HL7 FHIR adoption in European health systems: The case of Germany

Webinar, 12 November 2024

15.00-16.00 CET

Online on Teams

HL7® Europe

XpanDH

HL7 Europe Labs-on-FHIR webinar series

A succession of open, online educational sessions 2023-24
related to the adoption of FHIR specifications
in Europe's laboratory systems and
the HL7 Europe FHIR Implementation Guide for Laboratory Reports

HL7 FHIR adoption in European health systems: the case of Germany
Speaker introductions






- Presenters:
  - Prof Sylvia Thun,
    Charité Hospital Berlin, HL7 Germany
- Panel:
  - Stefan Sabutsch, Emmanuel Helm, ELGA (AT)
  - Alexander Henket, NICTIZ (NL)
  - Zsolt Puskás, ESZFK (HU)
- Facilitator: Michael Strübin, HL7 Europe

Housekeeping

- Your facilitator: Michael Strübin, HL7 Europe
- The webinar will be recorded, slides will be shared in pdf.
- To help ensure a successful webinar please:
  - Stay muted
  - Feel free to use reactions/emojis during the presentations
  - Use the chat to make comments or raise your questions
  - Raise your hand if you'd like to speak
  - If you are invited to speak, please turn on your video and say who you are

HL7 FHIR adoption in European health systems: the case of Germany
Agenda

- Welcome and introductions
- Prof Sylvia Thun, Charité Hospital Berlin, HL7 Germany
- Panel:
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  - Alexander Henket, NICTIZ (NL)
  - Zsolt Puskás, ESZFK (HU)
- Discussion and Q&A
- Next steps

End

Laboratory FHIR in Germany

Prof. Dr. Sylvia Thun

Online
2024-11-12

BIH Berlin Institute of Health @ Charité

Agenda

- Stakeholder (ISIK, MIO, MII, KKG BfArM)
- InteropCouncil Laboratory - WP Laboratory
- MIO Laboratory
- Microbiology
- LOINC Implementation Charité/
- Medical Informatics Initiative (Research)

Stakeholders in Germany

Federal Institute for Drugs and Medical Devices

gematik
Nationale Agentur für Digitale Medizin

KBV
KASSENÄRZTLICHE BUNDESVEREINIGUNG

MEDICAL INFORMATICS INITIATIVE GERMANY

- Terminology
- Electronic Health Records (ePA)
- Electronic Prescriptions (eRP, E-Rezept)
- Interoperability of Data and Interfaces for Hospital Information Systems (ISiK)
- Information System for Infection Protection (DEMIS for COVID-19 etc.)
- Medical Information Objects (MIOs)
  - Vaccination Record
  - Maternity Record
  - Discharge Report
- Research infrastructures
- Secondary data use
- Consent

Interoperability in Germany

INTEROP COUNCIL
for digital health in Germany

National Health-IT-Interoperability-Governance

- Gesundheits-IT-Interoperabilitäts-Governance-Verordnung (GIGV)
- Interdisciplinary expert panel and working groups to identify needs and make recommendations for an interoperable ecosystem in health IT
- Semantic and syntactic standards are jointly identified, prioritized and updated by the coordinating body and expert panel.
- Standards included in a knowledge platform can be recommended by the coordinating body and the expert panel for healthcare.

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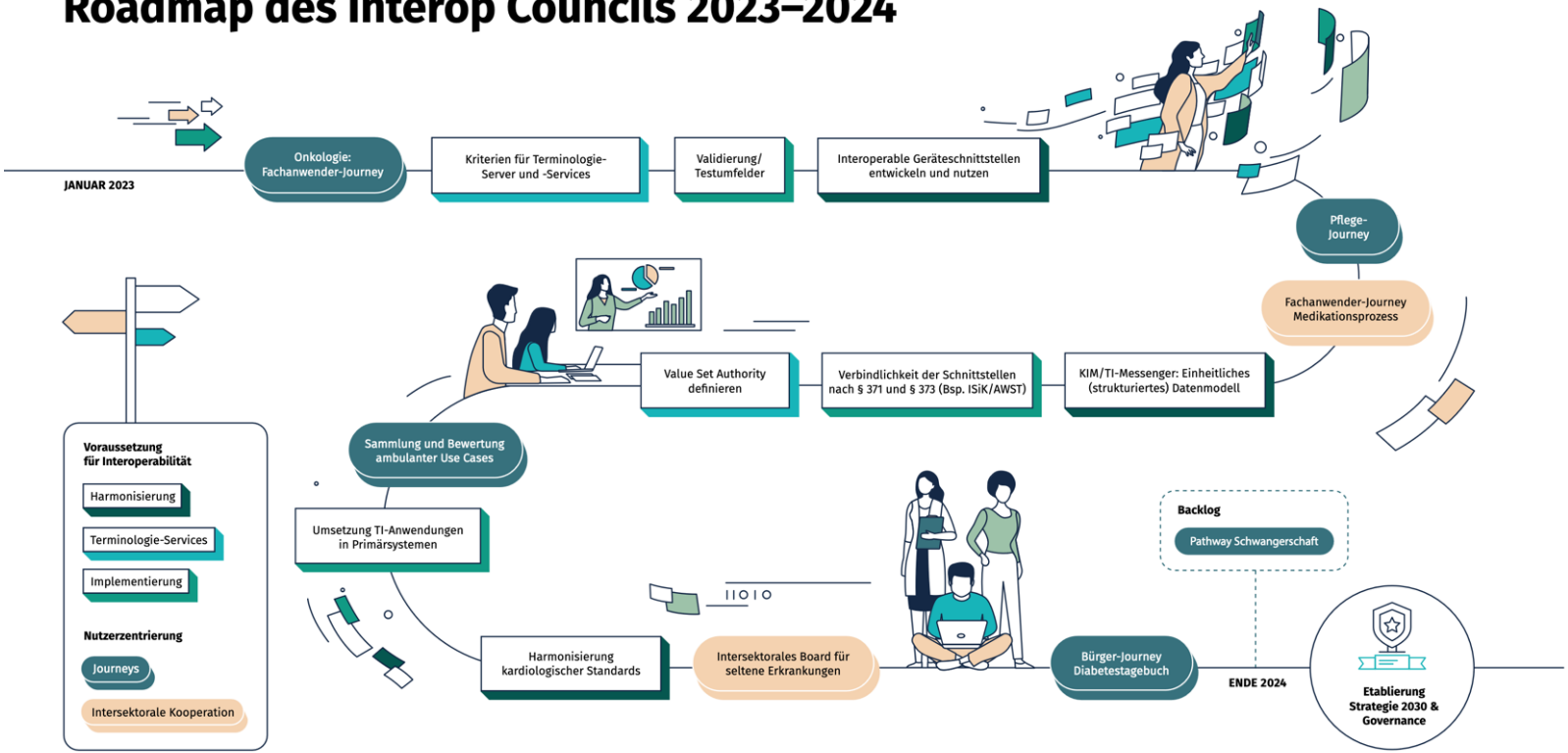
Roadmap des Interop Councils 2023–2024



