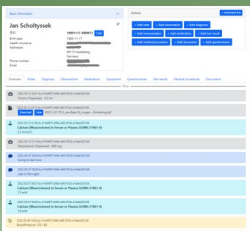


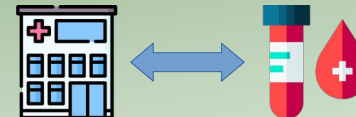
Electronic Health Record



Scheduling



Cross-institutional services

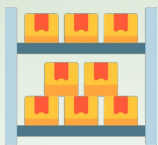


shEHRd

Shared Electronic Health Record

Local installation

Warehousing



Patient portal



...and more

Epidemiologic reports



Study recruitment



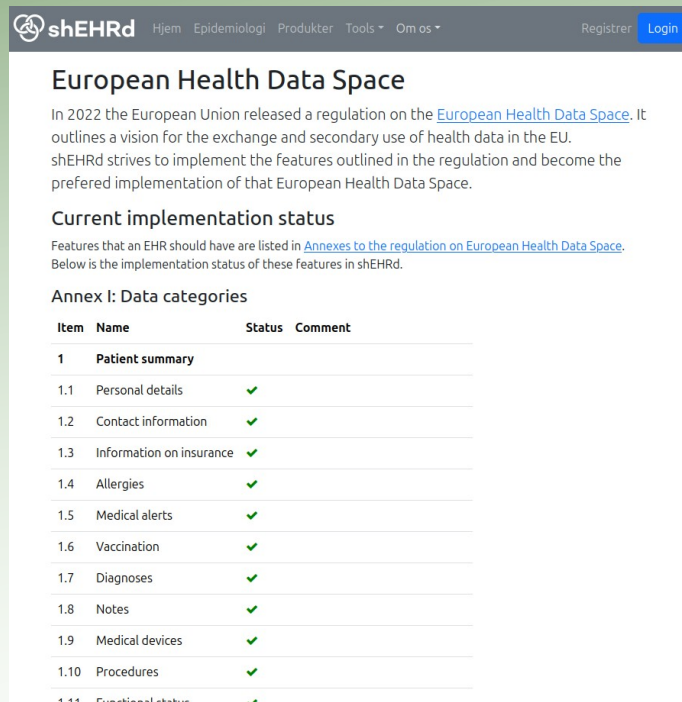
About **shEHRd**

About shEHRd

- Developed by Jan Scholtyssek
 - Education: M.Sc. Mathematical Modelling and Computing
 - Education: 6th year Medical Student (expected graduation December 2026)
 - Experience: 6 years as Software and Data Engineer
- Vision: Provide a base system for all people and health care providers in Europe, bringing the EHDS to life.
- Current installations: At 1 hospital
- Planned legal framework: Operated by shEHRd gGmbH (not yet founded), a non-profit organization.
- Planned revenue sources:
 - License fees for local shEHRd installations
 - Subscriptions for shEHRd for professional users
 - Emergency cards and other gadgets for patients (cost for patients will be held close to production costs)
 - Governmental/EU funding?

Vision

- A base system for health care
- Bring the spirit of the EHDS regulation to life in Europe
- Implementation status:
<https://shehrd.eu/about/ehds>



European Health Data Space

In 2022 the European Union released a regulation on the [European Health Data Space](#). It outlines a vision for the exchange and secondary use of health data in the EU. shEHRd strives to implement the features outlined in the regulation and become the preferred implementation of that European Health Data Space.

Current implementation status

Features that an EHR should have are listed in [Annexes to the regulation on European Health Data Space](#). Below is the implementation status of these features in shEHRd.

Annex I: Data categories

Item	Name	Status	Comment
1	Patient summary		
1.1	Personal details	✓	
1.2	Contact information	✓	
1.3	Information on insurance	✓	
1.4	Allergies	✓	
1.5	Medical alerts	✓	
1.6	Vaccination	✓	
1.7	Diagnoses	✓	
1.8	Notes	✓	
1.9	Medical devices	✓	
1.10	Procedures	✓	
1.11	Functional status	✓	

before we get started...



