



# ELGA Das Pendant zum EPD in Österreich





## **Presentation Agenda**

- Introduction of Tirol Kliniken
- What is ELGA and how does it work?
- ELGA Content
- Legal framework for ELGA and organizational consequences
- Implementation of the ELGA Affinity Domain for Public Hospitals in Tirol
- A look into ELGA
- Outlook and next Steps in ELGA & eHealth Projects

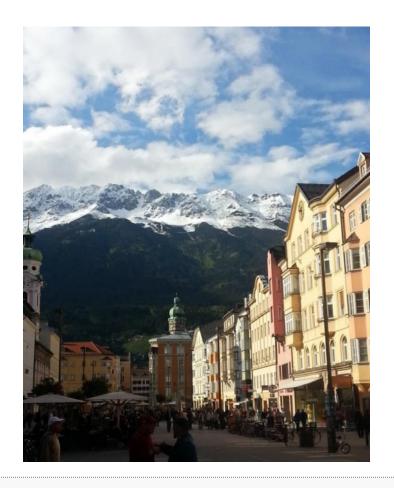






## Some Impressions ...

## ... from Innsbruck









## Tirol Kliniken GmbH is ...





## **Tirol Kliniken Hospitals**



**University Medical Center Innsbruck** 



Hospital Hall and Landespflegeklinik Tirol







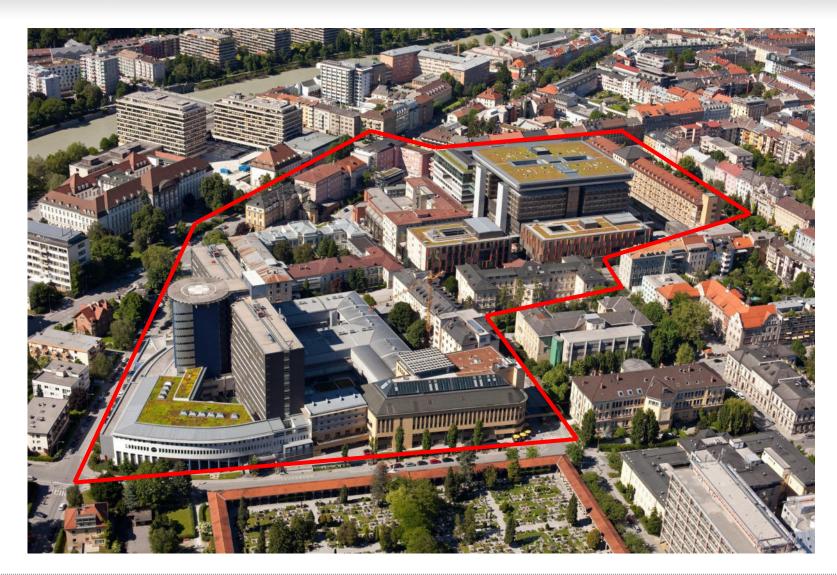
**Hospital Hochzirl - Natters** 



Healthcare Education Center and University of Applied Healthcare Sciences



## University Medical Center Innsbruck





## **Key Indicators of Tirol Kliniken**

Systematized Beds: ~2.400

Intensive Care Beds: 155

Staff 2023 (FTEs / Persons): ~7.000 / ~9000





## **Major IT-Systems**

Clinical Information System CIS: Millennium from ORACLE Cerner Patidok from /P/C/S/

ERP / Patient Administration System: SAP R/3 / SAP-IS-H

**Intensive Medicine PDMS: GE Centricity Critical Care** 

OP-System: Torin OP Management from GETINGE \*



PACS / RIS: Dedalus Impax / GE Centricity

syngo.share Multimedia Archive & ELGA / IHE Repository: The universal VNA software

Siemens eHealth Solutions from for ELGA & eHealth

as IHE Platform



## What is ELGA and how does it work?



medizinischen Behandlung und Betreuung durch einen besseren Informationsfluss, vor allem dann, wenn mehrere Gesundheitseinrichtungen zusammenarbeiten.





Meine elektronische

Meine Entscheidung!

Gesundheitsakte.

elga

Meine elektronische

Meine Entscheidung!

Gesundheitsakte.