https://www.ina.gematik.de/fileadmin/Dokumente/gematik_Interop_Council_Roadmap_und_Backlog.pdf

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Interoperability of Data and Interfaces for Hospital Information Systems (ISiK)

gematik
Nationale Agentur für Digitale Medizin

- Table shows the release and validity periods of various ISiK modules
- Mandatory for specific software products used in hospitals

Modul	Releasedatum des Moduls	Verpflichtend ab	Gültig bis*	Abkündigungsdatum
Basis Stufe 3	01.07.2023	01.07.2025	30.06.2026	-
Basis Stufe 2	01.07.2022	01.07.2024	30.06.2025	-
Basis Stufe 1	01.07.2022	Abgekündigt	Abgekündigt	01.07.2024
Dokumentenaustausch Stufe 3	01.07.2023	01.07.2025	30.06.2026	-
Dokumentenaustausch Stufe 2	01.07.2022	abgekündigt	abgekündigt	01.02.2023

https://fachportal.gematik.de/informationen-fuer/isik#c5807

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Interoperability of Data and Interfaces for Hospital Information Systems (ISiK)

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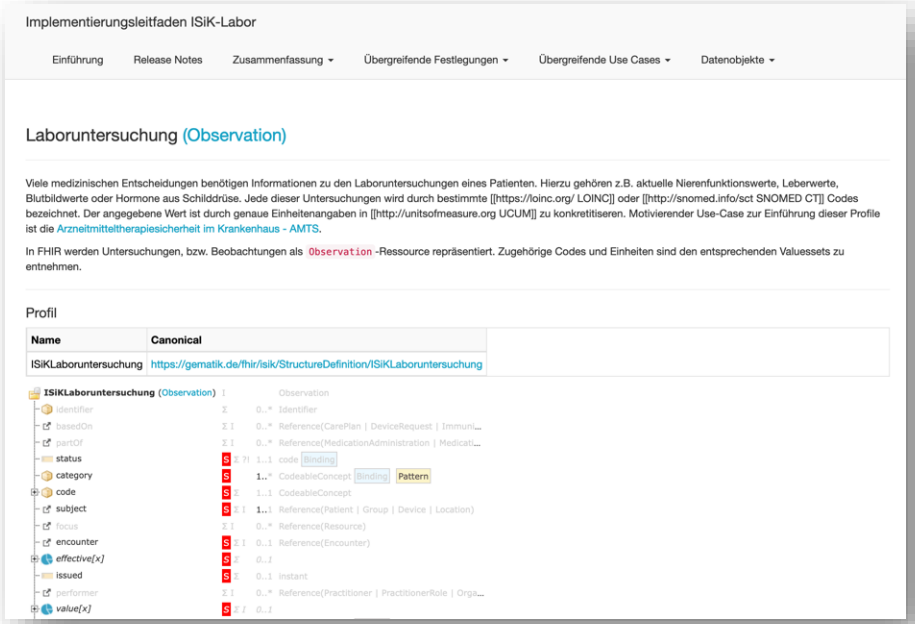
Nationale Agentur für Digitale Medizin

- ISiK laboratory module is currently not mandatory for hospitals systems
- Contains an Observation profile
- Other profiles, such as laboratory orders and laboratory reports, will be developed at a later stage



https://simplifier.net/guide/isik-labor-v4/ImplementationGuide-markdown-Datenobjekte-Profile_ISiKLaboruntersuchung?version=current

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Federal Institute for Drugs and Medical Devices BfArM

Federal Institute for Drugs and Medical Devices

- LOINC provides standardized terminology for laboratory tests and clinical observations.