The ID linking all entries together



mensch.ID

Connecting all data in  shEHRd



Globally unique ID

Easy to read

Easy to remember

Easy to use

Get your **우ID**

<https://mensch.id>

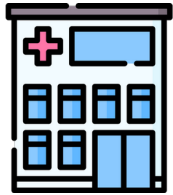
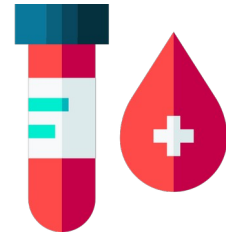
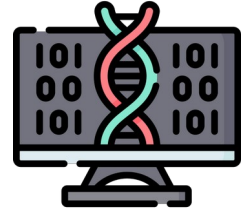
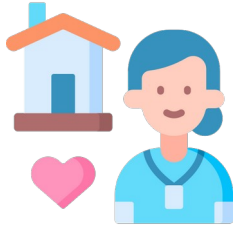
(shEHRd will get one for you during registration, if you haven't got one)

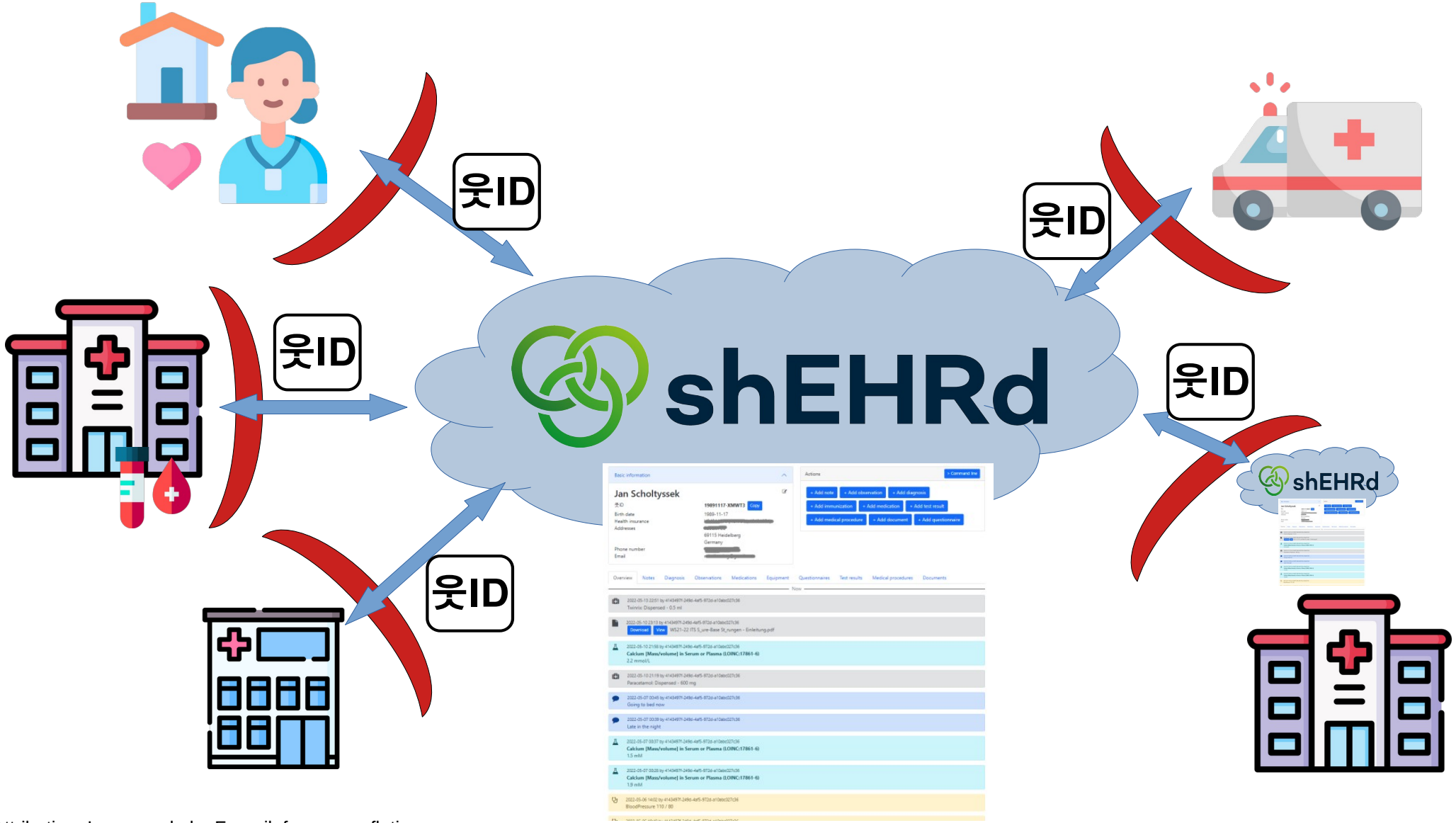


Online  **shEHRd**

Connecting all parties

Collaborating through shEHRd





Attribution: Icons made by Freepik from www.flaticon.com

Currently addressed parties

- Patients
- Primary Care
- Specialized Care (physiotherapy, private practice doctors, psychotherapy,...)
- Hospitals
- Nursing homes
- Emergency services
- Laboratories
- Pharmacies
- Public Health Agencies
- Research Institutions

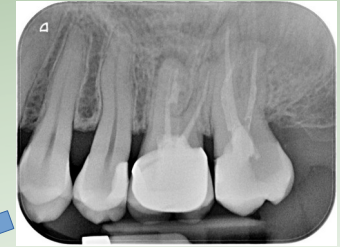
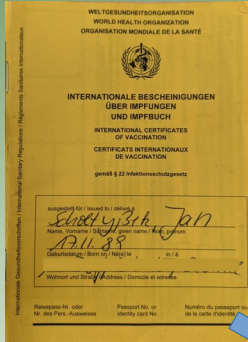
shEHRd as patient

- Have your medical information ready everywhere you go
- Find the nearest doctors, pharmacies, specialists and other health services
- Find and book appointments
 - Get reminders
- Get help handling your medication
 - Notifications when your medication runs out
 - View your daily medication plan (with option for gamification, e.g. points for longer streaks without any missed intakes)
- Participate in studies



shEHRd

<https://shehrd.eu>



Basic information

Jan Scholtyssek