## Core of the Austrian eHealth Strategy

- ELGA = Acronym for "**EL**ektronische **G**esundheits**A**kte" (Electronic Health Record, EHR)
- ELGA is an Austria-wide information system which enables all elegible users to access healthcare information across institutional boundaries
  - e-Reports = CDA Documents and Images
  - e-Medication
  - e-Immunization Pass & Immunization Certificates
- Access to an ELGA of a person is given to
  - ELGA-Participants via the ELGA Citizen Portal (EBP, ELGA BürgerPortal)
  - Healthcare Providers ("GDA" = Gesundheitsdiensteanbieter), but only due to a technically verified patient contact
- ELGA is an Opt Out System
- ELGA links data already available in different provider systems and gives access to the care providers who currently have a technically verified patient contact
- Citizens / Patients can access ELGA via ELGA-Patient-Portal
- ELGA started in December 2015 with the Affinity Domains of Vienna Hospitals and the Domain of KAGES (Public Hospitals in Steiermark)
- ELGA Domain in Tirol went live on Dec. 6th 2016



## **ELGA** in Numbers

31.12.2023



#### ELGA Healthcare Providers connected to ELGA

- 173 Hospitals
- 179 Care Facilities
- > 7,939 Physician Offices
- 546 Medical Group Practices
- 1,426 Pharmacies
- 201 Outpatient Clinics / Ambulatories / Institutes
- > 58 Occupational Health Centers and Occupational Health Services

#### Patients / Citizens

- ≥ 278,882 general Opt Outs → corresponds to ~ 3% of insured persons
- 48.000 ELGA Portal Visits in December 2023

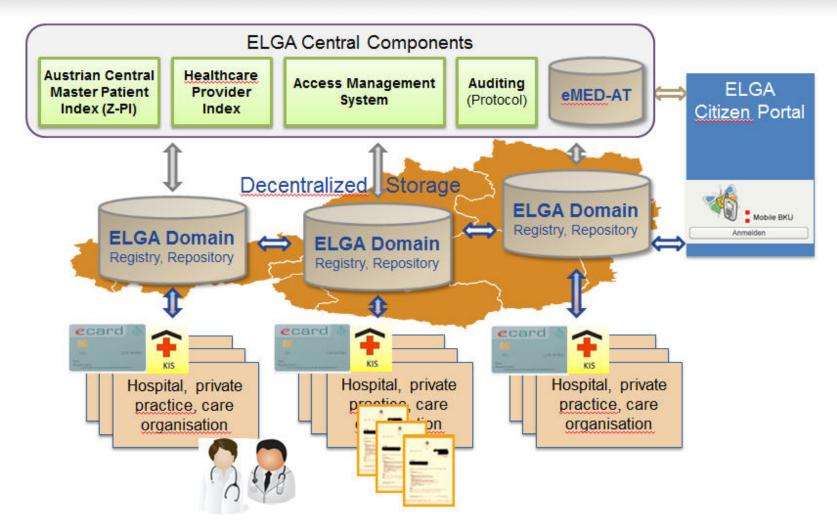
#### ELGA Volume

- 88.05 million total e-reports
- 28.69 million vaccinations documented in the e-vaccination record (15.01.2024)
- > e-medication: 9.88 million stored dispensations in December 2023
- 8.4 million prescriptions filled in December 2023