- BfArM is responsible for the further development of LOINC for the needs in Germany and for the provision of translations for the electronic patient record

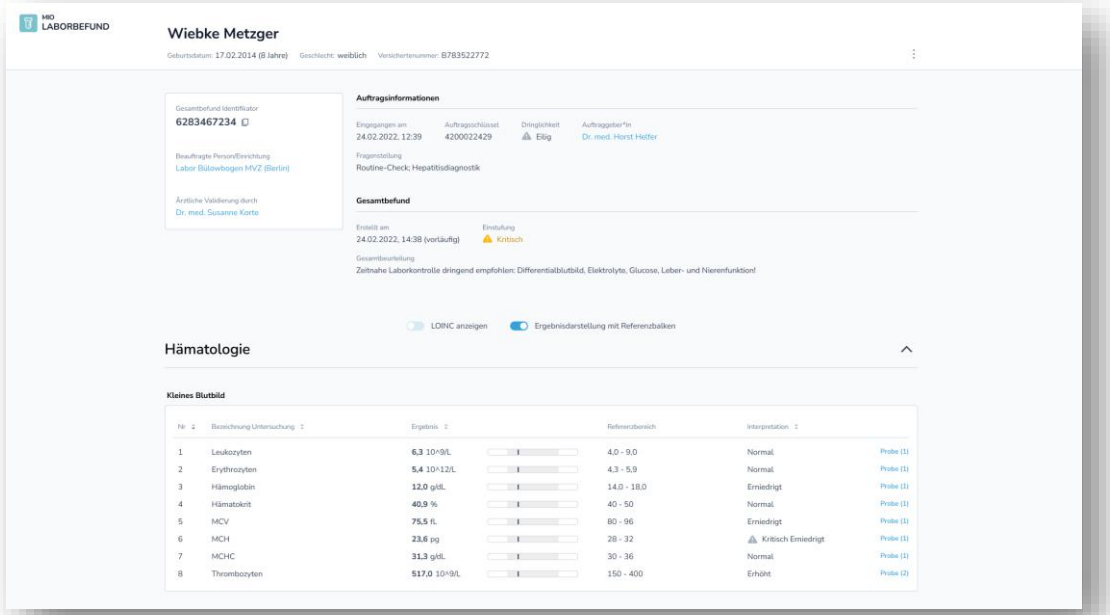
- BfArM partners with the National Association of Statutory Health Insurance Physicians (KBV) and mio42 GmbH to create Medical Information Objects (MIOs) for use in electronic patient records.

http://www.bfarm.de

Medical Information Object (MIO) Laboratory Report

KBV KASSENÄRZTLICHE BUNDESVEREINIGUNG

- MIO Lab-Report in first stage designed for clinical chemistry
- Outpatient and inpatient setting
- Microbiology, cytology and genetics will be modelled at a later stage
- FHIR document Bundle for storage in the EHR
- A tool for visualizations is offered



https://mio.kbv.de/display/LAB1X0X0/Visualisierungen+-+Arbeitsstand+2023

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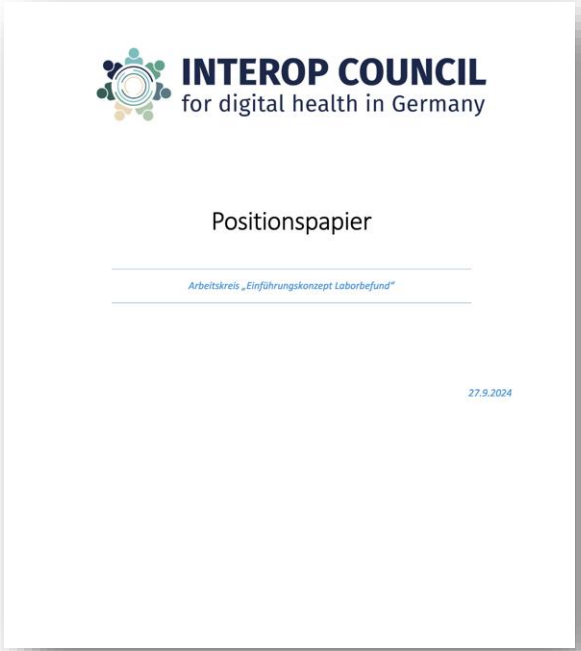
Implementation Concept for Lab-Report in German Electronic Health Record (ePA) 1/3

- **Objective**:
  - Integrate Medical Information Object (MIO) Lab Reports into the ePA to enhance accessibility for both providers and patients.
- **Process**:
  - Lab results, once physician-verified, should be stored as atomic units in the ePA, ensuring timely access and data integrity.
  - Authorized medical personnel, like lab physicians, should have direct upload privileges, optimizing report visibility across providers.



https://www.ina.gematik.de/fileadmin/Arbeitskreisdokumente/Final_Positionspapier_Einf_Labor.pdf

