

IHE[®] | EXPERIENCE
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Laboratory in Swiss EPR



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Landscape

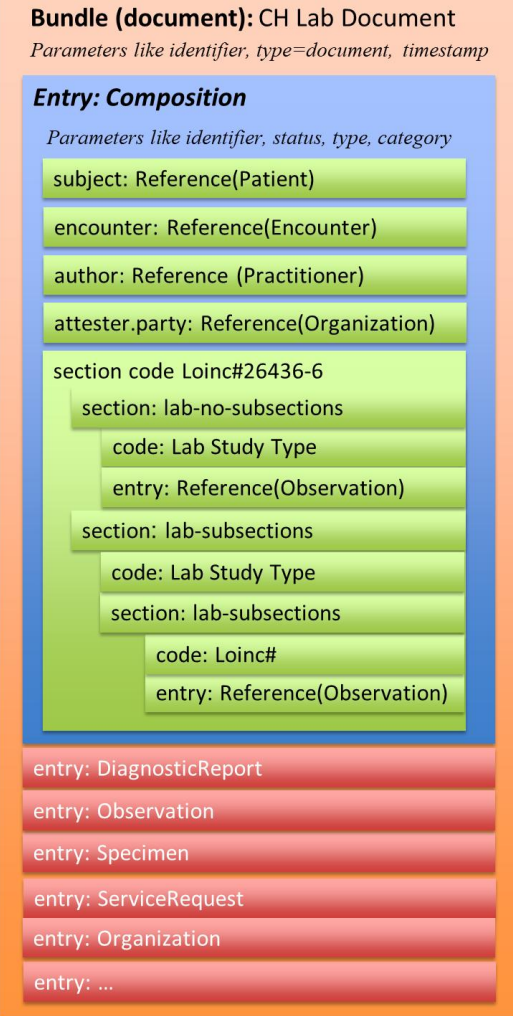
- Electronic Patient Record – EPR
 - Based on a national law + applications laws
 - Federation of Communities (XDS affinity domains): 5 (initially 8)
 - Opt-in for patients
 - Mandatory *affiliation* for hospitals, elderly care, birth centres, private GPs since 2022
- Laboratories
 - Private laboratories
 - Laboratories within [university] hospitals

EPR Content

- Currently ~110'000 EPRs (population: ~9M), containing mostly PDF documents
- Allowed [structured] documents' formats are anchored in the law
 - FHIR based structured documents → FHIR IGs (CDA-based were deprecated)
 - Already anchored in the law: CH VACD (vaccination), CH EMED (eMedication: plan, prescription), CH AllergyIntolerance (allergies)
 - Published – will be anchored in the law in 2026: **CH LabReport**, CH IPS
 - Work in progress: Emergency care, pregnancy record
- Almost half of the published documents are (PDF) laboratory reports
- Interface: XDS, but MHD + XDS on FHIR (CH:MHD) will be available by May 2027

EPR Laboratory Exchange Formats

- Laboratory Report (CH LabReport)
 - Specification based on HL7 Europe Laboratory Report
 - Value sets using various terminologies
 - LOINC
 - SNOMED
 - NPU (Nomenclature for Properties and Units)
- Laboratory Order (CH LAB-Order) - for B2B applications
 - Laboratory request based on CH ORF (Order & Referral by Form), itself based on Structured Data Capture FHIR IG
 - Value sets mainly from LOINC and SNOMED



SPHN – Swiss Personalized Health Network

- Initiative of the Swiss government under the leadership of the Swiss Academy of Medical Sciences (SAMS) in collaboration with the Swiss Institute of Bioinformatics
- Goal: contribute to the development, implementation and validation of coordinated data infrastructures in order to make health-relevant data interoperable and shareable for research in Switzerland
- Main partners: the 5 University Hospitals in Switzerland
- Many categories of data: allergies, devices, genomics, **lab tests and results**, pathologies, procedures, etc.
- Data repository, not structured documents repository