Source: Helene Prenner, ELGA GmbH



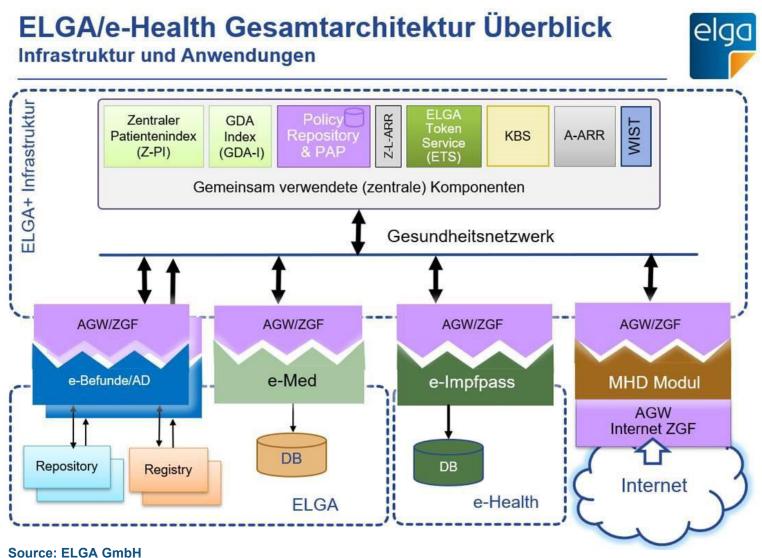








## Architecture – the Big Picture

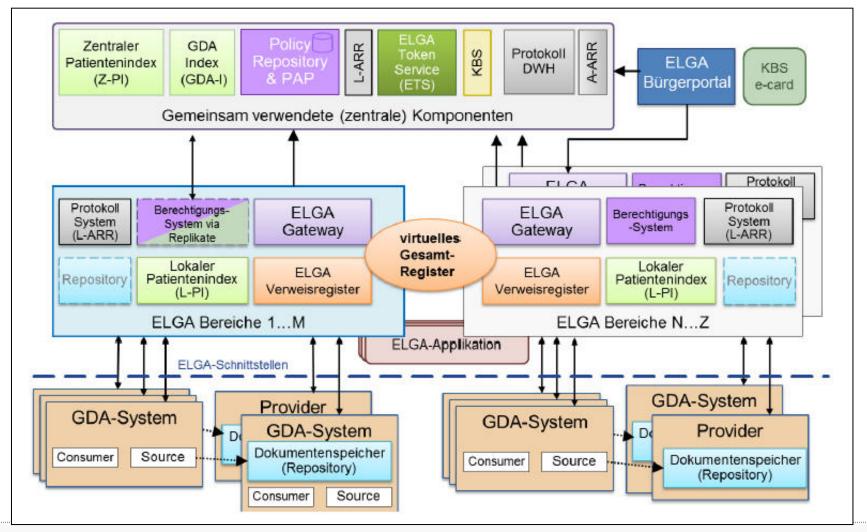






## elga Detailled Architecture

ELGA is realized around the IHE-XDS-Profile via SOAP based Web Services. Source: ELGA GmbH





## **ELGA Central Components**

The following ELGA-Components are hosted centrally for all ELGA-Domains in Vienna:

- L-PI (Local Patient Index)
  - Local PIX of an ELGA Domain
- Z-PI (Austrian Central Patient Index)
  - Austria wide identification of patients & linking of Local Patient Indices
- PAP (Policy Administration Point & Policy Repository)
  - Administration and storage of general and individual policies
- ETS (ELGA Token Service)
  - Issues Authorization-Assertions (SAML Tickets) for ELGA Users
- GDA Index (<u>GesundheitsDiensteAnbieter</u> ... Healtcare Provider Index)
  - Directory to identify ELGA-Healthcare Providers (Hospitals, Physicians etc.)
- KBS (Kontaktbestätigungsservice ... Contact Confirmation Service)
  - Saves Contact Confirmations (Kontaktbestätigungen)
- A-ARR (Aggregated Audit Record Repository) & Protocol Data Warehouse
  - Summarizes protocol messages from decentralized ARR's for the patient
- e-Medication
  - Central Component handling e-Medication in ELGA
- ELGA Portal
  - Provides access to ELGA for a patient / citizen



## **ELGA Benefit Expectations**

- Optimized support of cross-institutional patient-centered treatment processes
- Saving costs and time
  - Eliminating the isolation between information silos
  - Seamless information exchange between intramural and extramural institutions
  - Avoiding double exams
  - Avoiding double prescriptions and Adverse Drug Events
- Sustainable investment by relying on international standards and initiatives
- Highest level of security → encrypted mechanisms for authentication, data transfer and logging
- Patient himself will be empowered to govern over his ELGA



## **ELGA Content**

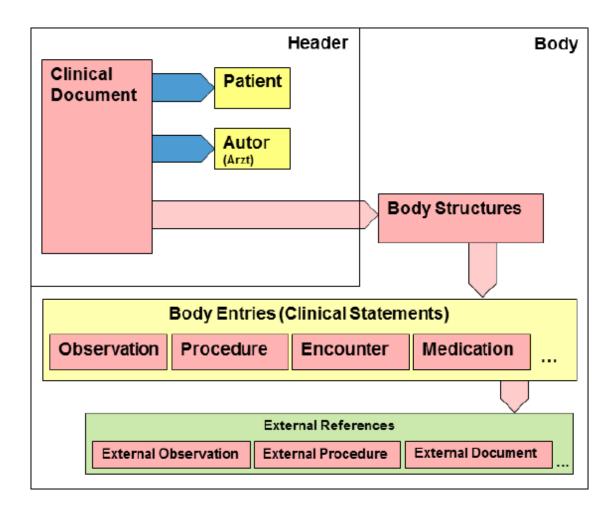






## elga CDA Document Structure

The benefit of providing documents in ELGA also depends on their structural granularity (CDA Level 1, 2 or 3). The higher the CDA Level of ELGA Documents, the better their content can be processed and interpreted automatically (semantic interoperability).





## Which content should / must be provided for ELGA?

#### From In- and Outpatient Encounters

- Physician Discharge Document
- Nursing Discharge Document
- Outpatient Physician Documents
- Lab Reports
- Radiology Reports

#### e-Medication

- Prescription of eMedication by GPs
- Other prescribing Healthcare Providers will follow

#### Telemedicine Episode Document

- "Heart-Mobile" Telemedicine Episode Document for cross-institutional treatment of heart insufficiency patient
- since Jan 2021: e-Immunization Pass
- ongoing Rollout for DICOM Images

#### Additional ELGA content planned

- Patient Summary
- Patient Will Declarations
- Pathology Reports
- Parent-Child Pass
- Support of Cross Institutional Workflows
- ..