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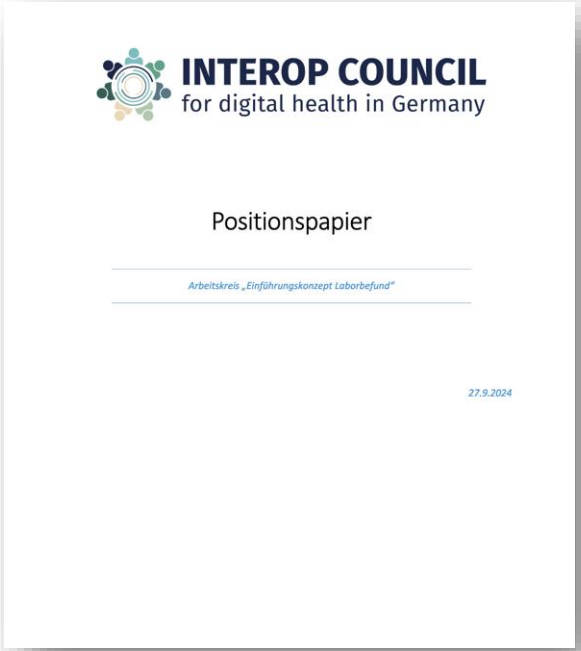
Implementation Concept for Lab-Report in German Electronic Health Record (ePA) 2/3

- **Key features**:
  - Patients can access their lab results promptly, with a cautionary note for medical interpretation.
  - Critical results are flagged for immediate provider and patient notification.
  - Genetic testing results require patient consent for ePA inclusion.



https://www.ina.gematik.de/fileadmin/Arbeitskreisdokumente/Final_Positionspapier_Einf_Labor.pdf

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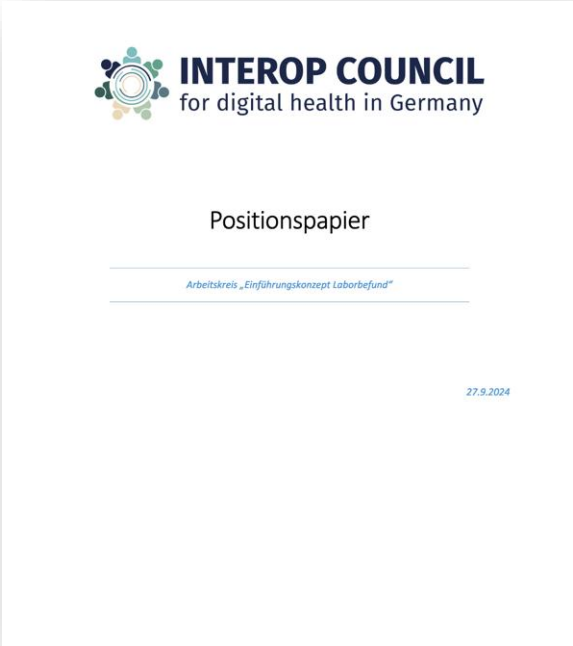
Implementation Concept for Lab-Report in German Electronic Health Record (ePA) 3/3

- **Harmonization & Interoperability**:
  - FHIR, SNOMED, LOINC for compatibility across EU healthcare systems
  - The ePA will support secure data exchange nationally and within the European Health Data Space.
- **Implementation phase**:
  - Pilot rollouts in designated model regions and phased approach
- **Benefits for healthcare**:
  - Improved continuity of care and data accessibility in emergencies
  - Potential for secondary data usage in research with patient consent



https://www.ina.gematik.de/fileadmin/Arbeitskreisdokumente/Final_Positionspapier_Einf_Labor.pdf

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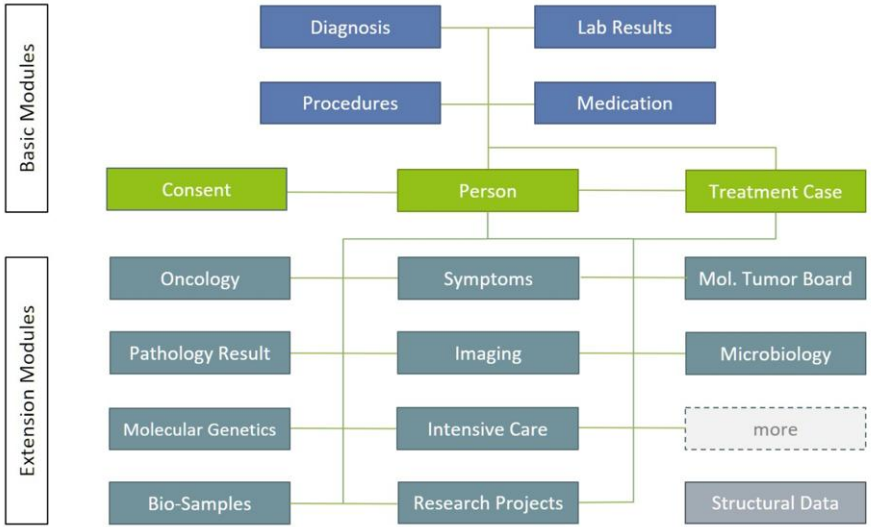
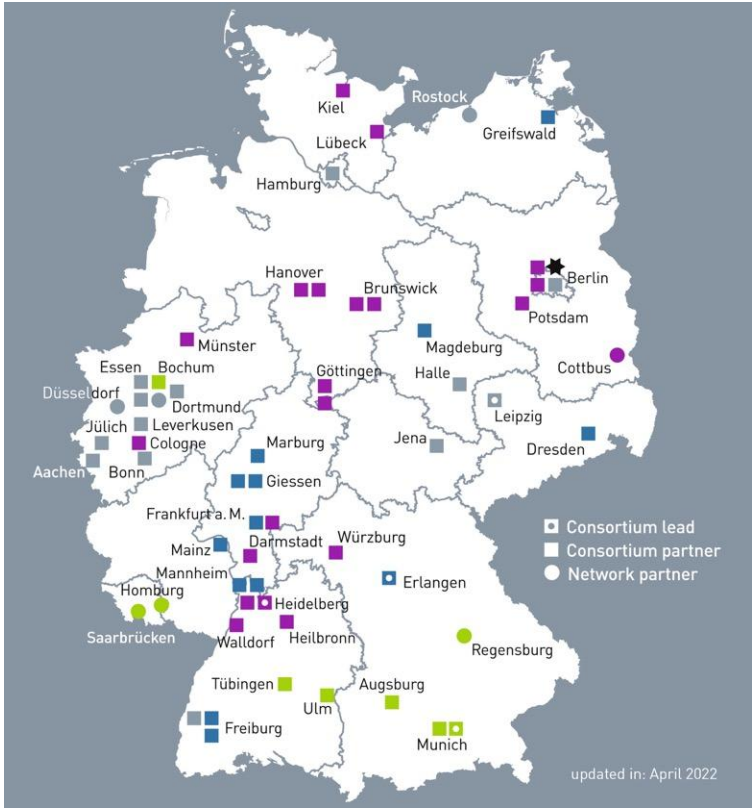
FHIR for Research in Germany