19891117-XMWT3

1989-11-17

Health insurance

Addresses

69115 Heidelberg
Germany

Phone number

Email

Actions

- + Add note
- + Add observation
- + Add diagnosis
- + Add immunization
- + Add medication
- + Add test result
- + Add medical procedure
- + Add document
- + Add questionnaire

Overview | Notes | Diagnosis | Observations | Medications | Equipment | Questionnaires | Test results | Medical procedures | Documents

2022-05-13 22:51 by 4143497f-2496-4af5-9726-a10aec027c36
Twinnic Dispensed - 0.5 ml

2022-05-10 21:11 by 4143497f-2496-4af5-9726-a10aec027c36
download view WS21-22 ITS 5_Lure-Base St_rungen - Einleitung.pdf

2022-05-10 21:58 by 4143497f-2496-4af5-9726-a10aec027c36
Calcium [Mass/volume] in Serum or Plasma (LOINC:17861-6)
2.2 mmol/L

2022-05-10 21:19 by 4143497f-2496-4af5-9726-a10aec027c36
Paracetamol Dispensed - 600 mg

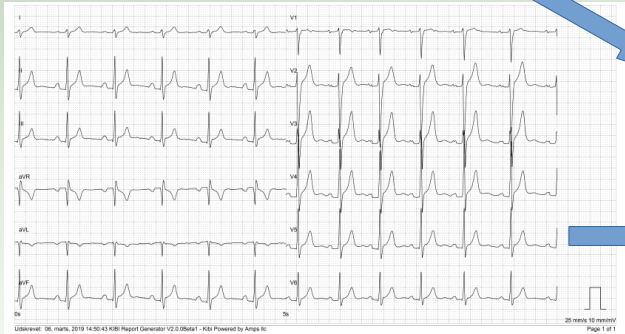
2022-05-07 00:46 by 4143497f-2496-4af5-9726-a10aec027c36
Going to bed now

2022-05-07 00:39 by 4143497f-2496-4af5-9726-a10aec027c36
Late in the night

2022-05-07 00:37 by 4143497f-2496-4af5-9726-a10aec027c36
Calcium [Mass/volume] in Serum or Plasma (LOINC:17861-6)
1.5 mM

2022-05-07 00:28 by 4143497f-2496-4af5-9726-a10aec027c36
Calcium [Mass/volume] in Serum or Plasma (LOINC:17861-6)
1.5 mM

2022-05-06 14:02 by 4143497f-2496-4af5-9726-a10aec027c36
BloodPressure 110 / 80



Updated: 06. März, 2019 14:30:43 HR: Report Generator V2.0.0861 - KB: Powered by Arpa IC