- ELGA does not only standardize purely technical aspects <u>but</u> <u>also content</u>
- One key part of ELGA are Implementation Guidlines
- For each document type an officially approved Implementation Guidline + LOINC has to be released before it may be registered for ELGA
  - Implementation Guidlines describe structure, content and technical implementation of an ELGA CDA (Clinical Document Architecture) Document
  - ➢ Generation of an Implementation Guidline requires intentsive discussions among clinical and technical experts → big effort



# Structure / Main Paragraphs of the Austria-wide standardized ELGA Physician Discharge Document

- General Text
- Reason for Visit
- Discharge Diagnosis
- Performed Measures / Treatments
- Last Medication
- Recommended Medication
- Further recommended Measures / Treatments
  - Appointments / Follow-Up Visits
  - Patient Status at Date of Discharge
  - Nursing Recommendations
- Visit Summary
- Final Remarks
- · red: mandatory sections
- blue: optional sections

- · Allergies, Incompatibilities, Risks
- Clinical Results
  - Medical Reports not finalized at the time of discharge
  - Excerpts from Medical Examination Reports
  - Vitals
- Anamnesis
- Former Illnesses
- Medication at Admission
- Medication given during Encounter
- Patient Will Declarations and other legal Documents
- Attachments



#### Standardized Layout (Look & Feel) for ELGA Documents

Before being displayed to the user by the browser FLGA-CDA-Documents converted from XML into HTML and displayed via specific ELGA-Stylesheets (Standard ELGA Stylesheet, eMedication Stylesheet, elmmunization Stylesheet)

#### Entlassungsbrief

Erzeugt am 30. Juli 2015 um 10:46 Uhr | Version: 1



▼ Inhaltsverzeichnis ausklappen
▼ Alle Inhalte ausklappen

Patient:

Dipl.Ing. Hofrat Herbert Hannes Mustermann, BSc, MBA Geschlecht: männlich | geboren am: 24. Dezember 1961 | SVN: 1111241261 |

Gesetzlicher Vertreter vorhanden

Aufenthalt: Amadeus Spital - Chirurgische Abteilung Stationär von: 2. März 2013 bis: 25. März 2013 | Aufnahmezahl: Az123456

Erstellt von:

Amadeus Spital - Chirurgische Abteilung

An: Ordination Dr. Empfänger

Allergien, Unverträglichkeiten und Risiken

Patientenverfügung vorhanden

Sehr geehrte Herr/Frau Kollege(in)

Dies ist ein Beispielbefund. Bei den Inhalten handelt es sich um synthetische Mustertexte und keinesfalls um personenbezogene Echtdaten oder realistische Befunde. Das Beispiel veranschaulicht die technischen Möglichkeiten unter Verwendung eines Maximums der erlaubten Optionen.

#### Aufnahmegrund

Bei Zustand nach Gelenksempyem im linken Knie (2/13) durch Fremdkörper neuerlicher Fieberanstieg und Gelenksschwellung, (OP am 12.2.2013; ASK li, Kniegelenk, Gelenksspülung und Synovektomie, FK-Bergung aus der li, Quadrizepssehne, Spülung, antimikrobielle Therapie mit Dalacin 300 mg als KI 4x1 i.v. für 6 Tage, danach ab 19.2. Fucidin 250 g 3x1 p.o. und Rifoldin Saft 3x 1 1/2 ML p.o.)

#### Diagnosen bei Entlassung

Diagnose	Datum von	Datum bis	Status
M25.46, Meniskus: Empyema gen. sin. post corpus alienum ligneum operat.	11.02.2013	11.03.2013	Abgeschlossen
M54.9, bekannt rezidivierende Rückenschmerzen	11.01.2012		Offen

#### Durchgeführte Maßnahmen

OP in AN am 16.3.2013; ASK, Gelenksspülung; Antimikrobielle Therapie mit Augmentin 3 x 2g i.v. von 16. 3.2013 bis 20.3.2013, nach Erhalt des mikrobiellen Befundes (Enterobacter aerogenes) Wechsel auf Ciproxin 400mg 2 x tgl. i.v., weiters Fosfomycin 3 x 2q i.v. von 16, 3, bis 28, 3,2013; Analgetisch-antiphlogistische Therapie

#### Letzte Medikation

Ciproxin 400mg 2 x tgl. i.v.