MEDICAL INFORMATICS INITIATIVE GERMANY



https://www.medizininformatik-initiative.de/



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LOINC Top 300 Subset

- LOINC-coded analyses ordered by frequency from 5 German university hospitals

rank	primär	usedInLabs	sekundär	COMPONENT	PROPERTY	TIME_ ASPCT	SYSTEM	SCALE_TYP	METHOD_ TYP
1	59826-8	5	59826-8	Creatinine	SCnc	Pt	Bld	Qn	
1	59826-8	5	38483-4	Creatinine	MCnc	Pt	Bld	Qn	
1	59826-8	5	14682-9	Creatinine	SCnc	Pt	Ser/Plas	Qn	
1	59826-8	5	2160-0	Creatinine	MCnc	Pt	Ser/Plas	Qn	
1	59826-8	5	21232-4	Creatinine	MCnc	Pt	BldA	Qn	
2	26464-8	5	26464-8	Leukocytes	NCnc	Pt	Bld	Qn	
2	26464-8	5	49498-9	Leukocytes	NCnc	Pt	Bld	Qn	Estimate
2	26464-8	5	6690-2	Leukocytes	NCnc	Pt	Bld	Qn	Automated count
2	26464-8	5	804-5	Leukocytes	NCnc	Pt	Bld	Qn	Manual count
3	20570-8	5	20570-8	Hematocrit	VFr	Pt	Bld	Qn	
3	20570-8	5	31100-1	Hematocrit	VFr	Pt	Bld	Qn	Impedance
3	20570-8	5	4544-3	Hematocrit	VFr	Pt	Bld	Qn	Automated count
3	20570-8	5	4545-0	Hematocrit	VFr	Pt	Bld	Qn	Spun
3	20570-8	5	48703-3	Hematocrit	VFr	Pt	Bld	Qn	Estimated
3	20570-8	5	32354-3	Hematocrit	VFr	Pt	BldA	Qn	
3	20570-8	5	41654-5	Hematocrit	VFr	Pt	BldV	Qn	
3	20570-8	5	41655-2	Hematocrit	VFr	Pt	BldMV	Qn	
3	20570-8	5	42908-4	Hematocrit	VFr	Pt	BldC	Qn	

https://biom131.imbi.uni-freiburg.de/medinf/gmds-ag-mdk/archiv/2018/2018-09-04-symposium-osnabrueck/B3-1_MII-Kerndatensatz_Laborbefunde+Medikation_(Ganslandt,%20Bietenbeck,%20Boeker)_GMDS-2018_(2F).pdf