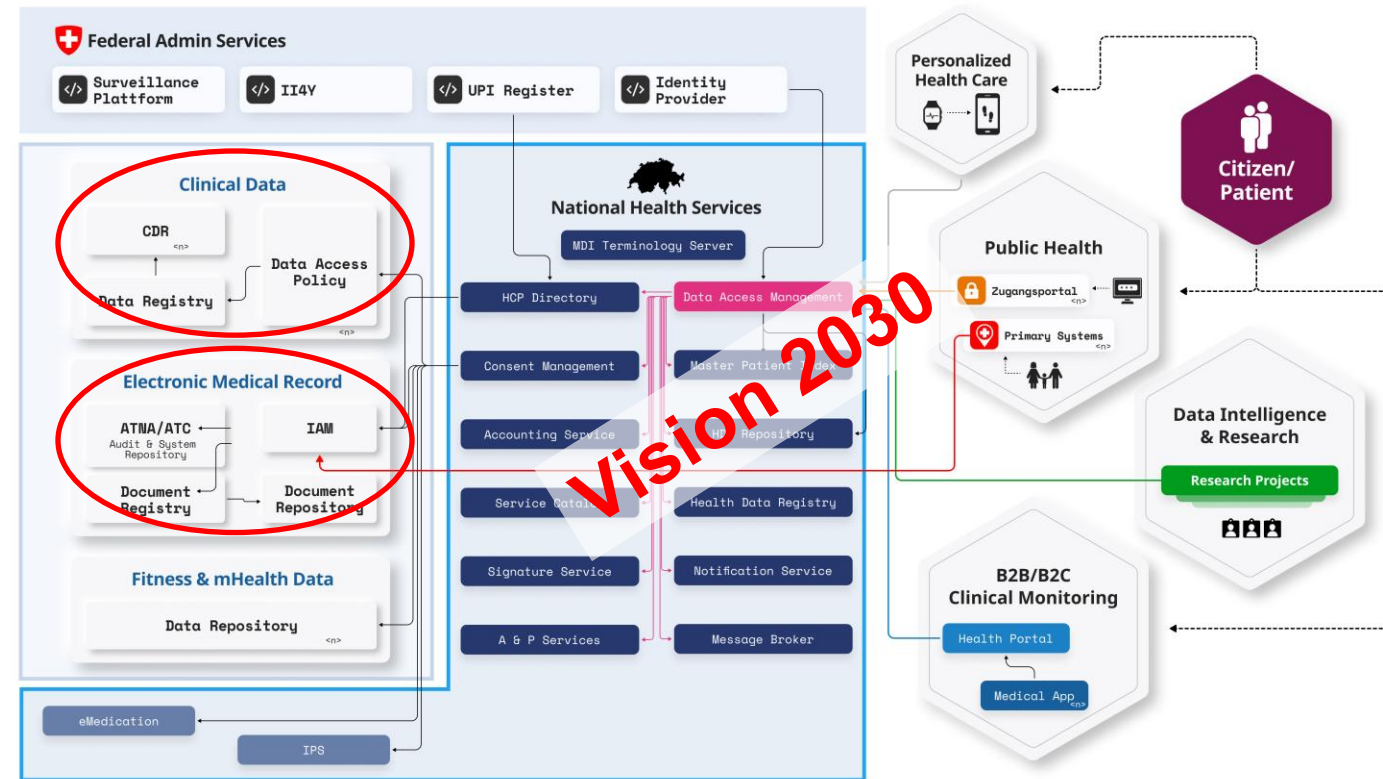
SPHN – Rules for lab data (extract)

- Enforce LOINC as a common language
- Use LOINC for identifying analysis, not results
- Alignment between care system requirements and R&D bodies and needs

concept reference	concept or concept	general concept name	general description	contextualized concept name	contextualized description
Lab Test	concept	Lab Test	specific laboratory test performed to analyze a sample with a given equipment and leading to specific results	Lab Test	specific laboratory test performed to analyze a sample with a given equipment and leading to specific results
Lab Test	composedOf	code	coded information specifying the concept	lab test code	coded information specifying the lab test performed
Lab Test	composedOf	instrument	instrument used for the concept	lab test instrument	instrument used to assess medical laboratory samples
Lab Test	composedOf	test kit	test kit used for the concept	lab test test kit	test kit used to assess medical laboratory samples
Lab Test	composedOf	result	evaluation outcome associated to the concept	lab test result	transmitted laboratory analysis results for an analyzed sample in a specific lab test
Lab Test Event	concept	Lab Test Event	occurrence in which one or multiple laboratory tests are performed on a biological specimen at a given time	Lab Test Event	occurrence in which one or multiple laboratory tests are performed on a biological specimen at a given time
Lab Test Event	composedOf	sample	sample associated to the concept	sample	sample tested during the lab test event
Lab Test Event	composedOf	lab test	lab test associated to the concept	lab test	type of analysis performed on a sample and its result, including an identifier for the test, the instrument and the test kit in the context of the lab test event
Lab Test Event	composedOf	datetime	datetime of the concept	datetime	datetime when the lab test event (analysis) was performed
Lab Test Event	composedOf	report datetime	datetime the concept was reported	report datetime	datetime the lab test event and its related tests and results have been reported
Lab Result	concept	Lab Result	outcome, value, or information which gives insight about a laboratory test	Lab Result	outcome, value, or information which gives insight about a laboratory test
Lab Result	composedOf	quantity	an amount or a number of the concept	quantitative result	quantitative amount or number of the laboratory result
Lab Result	composedOf	code	coded information specifying the concept	result code	coded information specifying the laboratory result
Lab Result	composedOf	string value	textual representation	string value result	textual representation specifying the laboratory result
Lab Result	composedOf	numerical reference	numerical reference associated to the concept	numerical reference	reference range or reference value that is associated to the laboratory result

Game Changer: DigiSanté ?

- Goal: improve the quality of treatment, patient safety and the efficiency of the healthcare system through a higher digitization of the system
- Managed by the Federal Office for Public Health (ministry of Health)
- Split between the “classical” document-based EPR and structured clinical data repository



Conclusion

- Structured exchange format is ready, but not used yet
- It will be mandatory for EPR platforms to support it (storage, display)
- There is currently no viewer enabling aggregation of multiple results (e.g. graphical display, Microsoft Excel-like presentation, ...)
- We may enter a “wait and see” phase until Digisanté architecture and roadmap is officialised