define a framework for supporting e-medication systems. In time, this framework will support the push for EU-wide e-prescription and e-dispense systems by defining national e-medication standards.

### Timeline

- August 2015: New IHE Pharmacy Medication Treatment Plan profile published
- Sept 2015: National standard for implementing eMedication proposed (MTPS)
- April 2017: Implementation of a library for creating and parsing IHE Pharmacy CDA documents (MTP, PRE, DIS, PADV, PML) - eHealth Connector (open source)
- Q3 2017: Integration of hospital prescription system + 1 principal GP system with central platform using MTPS; possibly integration of at least 1 pharmacy system with central platform
- Q4 2017: Go live

### Ways the Project Leverages IHE Products and Processes

National standard is fully based on IHE Pharmacy content profiles. The coverage of the IHE Pharmacy profiles was extended to suit the scope of the project (new profile covering the pre-prescription phase)



### Ways the Project Leverages IHE Test Tools and Testing Processes

[IHE Gazelle testing tools](#) are currently being used for validating the produced CDA documents. For all those who will use the eHealth Connector in their implementation, this will mean that the produced document are valid. When more providers will be interconnected, we may ask them to go through a connectathon in order to validate their implementations, although this could also be done within the forthcoming national reference environment being built by IHE Services for the Swiss government.

### IHE Profiles Implemented

Specific to the project was the implementation of a set of [IHE Pharmacy profiles](#) that define the content and format of structured pharmacy documents used in planning, prescribing and dispensing patient medications:

- **Medication Treatment Plan (MTP)** - describes a medication document generated when a health care professional adds a medication to a patient treatment plan.
- **Pharmacy Prescription (PRE)** - describes a prescription document generated when a health care professional decides that the patient needs a medication.
- **Pharmacy Dispense (DIS)** - describes a dispense document generated when a health care professional dispenses a medication to a patient.
- **Pharmacy Pharmaceutical Advice (PADV)** - describes a pharmaceutical advice document generated when a health care professional validates a prescription item against pharmaceutical knowledge and regulations or manages a medication treatment plan or a dispensation.
- **Pharmacy Medication List (PML)** - describes a medication list document generated when a health care professional requests this information, for example when prescribing.

These documents are exchanged inside a central health information exchange platform based on key IHE IT Infrastructure profiles:

- **Cross-Enterprise Document Sharing (XDS)** - facilitates the registration, distribution and access patient electronic health records across care sites.
- **Patient Identifier Cross Referencing (PIX)** - supports the cross-referencing of patient identifiers from multiple Patient Identifier Domains.
- **Patient Demographics Query (PDQ)** - lets applications query a central patient information server and retrieve a patient's demographic and visit information.
- **Audit Trail and Node Authentication (ATNA)** - enables security measures that provide patient information confidentiality, data integrity and user accountability.

A subset of IHE Pharmacy **Community Medication Prescription and Dispense (CMPD)** profile is also implemented in order to create the on-demand Pharmacy Medication List CDA document and to manage the necessary conversions between the platform's internal data structure and the external CDA format.

The screenshot shows the 'MonDossier Medical.ch' web application. The user is logged in as 'Connecté à ma santé'. The interface includes a navigation menu with 'DOSSIER', 'NOTIFICATIONS (67)', 'SETTINGS', and 'UNSUBSCRIBE FROM DOSSIER'. The main content area is titled 'ADVANCED SEARCH' and displays a table of medical documents. The table has columns for 'DOCUMENT TITLE', 'TYPE', 'AUTHOR', 'CREATION DATE', 'CONFIDENTIAL', and 'ACTION'. The documents listed include various reports such as 'Rapport de consultation ambulatoire', 'Rapport des fonctions pulmonaires', 'Résultat du NO exhalé/nasal', 'Rapport des fonctions pulmonaires', 'Rapport de consultation ambulatoire', 'Laboratoire - Immunoallergo - Sang veineux', 'Rapport d'imagerie - RADIOGRAPHIE THORAX', 'Laboratoire - Chimie clinique des urines - Sang veineux(sang)', 'Laboratoire - Hématologie - Sang veineux(Sang)', and 'Première consultation - Otolologie - bilan o.d.'. The interface also includes a search bar, a 'SEND SELECTED DOCUMENT(S)' button, and a footer with 'Swiss Post Ltd © 2015 | Legal notice | Privacy and data protection | 3.5.28-22615'.