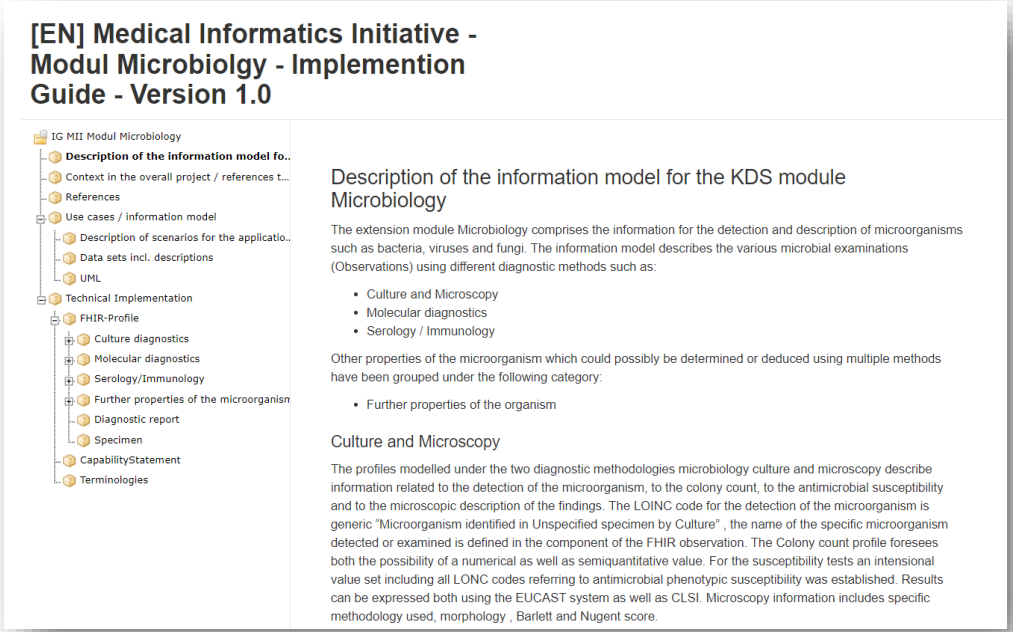
Medical Informatics Initiative (MII)
Laboratory Module

- Laboratory results that are usually performed in a central laboratory of a hospital
- Does not include microbiology, virology, genetics
- Contains profiles for DiagnosticReport, Observation and ServiceRequest

https://www.medizininformatik-initiative.de/Kerndatensatz/Modul_Laborbefund/IGMIIKDSModulLaborbefund.html

Medical Informatics Initiative (MII) Microbiology Module

- Microbiology tests that are most commonly performed to investigate microorganisms
- Includes culture, antimicrobial susceptibility , molecular diagnostics, serology and immunology
- Contains profiles for DiagnosticReport and Observation



https://simplifier.net/Medizininformatik-Initiative-Modul-Mikrobiologie/

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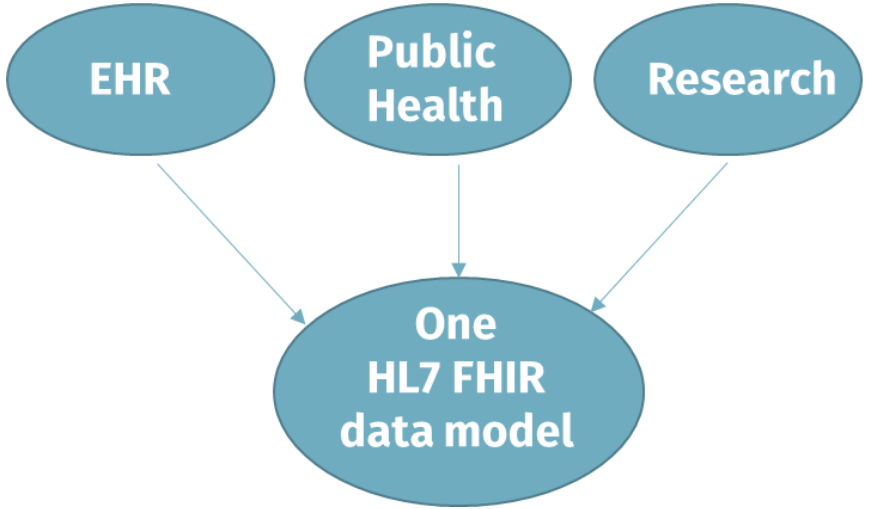
Ongoing developments for Microbiology module

Collaboration across relevant **German** Stakeholders for a unified data model for microbiology:

- ✓ MIO42
- ✓ Robert Koch Institute
- ✓ Medical Informatics Initiative



German Portal for Medical Research Data

MEDICAL INFORMATICS INITIATIVE GERMANY

- Aimed at researchers
- Central portal to
  - submit feasibility requests (FHIR search)
  - request access to health and biospecimen data
  - coordinate data provision
  - present research projects

FORSCHUNGS-DATENPORTAL FÜR GESUNDHEIT

www.forschen-fuer-gesundheit.de

https://www.medizininformatik-initiative.de/

Research Data Infrastructure

Datenübersicht

Hier finden Sie eine Übersicht über alle verfügbaren Daten. Diese wird regelmäßig aktualisiert.

Die folgenden Zahlen in der Datenübersicht sind Summen der Rückmeldungen aller Standorte zu den jeweiligen Suchanfragen, die in Abhängigkeit davon, wie viele und welche Standorte zum Zeitpunkt der Suchanfrage antworten, variieren können. Abweichungen von den Ergebnissen der Machbarkeitsanfragen sind daher erwartbar.