**Empfohlene Medikation** 





# Legal Framework for ELGA & organizational consequences



## **ELGA Law**

The legal framework for ELGA is defined in the Austrian Federal Law "ELGA Law" (2012)

ELGA GmbH, financed by the Republic of Austria, all 9 Federal States and the Social Insurance Group, was founded in November 2009 to manage the technical and organizational implementation of ELGA.

www.elga.gv.at

## BUNDESGESETZBLATT

## FÜR DIE REPUBLIK ÖSTERREICH

Jahrgang 2012	Ausgegeben am 14. Dezember 2012	Teil I
111. Bundesgesetz:	Elektronische Gesundheitsakte-Gesetz – ELGA-G (NR: GP XXIV RV 1936 AB 1979 S. 179. BR: AB 8818 S. 815.)	

111. Bundesgesetz, mit dem ein Gesundheitstelematikgesetz 2012 erlassen und das Allgemeine Sozialversicherungsgesetz, das Gewerbliche Sozialversicherungsgesetz, das Bauern-Sozialversicherungsgesetz, das Beamten-Kranken- und Unfallversicherungsgesetz, das Gentechnikgesetz und das Strafgesetzbuch geändert werden (Elektronische Gesundheitsakte-Gesetz – ELGA-G)

Der Nationalrat hat beschlossen:

#### Inhaltsverzeichnis

Art.	Gegenstand
1	Gesundheitstelematikgesetz 2012
2	Änderung des Allgemeinen Sozialversicherungsgesetzes
3	Änderung des Gewerblichen Sozialversicherungsgesetzes
4	Änderung des Bauern-Sozialversicherungsgesetzes
5	Änderung des Beamten-Kranken- und Unfallversicherungsgesetzes
6	Änderung des Gentechnikgesetzes
7	Änderung des Strafgesetzbuches



## Legal Framework for elga



- BGBI. 111/2012: ELGA Law (ELGA-G)
- ELGA Implementation Guideline of the Austrian Ministery of Health (ELGA-VO)
- Health Telematics Guidline 2013
- Data Protection & Privacy Law 2000 (DSG 2000)
- eGovernment Law
- Patient Charta
- Treaty for the Financing and Organisation of the Austrian Healthcare System between States and the Federation according to §15a B-VG
- Hospital und Convalescence Law (KAKuG)
- Physician Law 1998
- Hospital Laws of the Federal States



## Special Challenge: Handling of Situative Opt Out (SOO)

 According to ELGA Law SOO is the right of an ELGA Participant (Patient) to request that no ELGA-relevant documents shall be registered in ELGA from an encounter with a Healthcare Provider

#### SOO Options

- SOO for a specific inpatient encounter
- SOO for all encounters at a Healthcare Provider during a specified duration (max. 365 d)
- For all non-sensitive encounters → Patient has to request an SOO
- For all highly-sensitive encounters dealing with
  - > HIV-Infections
  - Psychiatric Main Diagnosis
  - Genetic Examinations
  - Abortions

Healthcare Providers are obliged to inform the patient actively about his SOO right.

- Each Healthcare Provider has to analyze and to define
  - When could the patient request an SOO during his stay or a clinical process?
  - Who has to address the SOO subject at which stage of the process?
  - Who has to scan the signed SOO form?
  - Who has to administer the SOO in the system?



# Implementation of the ELGA Affinity Domain for Public Hospitals in Tirol

## How was it done?





## **ELGA Implementation in Tirol**

The implementation of ELGA at Tirol Kliniken and in Tirol was split into three Sub-Projects:

- Sub-Project 1: Making all internal ELGA-relevant Systems at Tirol Kliniken (CIS, LIS, RIS) ELGA-ready
- Sub-Project 2: Setting up the Domain Infrastructure, connecting the GoLive Hospitals to the Domain and GoLive
- Sub-Project 3: GoLive with all other Public Hospitals in Tirol



## **ELGA Implementation in Tirol**

- Sub-Project 1: Making all internal ELGA Source Systems ELGA-ready
  - Assigning LOINCs to all information entities (lab values, document sections, document types etc)
  - ♦ Implementing CDA document generation into all ELGA relevant Source Systems (CIS, LIS, RIS)
  - Preparing the Source Systems to send CDA-Documents via HL7-MDM
  - ♦ Intensive Testing of all systems (document registration, updates, deprecation etc.)
  - Operational ELGA Support & Maintainance Processes (SLAs, responsibilities ...)
- Sub-Project 2: Setting up the Domain Infrastructure, connecting GoLive Hospitals to the Domain, Testing and GoLive
  - Setting up the domain infrastructure based on Siemens e-Health Solutions and interfacing all relevant Source Systems
  - Performing the official GoLive Tests with ELGA Testteam (took about 2 months)
  - Clarifying and defining all processes / use cases for our users and for the domain-wide operation and support
  - Informing and training of hospital staff
  - Planning and performing GoLive → ELGA Domain Tirol went live on 06th of Dec. 2016
- Sub-Project 3: GoLive with all other Public Hospitals in Tirol
  - Rollout in all public hospitals in Tirol was completed on 16th of May 2017