DOCUMENT TITLE	TYPE	AUTHOR	CREATION DATE	CONFIDENTIAL	ACTION
Rapport de consultation ambulatoire	Consultation report	HUG Pneumologie Sysadmin HUG	07.03.2016		🔒
Rapport des fonctions pulmonaires - 23.02.2016	Diagnostic report	HUG Pneumologie Sysadmin HUG	24.02.2016		🔒
Résultat du NO exhalé/nasal - 23.02.2016	Diagnostic report	HUG Pneumologie Sysadmin HUG	23.02.2016		🔒
Rapport des fonctions pulmonaires - 19.01.2016	Diagnostic report	HUG Pneumologie Sysadmin HUG	21.01.2016		🔒
Rapport de consultation ambulatoire	Consultation report	HUG Pneumologie Sysadmin HUG	12.01.2016		🔒
Laboratoire - Immunoallergo - Sang veineux	Laboratory report	HUG Pneumologie Sysadmin HUG	04.01.2016		🔒
Rapport d'imagerie - RADIOGRAPHIE THORAX	Diagnostic report	HUG Radiologie Sysadmin HUG	29.12.2015		🔒
Laboratoire - Chimie clinique des urines - Sang veineux(sang)	Laboratory report	HUG Pneumologie Sysadmin HUG	28.12.2015		🔒
Laboratoire - Hématologie - Sang veineux(Sang)	Laboratory report	HUG Pneumologie Sysadmin HUG	28.12.2015		🔒
Première consultation - Otolologie - bilan o.d. - 08.12.2014	Consultation report	HUG ORL et chirurgie cervico-faciale Sysadmin HUG	09.12.2014		🔒

## Implementation Challenges

Some clinical challenges were already raised with the implementation of the tool in the central portal. New challenges were:

- **Clinical:** Clarifying the "medication reconciliation" phase and who should be responsible for which medication. Clinicians were concerned that by having access to the medications in a patient's record, they might become responsible for any adverse drug events.
- **Technical:** Identifying the necessary interoperability standards (ultimately selecting IHE profiles), defining the value sets required and connecting the prescription systems of all (or most of) stakeholders to the shared medication treatment plan.
- **Political:** Raising awareness outside of Geneva to ensure adoption of the new national profile proposition. The decision to start with a medication list was taken in order to address fears about complexity.
- **Financial:** Obtaining the resources and manpower necessary to do the implementation

## References and Publications

Related to the current version of the central tool (without interfaces):

- Rosemberg A, Plaut O, Sepulchre X, Spahni S. ["MonDossierMedical.ch": an efficient tool for sharing medical data between patients and doctors]. Rev Med Suisse. 2015 May 13;11(474):1069-73. French. PubMed PMID: 26118230.
- Spahni S, Guardia A, Boggini T, Geissbuhler A. Design and implementation of a shared treatment plan in a federated health information exchange. Stud Health Technol Inform. 2013;192:1090. PubMed PMID: 23920864. Provide links or references to any articles, press releases, research papers, websites or presentations about the project.

## Participating Organizations



### [HUG \(Geneva University Hospitals\)](#)

HUG was created in 1995, and is part of a tradition of excellence in medicine and science dating back hundreds of years. The group brings together eight Geneva public hospitals and 40 outpatient units throughout the canton of Geneva, and together they form the leading Swiss University Hospital. HUG has around 2,000 beds in total.



REPUBLIQUE  
ET CANTON  
DE GENEVE

**State of Geneva**

Leading the regional infrastructure



**Swiss Post**

Implementing the regional infrastructure



**Medshare**

Initiator of the eHealth Connector



**Mediway**

Implementing GP software



**OFAC**

Implementing pharmacy software