+10 Mio
Personen
Basisdaten eines Krankenhausaufenthaltes von Patientinnen und Patienten

25
Standorte
Datenintegrationszentren, die über das Forschungsdatenportal Daten bereitstellen

+75 Mio
Diagnosen
Beschreibung der Krankheiten einer Person

+800 Mio
Laborwerte
Daten zu Laboruntersuchungen von Patientinnen und Patienten

+50 Mio
Prozeduren
Dokumentation von Operationen und medizinischen Eingriffen

+80 Mio
Medikationsdaten
Dokumentation von Arzneimittelverordnungen und -gaben

+550k
Bioproben
Verfügbare Bioproben, die zur Diagnose oder Therapie entnommen wurden

+100k
Einwilligungen
Verfügbare positive Einwilligungsinformationen von Patientinnen und Patienten

29
Projektanträge
Neuanträge, die das Forschungsdatenportal für Gesundheit erreichen

Collaboration at European level

HL7 Europe Laboratory Working Group

Collaborating for the creation of a Working Group within the European Society of Clinical (ESCMID) for data interoperability

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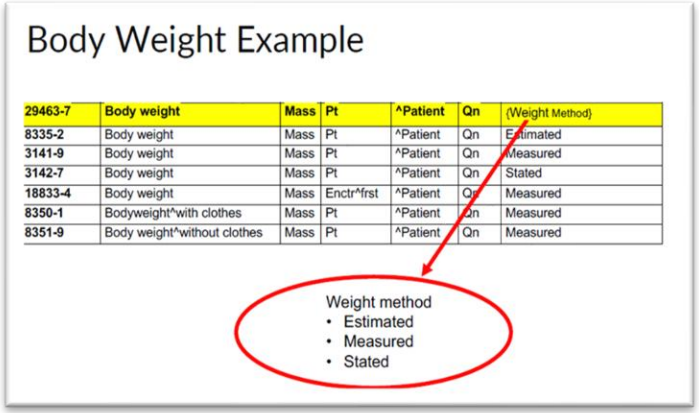
Evolution Driven by LOINC and SNOMED Collaboration

- LOINC is represented in the SNOMED CT concept model as a “LOINC Extension.”
- The shared elements of both terminologies in SNOMED CT are reflected in LOINC.
- https://loincsnomed.org/ → https://browser.loincsnomed.org/
- LOINC elements are searchable using SNOMED CT logic (Expression Constraint Language).

Post-coordination in laboratory terms

- LOINC is on its way to enabling post-coordination
- The methods should be mapped to SNOMED CT



https://loinc.org/conference/dc-2024/

- Value sets for methods are being created (possibly sorted by laboratory area, e.g. microbiology, or method category, e.g., immunoassays).

LOINC AG, SNOMED AG KKG BfArM

Federal Institute for Drugs and Medical Devices

Working group (AG) was set up in 2021 by the Federal Ministry of Health (BMG) at the Advisory Board for Questions of Classification in Health Care (KKG) to advise on the use and further development of LOINC and SNOMED.

This includes in particular:

- the coordination of changes resulting from national and international issues
- contributions to the translation of LOINC into German
- the development of a Germany-specific extension of LOINC
- the preparation of the German position for the European and international committees on the further development and application of LOINC

http://www.bfarm.de

Thank you!

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Director of Digital Medicine and Interoperability
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References

https://www.medizininformatik-initiative.de
https://www.ina.gematik.de/
https://www.bfarm.de/
https://build.fhir.org/ig/hl7-eu/laboratory/index.html
https://mio.kbv.de/
https://www.kbv.de/
https://loincsnomed.org/
https://forschen-fuer-gesundheit.de/

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End

Stefan Sabutsch

- **Work**
  - 2023 – CEO / CTO, ELGA GmbH, Vienna
  - 2010–2022 ELGA GmbH, Head of "Standards & Usability"
  - 2005–2010 Lecturer for Medical Information Systems
    University of Applied Sciences Joanneum Graz
  - 2000-2005 Head of Office Graz, GWI AG
    (Laboratory Information Systems)
- **Standardization**
  - President / Chair HL7 Austria since 2007
  - President / Chair DICOM Anwendergruppe Austria since 2017
  - Head of SNOMED National Release Center since 2019
- **Education:** Doctoral studies in Biology
- **Contact:** stefan.sabutsch@elga.gv.at

Emmanuel Helm

- **Work**
  - 2023 – ELGA GmbH, Head of "Standards"
  - 2020–2022 Assistant Professor for Medical Informatics University of Applied Sciences Upper Austria, Hagenberg
  - 2010-2019 Researcher for Medical Informatics University of Applied Sciences Upper Austria, Hagenberg
- **Standardization**
  - Board Member and TC Co-Chair DICOM Anwendergruppe Austria since 2017
  - Active Member or Chair in several HL7 Austria WGs
- **Education:** Doctoral studies in Informatics
- **Contact:** emmanuel.helm@elga.gv.at

Alexander Henket

Interoperability Specialist

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Over 25 years of experience

Interoperability Specialist at Nictiz, competence centre for digital information management in healthcare

Active member of HL7 Netherlands, HL7 Europe and HL7 International

Member of IHE NL

Nictiz

PUSKÁS, Zsolt Péter MSc, MBA

e-Health expert, ESZFK

Member of CEO's advisory board of ESZFK

Since 2011: member of designer team of Hungarian National e-Health Infrastructure (EESZT)

ESZFK: Health Informatics Service and Development Centre Nonprofit Ltd (*Egészséginformatikai Szolgáltató és Fejlesztési Központ Nonprofit Kft.*)

Hungarian state-owned nonprofit company, under the supervision of the Ministry of Interior

Operator and developer of EESZT, the national e-health platform of Hungary

responsible for central health informatics services, and further central services (*29/2022 (31.I.) Government Decree on central health informatics services*)