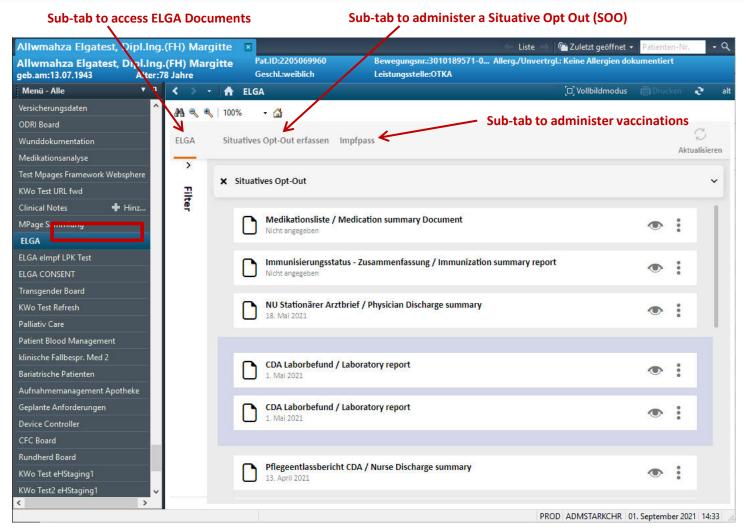


## Integration of ELGA into CIS of Tirol Kliniken





## Seamless ELGA Integration into EMR via Embedded Browser

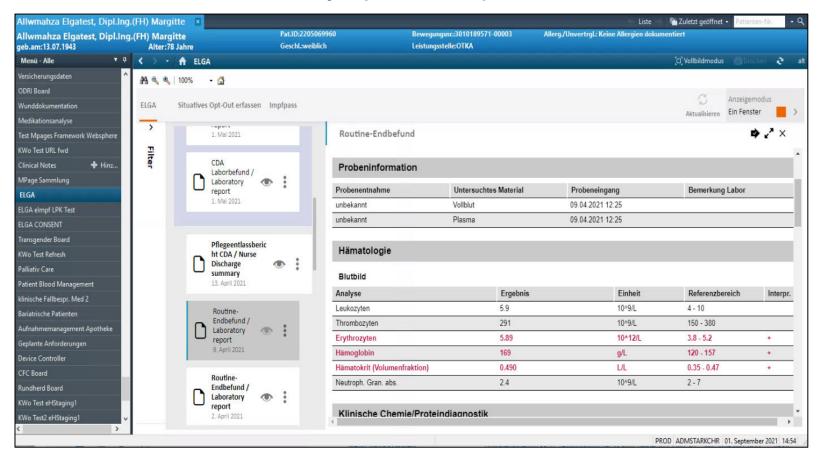


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## Displaying and Importing ELGA Documents

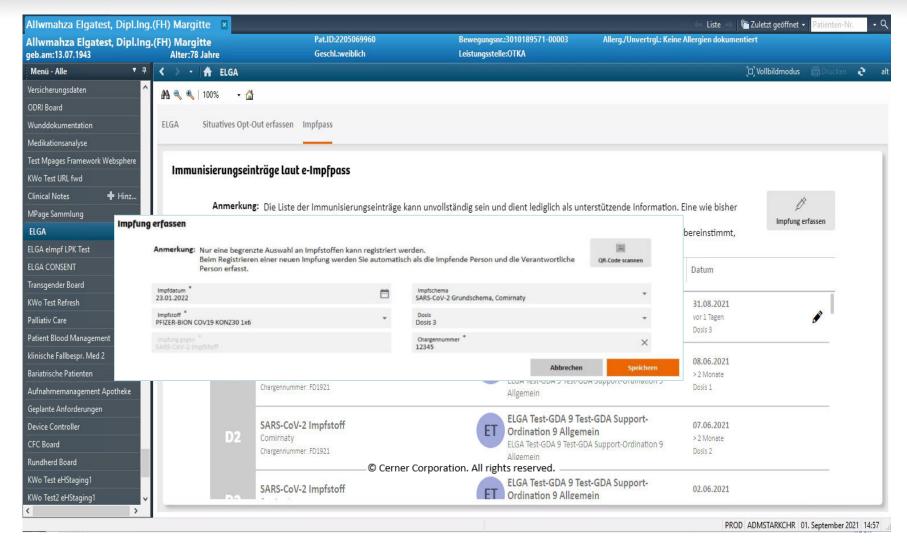
- Fetching an ELGA Document from another Healthcare Provider takes only seconds
- Relevant Documents can be directly imported into a patient's EMR with one mouse-click.