Page 1 of 1

Local  **shEHRd**

Custom functionality for your use case

shEHRd in hospitals

- Base Hospital Information System with
 - Patient registration and scheduling
 - Bed management
 - Electronic Health Record
 - Inter-department services (imaging, cleaning, meals, IT, follow-up scheduling,...)
 - Warehousing
 - Team communication (tasks, chats, news,...)
 - DRG-grouping / reporting
 - Standardized treatment processes with process automation
 - ...a lot of other useful features for the most common clinical situations
- Data synchronization with online shEHRd
- Patient portal

shEHRd in primary care

- Basic Practice System
 - Patient scheduling
 - Electronic Health Record
 - Ordering of laboratory tests (blood draws)
 - Team communication (tasks, chats, news,...)
- Data synchronization with online shEHRd
 - Scheduling data: Patients can make appointments in online-shEHRd, which can be managed in the local installation.
 - Laboratory orders: Submit orders to associated laboratories, retrieve lab results
 - Electronic Health Record: Keep the most important entries in sync, get discharge reports from hospitals and test reports from specialists.
 - Prescriptions: Sign and upload prescriptions

shEHRd in laboratories

- Sample handling
 - View incoming samples
 - Offer catalogue of available tests to customers
 - with preanalytic instructions
 - Check-in samples
 - Submit measurement results
 - Public health agency reporting
- Data synchronization with online shEHRd
 - Receive sample information
 - Provide real-time status of sample
 - Upload measurement results
 - Report illnesses to public health agencies (if reporting is required by law)

shEHRd in pharmacies

- Fill prescriptions
 - All prescriptions are stored in online shEHRd, ensuring prescriptions are valid and cannot be filled more often than prescribed.
- Handle medication orders from practices and hospitals
- Warehousing
- Invoice creation for health insurance

shEHRd for public health agencies

- Epidemiologic dashboard
 - Monitor disease burden in your region/country
- Receive illness reports from laboratories
- Get in contact with isolated patients
- National agencies: Specify which illnesses need reporting

shEHRd for research

- Advertise your studies
- Recruit patients
 - Specify eligibility criteria → patients are asked to participate
 - Screen patients with inclusion/exclusion questionnaires
 - Get in contact with patients that like to participate
- Stay in contact with enrolled participants
- Get access to the participants health record to submit test results and monitor for protocol adherence.
- Promote published articles to study participants
 - to thank them and show that their participation matters

Details

Technology

- Separated frontend (user interface) and backend (database and data processing)
 - Frontend: Website in React.js (v19)
 - Users only need a browser. No installation required. PC with at least HD screen recommended. Reasonable usability on phones and tablets.
 - Backend: ASP.NET (.NET 10) + MongoDB (8.0 LTS)
 - Recommended hosting setup: nginx as reverse proxy on hardened Ubuntu 24.04 Server
- Login options:
 - Username + Password
 - Optional: MFA with TOTP (e.g. Google Authenticator)
 - OpenID Connect
 - Windows Federation Server
 - Planned: Support for passkeys (especially FIDO2-keys like Yubikey)
 - Planned: eIDAS (when eIDAS is a little more mature)

Communication

- Local installations can deliver and receive data through
 - HL7 FHIR (through REST-API: /api/fhir/...)
 - Support for R4, R5, Gematik ISiK, EEHRxF (EHDS regulation)
 - Custom shEHRd-models through REST-API
 - See Open-API: <https://jankis.shehrd.eu/swagger>
 - Closely related to FHIR R4 models, extensive use of ICD-11, OrphaCodes, SNOMED CT and LOINC.
 - HL7 v2 messages

Consideration: Central servers vs. peer-network

- Central shEHRd servers managed by shEHRd gGmbH (not yet founded)
 - Cons:
 - Single point of attack
 - Pro:
 - Local installations can stay behind firewalls with no exposed attack surface
 - Easier to recruit a skilled IT-security team for a central system, than have multiple less skilled teams at hospitals and other participants (or none at all!)
 - Easier to ensure high-availability and performance
 - Ensure communication protocol adherence and data integrity

