

<p>Good Practices</p>	<p>AP-HP Clinical Data Warehouse (AP-HP CDW)</p> <p>Supported by an institutional secured and high-performance cloud, the AP-HP data space integrates a large amount of massive healthcare data collected during care and research activities that can be leveraged for secondary use. The major component of the AP-HP data space is the AP-HP Clinical Data Warehouse (https://eds.aphp.fr), first Clinical Data Warehouse authorized by the French Data Protection Authority, enabling the processing of health data from more than 11 million patients to facilitate research, improve the health system, make it more efficient and more personalized. In the field of piloting, the common Pilot portal (Cognos solution (IBM)) enables activity and performance monitoring by the care teams and strategic departments at headquarters and university hospital groups. In the field of research, the i2b2 solution, soon to be replaced by cohort360, enables the building of “cohorts” by identifying targeted patients and making their healthcare data FAIR (findable, accessible, interoperable and reusable). More than 160 research projects, authorized by the AP-HP Institutional Review Board, are running on the AP-HP healthcare data (observational studies, development and external validation of AI/ML algorithms). New services aiming at leveraging EHR data to accelerate Clinical Research with EHR data are under construction.</p>	
<p>Organization*</p>	<p>AP-HP (Assistance Publique Hôpitaux de Paris (AP-HP), Greater Paris University Hospital) is a globally recognized university hospital center with a European dimension welcoming more than 10 million sick people in its 39 hospitals: in consultation, in emergency, during scheduled hospitalizations or in hospitalization at home.</p> <p>AP-HP Innovation & Data department, at the heart of our institutional Learning Health System, is offering tools and services to a broad set of users in the AP-HP supporting patient care, piloting and research activities.</p>	
<p>Name of expert& Position in the Organization</p>	<p>Dr. Christel Daniel, Associate Director of Data and Innovation</p>	
<p>What was the interoperability challenge for health care providers that you have addressed? (What & Why, Scope of interoperability project)*</p>	<p>To implement state-of the art interoperability data standards (OMOP, FHIR) to standardize AP-HP healthcare data in order to fuel the Learning Health System.</p> <p>To stimulate and promote an interoperability and data quality culture amongst healthcare professionals engaged in data capture, management, curation in order to maximise its reusability for other purposes such as reporting, improving own practices and exchanging data for clinical and public health research.</p>	
<p>How was this challenge addressed?*</p>	<p>Infrastructure + software development (cohort360)</p> <p>5 year duration</p>	<p>Year completed: 2022</p>

What were the major enablers and pre-conditions?	National interoperability frame work (multi terminology server), availability of interoperability specifications (OHDSI OMOP, HL7 FHIR), previous experience (EHR4CR, EHR2EDC)	
What type of tender did you use ?*	Direct Award of Contracts	
	Prior Consultation	
	Public Call	
	Invitation by Grant Agreement	
	Other:	
Cross Border Relevance (if any)*	Information exchange for cross border patient care	
	Information exchange for public health and secondary use	✓
	Information exchange for the patient	
Which interoperability use cases have you addressed?*	Laboratory orders/results	✓
	Imaging orders/results	✓
	Medication Prescription/dispensation	✓
	Discharge letters	✓
	Patient summaries	✓
	Patient referrals	
	Teleconsultation (patient/doctor)	✓
	Telecollaboration (doctor/doctor)	
	Public health reporting(reportable diagnosis & key interventions)	✓
	Other: <i>e.g. Clinical Research</i>	✓
	Other: <i>e.g. enter your UC name</i>	
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What interoperability standards and profiles have you used for each of the above use cases?*	Laboratory orders/results	
	Imaging orders/results	
	Medication Prescription/dispensation	
	Discharge letters	
	Patients summaries	
	Patient referrals	
	Teleconsultation (patient/doctor)	
	Telecollaboration (doctor/doctor)	
	Public health reporting	
	Other: <i>e.g. Hospital Admissions/Bed Management at the regional level</i>	
	Other: <i>e.g. enter your UC name</i>	OHDSI OMOP, HL7 FHIR
	Other: <i>e.g. enter your UC name</i>	

How did your project define its interoperability specifications?*	They were created by the project based on our own selection of standards and profiles	✓
	We referenced/reused the national interoperability framework	
	We ask the main vendor to set these specifications	
	Other:	We create our own selection of standards and profiles in collaboration with ANS (French National Standardisation Agency), hospital eHealth network (InterHop) and vendors (InteropSanté)
What interoperability testing strategy have you employed?*	Used a project mandated specific set of interoperability test tools before systems were interconnected?	✓
	Reused an existing set of interoperability test tools that were customized before systems were interconnected?	
	Tested the point of care systems by connecting them to a lab version of central systems	
	Other:	
What were the main implementation challenges you encountered	Spent a lot of time to connect each point of care systems	
	When interoperability issues occurred, it was complex to decide which system is at fault	
	We had long discussions on which standards to select	
	Other: <i>e.g. enter your UC name</i>	Semantic interoperability
	Other: <i>e.g. enter your UC name</i>	
Who were the perceived beneficiaries of your interoperability initiative?	Citizens/patients (e.g. improved care outcomes, improved citizen experience)	
	Health Professionals(e.g. improved workflow, access to information, re-use of data in research)	Directly

	Hospital administration (e.g. reduction of waste, cost savings, improved monitoring)	Directly
	Financial and social factors (e.g. eHealth Mmarket competitiveness, more jobs)	Indirectly
	Health System (improved efficiency, quality and effectiveness, supporting learning systems)	Indirectly
Did your project used the ReEIF5 layer model to analyse its interoperability?	No	
Based on your experience, what can you recommend to others?	Small healthcare organizations (doctors, pharmacies, etc.	
	Large healthcare organizations	share interoperability resources, expertise and implementation experience
	Policy makers at EU level	
	Policy makers at Member State Level	