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## e-Vaccination Pass



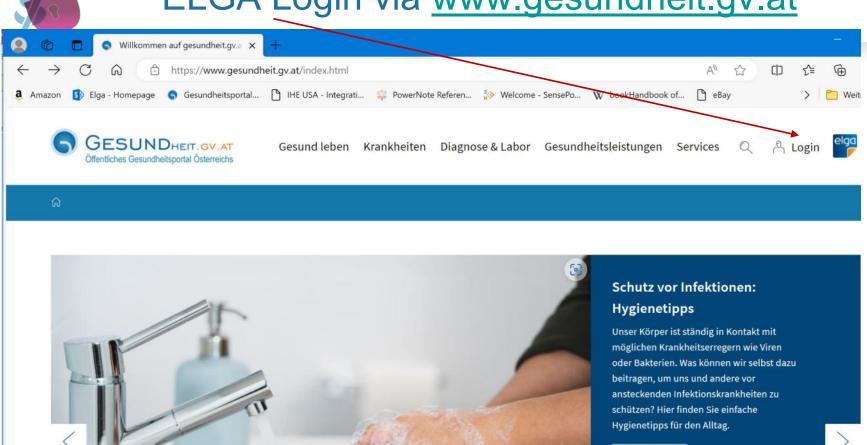


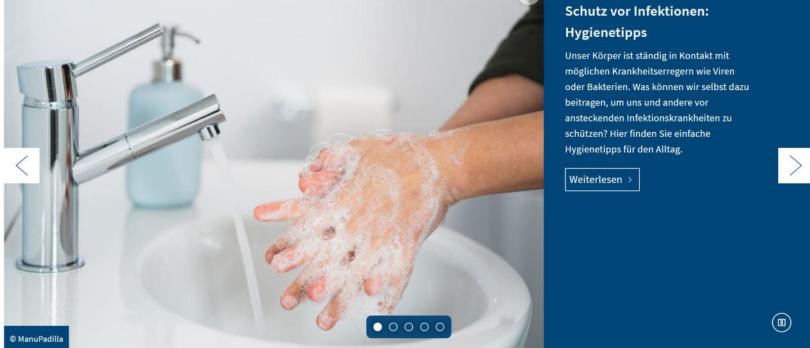
## Look into ELGA from a Patient Perspective via ELGA Citizen Portal





## ELGA Login via www.gesundheit.gv.at







### Authentication via ID Austria

#### Anmelden bei "Öffentliches Gesundheitsportal Österreichs"

Mit der Anmeldung werden folgende Daten zu Ihrer Person an "Öffentliches Gesundheitsportal Österreichs" übermittelt: Ihr Name, Ihr Geburtsdatum, Ihr bPK, … Details anzeigen ∨

<u>Datenschutzerklärung von "Öffentliches Gesundheitsportal Österreichs"</u>



#### Anmelden mit ID Austria

Die ID Austria ist die Weiterentwicklung der Handy-Signatur bzw. Bürgerkarte und wird diese mit 5.12.2023 ablösen.