Integration with other systems

- Local shEHRd only provides basic functionality, other systems are required for specialized functionality.
- Preferred integration:
 - Other system has a web interface
 - shEHRd adds context-aware links to that system at appropriate locations (e.g. in health record or on department page)
 - Context could be the current patient, department, medication, etc.
 - Link may include an access token, enabling the other system to access and write data from/to shEHRd, e.g. through FHIR-endpoint
 - E.g. https://other-system.local/document-archive?patientId=19900101-ABCDE&access_token=ey...
- Proof-of-concept:
 - Baby Observation (<https://baby-observation.shehrd.eu/>)

How to participate ...as patient

- Register on <https://shehrd.eu> as patient
- Optional: Pre-fill health record with informations
 - e.g. current medication, family tree, allergies and diagnoses.
- On first visit at a health care facility with shEHRd support:
 - Perform handshake (facility should provide a QR-code)
 - Specify length of access to health record
- Optional: Buy emergency card from shEHRd web shop with QR code to health record



How to participate ...as health care provider

- IT-hardware (server)
 - Buy hardware from shEHRd gGmbH (not yet founded) with local shEHRd pre-installed
 - Install on own hardware using
 - Install script
 - Docker container
- Register on <https://shehrd.eu> as institution
- Setup system
 - Online-shEHRd-link
 - Departments
 - Employees (+ permissions)
 - Set preferred laboratories



(example)

How to participate ...as laboratory

- IT-hardware (server)
 - Buy hardware from shEHRd gGmbH (not yet founded) with local shEHRd pre-installed
 - Install on own hardware using
 - Install script
 - Docker container
- Register on <https://shehrd.eu> as institution
- Setup system
 - Online-shEHRd-link
 - Build test-catalogue
 - LOINC-codes
 - Container type (e.g. EDTA tube, Li-Heparin tube)
 - pre-analytic instructions (e.g. storage temperature, centrifugation)
 - Prices
- Contact shEHRd gGmbH (not yet founded) regarding adapters between your Laboratory Information System (LIS) and local shEHRd



(example)


How to participate ...as public health agency

- Request public health agency account from shEHRd gGmbH (not yet founded)
- Specify geographical region (zip-code ranges or geo-coordinate areas) to be overviewed

Screenshots

Health Record (online shEHRd)

Scholtyssek, Jan *16.11.1989, ♂

 Meine Daten Gesundheitsdienste ▾ Berechtigungen ▾ Studien Konfiguration ▾ Über uns ▾ Hallo, Jan ▾ Abmelden

Grundlegende Daten


Jan Scholtyssek ⚠ (1) ⓘ ✉

⚡ ID **19891117-XMWT3** 🔗
Geburtsdatum **1989-11-16** (36 Jahre alt)
Adressen 📄

Telefonnr.
Email
Kontaktpersonen [Zeige Kontaktpersonen](#)
Weitere Informationen [Zeige weitere Informationen](#)

Funktionen







> Schnellzugriff (Ctrl+Alt+Enter)




Übersicht **Notizen** Diagnosen Allergien Vitalzeichen Medikation Geräte/Gegenstände Fragen Testergebnisse Eingriffe Dokumente Stammbaum

Verlauf 🔗

2025-09-19 (Vor 5 Monate, 35 Jahre alt)

-  2025-09-19 09:10
Cholesterol in HDL [Mass/volume] in Serum or Plasma (LOINC: 2085-9)
53.00 mg/dL 🔗 💬 🗑
-  2025-09-19 09:10
Cholesterol in LDL [Mass/volume] in Serum or Plasma (LOINC: 2089-1)
83.00 mg/dL 🔗 💬 🗑
-  2025-09-19 09:10
Glucose [Mass/volume] in Blood (LOINC: 2339-0)
78.00 mg/dL 🔗 💬 🗑
-  2025-09-19 09:10
Erythrocytes [# /volume] in Blood (LOINC: 26453-1)
5.090 /pL 🔗 💬 🗑
-  2025-09-19 09:10
MCH [Entitic mass] (LOINC: 28539-5)
31.00 pg 🔗 💬 🗑
-  2025-09-19 09:10
Triacylglyceride [Mass/volume] in Serum or Plasma (LOINC: 2571-0)
🔗 💬 🗑



Health Record (local shEHRd)


Mustermann, Max *15.03.2025 ♂

Max Mustermann

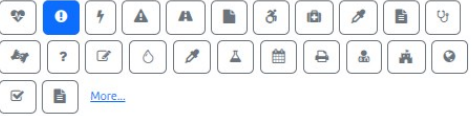
Subscribed

Isolation: Klebsiellen [Click for details](#)