EESZT: **Hungarian National e-Health Infrastructure**
(Elektronikus Egészségügyi Szolgáltatási Tér)

- Cloud-based platform, running since November 1, 2017
- 20.000+ connected healthcare provider (6000+ GP, 3000+ pharmacies, 400+ in- and outpatient institutes, National Ambulatory Service, 12.000+ private HCPs) – both public and private sector
- Regulated by law
- *200+ connected IT solutions*
- *5,5 million+ Client Gateway registrations, 3,4 million+ downloads of mobile app (EgészségAblak – „HealthWindow")*
- ePrescription, Central Event Catalogue, Electronic Health Record (EHR), eProfile, eReferral, patient consent management, publication of central registries and terminologies etc.
- *3,5 billion+ healthcare records, 700 million+ care events,*
- *800.000+ ePrescriptions/day (>99%)*

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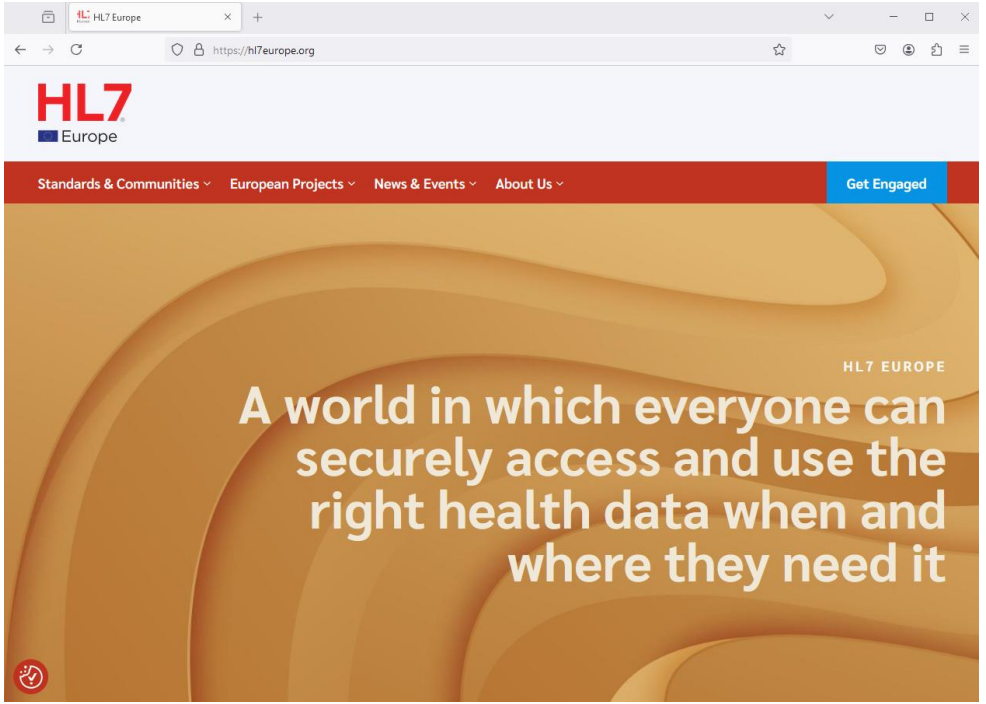
Next steps

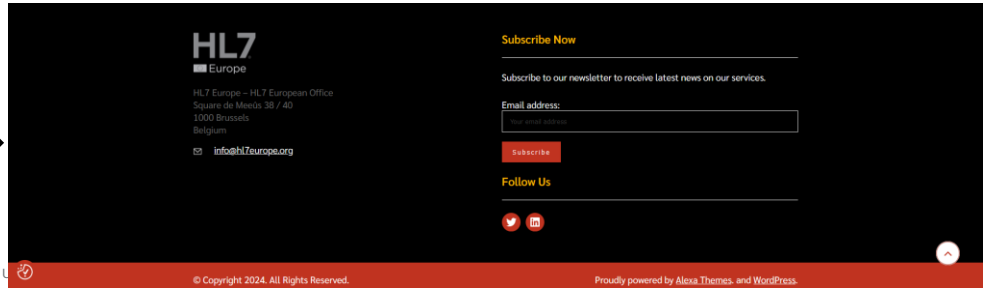
- Slides and recording on www.HL7.tv, notification to all registered attendees

- … and

New HL7 Europe website

- www.hl7europe.org
- Home
  - Standards & Communities
  - European Projects
  - News & Events
  - About us
- New electronic newsletter
- Sign up facility ➔ ➔ ➔ ➔





Latest news

IHE EUROPE Integrating the Healthcare Enterprise

HL7 Europe

Brussels, 12 November 2024 — The European Health Data Space (EHDS) signifies a new era of data accessibility and exchange within the European Union, presenting an unprecedented opportunity for Member States to elevate healthcare standards. Recognising the pivotal role of the EHDS, HL7 Europe and IHE-Europe have jointly embarked on a unified mission to optimise their organisation's support for this endeavour. Central to this initiative are regular meetings with the leadership of both organisations to ensure best alignment.

Popular Posts

Driving Digital Health Forward: HL7 Europe and IHE-Europe Strengthen Their Collaboration to Enhance Interoperability

Brussels, 12 Novembe 24 — The European Heal ata

HL7 Europe

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