Med ID: 20250315-WHWYU [🔗](#)
Date of birth: 2025-03-15 (11 months old)
Additional informations: [Show additional information](#)

 **Ward:** Neonatology
Room: NEO1
Bed: B1
Height: --
Weight: --
Contact information: [Show contact information](#)

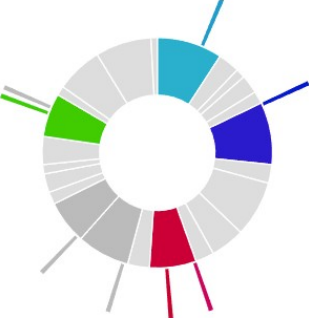
Actions [Command line \(Ctrl+Alt+Enter\)](#)







Select time range: of
Encounters:



Overview Notes **Diagnoses** Allergies Observations Medications Equipment Questions Test results Medical procedures Documents Family tree Tasks

Multimorbidity Wheel



Show only unresolved

Name	Status
 Moderate Gastro-oesophageal reflux disease (Icd11: DA22) 2026-02-08 18:35	 Remission Show status changes Edit...
 Mild Atopic eczema (Icd11: EA80) 2026-02-08 18:33	 Inactive Show status changes Edit...

Ward

JanKIS Context Neonatology (Digitz) Connected Hello, Kathrine Meredith [Log out](#)

Neonatology

[Bed list](#) [Rounding](#) [Quick admit](#) [Cleanup patients list](#) [Test results dashboard](#) [Blood draws](#)

NEO4 3	NEO5 3	NEO6 3	NEO7 3	NEO8 3	NEO9 3	ISO NEO10 3
		NEO- Unrein		NEO- Stützpunkt		NEO-Küche
		NEO3 3		NEO- Aufenthalt		NEO11 3
		NEO2 3				NEO12 2
		ISO NEO1 3				NEO13 2

Search: Patient

Room NEO1

[B1](#) [ISO](#) [Mustermann, Max](#) [*15.03.2025](#) [♂](#) [★](#)

[🗨](#) [📄](#) [☰](#) [🔍](#) [🔄](#) since 2025-06-10 20:42

[News - Department news](#) [Create new](#) [Notifications](#)

Collaboration / Tasks

JanKIS Allgemein ▾ Registrierung ▾ Abteilung ▾ Konfiguration ▾ Hallo, Jan ▾ Abmelden 🔒

Aufgaben

Neu erstellen Aufgabenpaket für Patient anwenden

Filter: Alle Meine **Abteilung** Patient 🔍 Neonatology ✕

Nur offene Nur ohne Verantwortliche/n Drucken

Nach Patient gruppieren

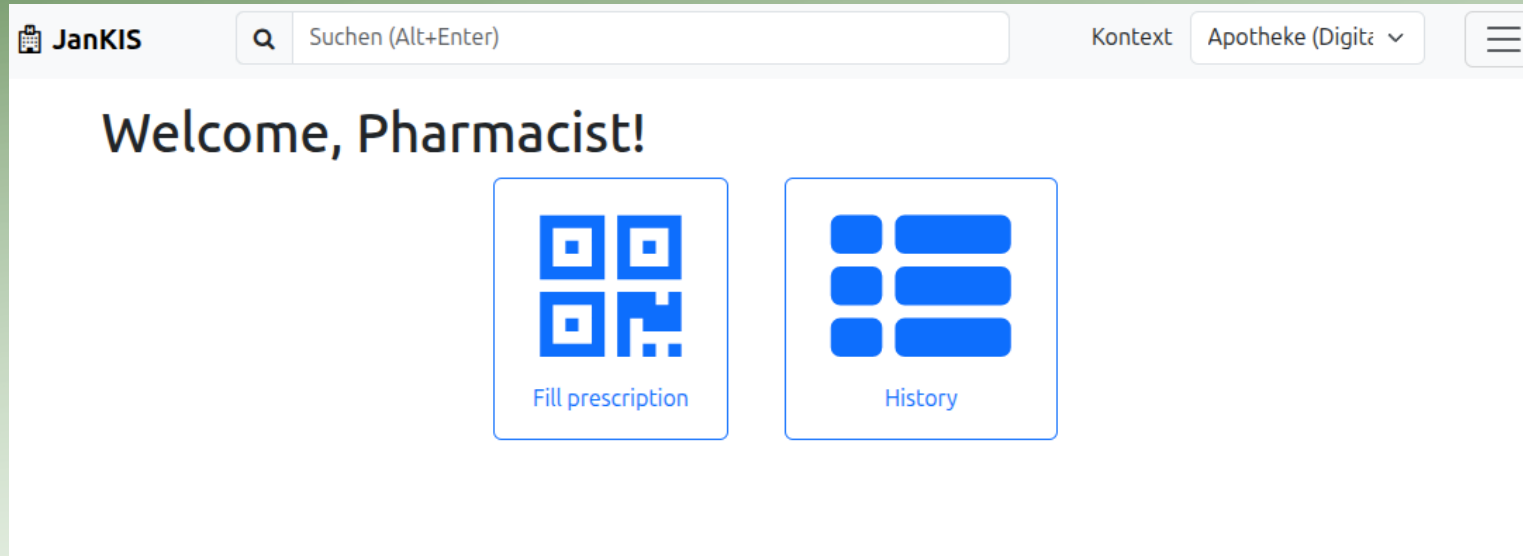
Offen	Im Gange	Fertig	Verworfen
9	3	3	0

Savannah Balderrama (20230120-TVHUE, ♀) - 7 Aufgaben

Offen	Im Gange	Fertig	Verworfen
<ul style="list-style-type: none">Zum Ultraschall in die Radiologie bringen Frist: 2024-07-16 17:00 Savannah Balderrama (20230120-TVHUE) Pflege NeonatologieAbstriche machen Savannah Balderrama (20230120-TVHUE) Jan ScholtyssekCasino-Karte für Eltern ausstellen Savannah Balderrama (20230120-TVHUE)Gelbes Heft anfordern Savannah Balderrama (20230120-TVHUE)	<ul style="list-style-type: none">Stationsmonitor anschließen Savannah Balderrama (20230120-TVHUE) Pflege NeonatologieBlutkultur abnehmen Savannah Balderrama (20230120-TVHUE) Jan Scholtyssek	<ul style="list-style-type: none">Fieber messen Savannah Balderrama (20230120-TVHUE) Pflege Neonatologie	

Catherine Potochnik (20230227-VH7WQ, ♀) - 8 Aufgaben

Pharmacy



Laboratory

JanKIS Context: Lab (Digital Hospital) Connected Hello, Kathrine Meredith Log out

Lab

2026-03-02 Today

Category	Specimens	Specimen measurement orders
InTransport	0	0
ReceivedByLab	0	0
Analyzing	0	0
Analyzed	0	0

Specimens

[Manage lab services](#)

Epidemiologic dashboard



Epidemiologic dashboard

Simulated data! shEHRd doesn't have enough users yet for showing meaningful epidemiologic data.

Trending diseases

Disease	/ 100,000	
Adenovirus infection of unspecified site (ICD-11: 1D90)	971.9	Select
Pulmonary histoplasmosis capsulati (ICD-11: 1F2A.0)	971.4	Select
Salmonella enteritis (ICD-11: 1A09.0)	699.4	Select
Cholera (ICD-11: 1A00)	674.1	Select
Aspergillus bronchitis (ICD-11: 1F20.14)	614.4	Select
Tuberculosis of other specified part of nervous system (ICD-11: 1B11.Y)	599.9	Select
Type II leprosy reaction (ICD-11: 1B20.21)	445.2	Select
Enteroviral meningitis (ICD-11: 1C8E.1)	333.4	Select

ICD-11 code (ICD-11)

1D90 - Adenovirus infection of unspecified site [×](#)

Time range start

2026-01-31

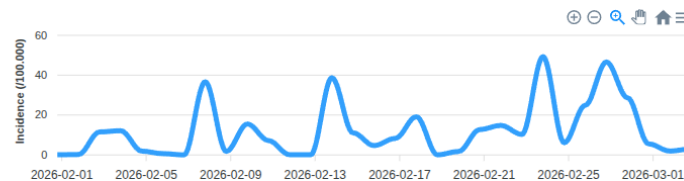
[Today](#)

Time range end

[Today](#)

Adenovirus infection of unspecified site (ICD-11: 1D90)

Prevalence 987.0 / 100,000
Incidence 157.0 / 100,000



Contact information

- Website: <https://shehrd.eu>
- E-Mail: jan@shehrd.eu
- Phone: +49 174 6322405

Thank you :)