Mehr Information zur ID Austria



Anmelden mit Handy-Signatur

Umsteigen von Handy-Signatur auf ID Austria



Anmelden mit Bürgerkarte

Bürgerkarte umstellen auf ID Austria



Anmelden mit EU-Login

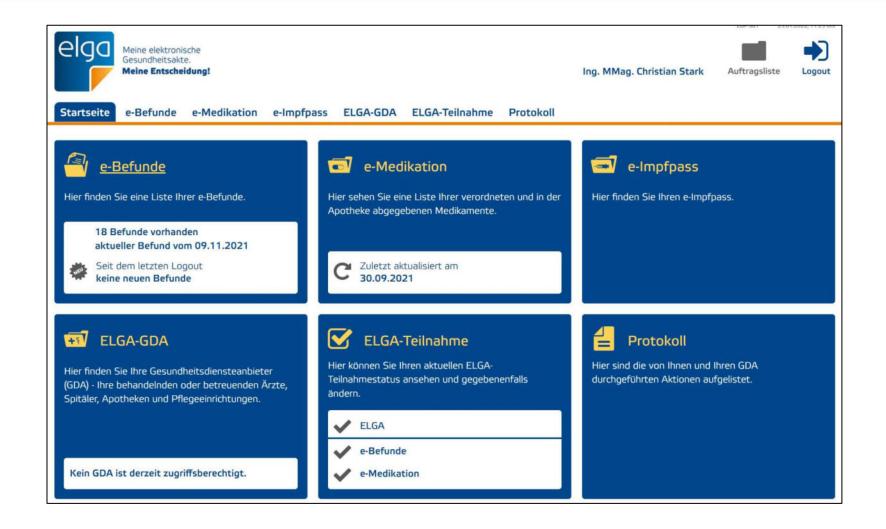


## After Login: Access to Green Pass, Covid-Certificates and ELGA

Q Gesund leben Krankheiten Diagnose & Labor Gesundheitsleistungen Services **Professional ELGA** Home > Willkommen im angemeldeten Bereich von Gesundheit.gv.at Herzlich willkommen Christian Heinz Stark! Sie haben sich erfolgreich am öffentlichen Gesundheitsportal angemeldet. Folgende Anwendungen stehen zur Verfügung: **Grüner Pass**  Hier kommen Sie zur Anwendung ⇒ Grüner Pass In der Anwendung "Grüner Pass" können Sie folgende Zertifikate abrufen: Impfzertifikate Testzertifikate Genesungszertifikate Die Zertifikate sind mit EU-konformem QR-Code ausgestattet und können auf elektronischen Geräten gespeichert und ausgedruckt werden. Allgemeine Informationen finden Sie unter Grüner Pass (gruenerpass.gv.at). **ELGA-Portal (ELGA-Funktionen und e-Impfpass)** Hier kommen Sie zur Anwendung ⇒ ELGA-Portal (ELGA-Funktionen und e-Impfpass)

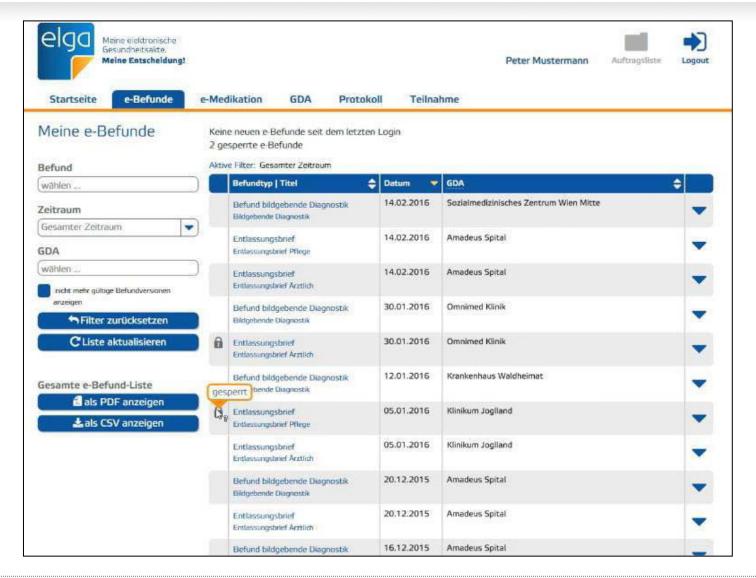


## **ELGA Citizen Portal Application Tiles**



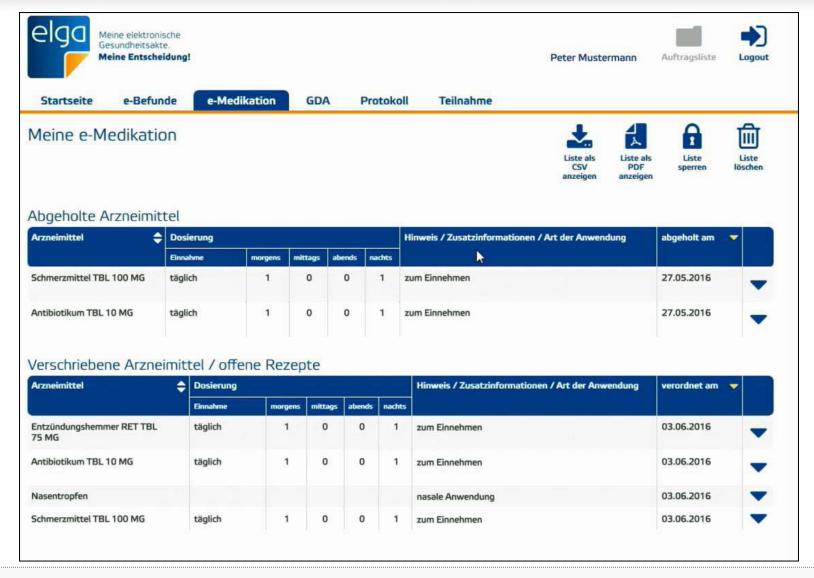


### **ELGA Document List**



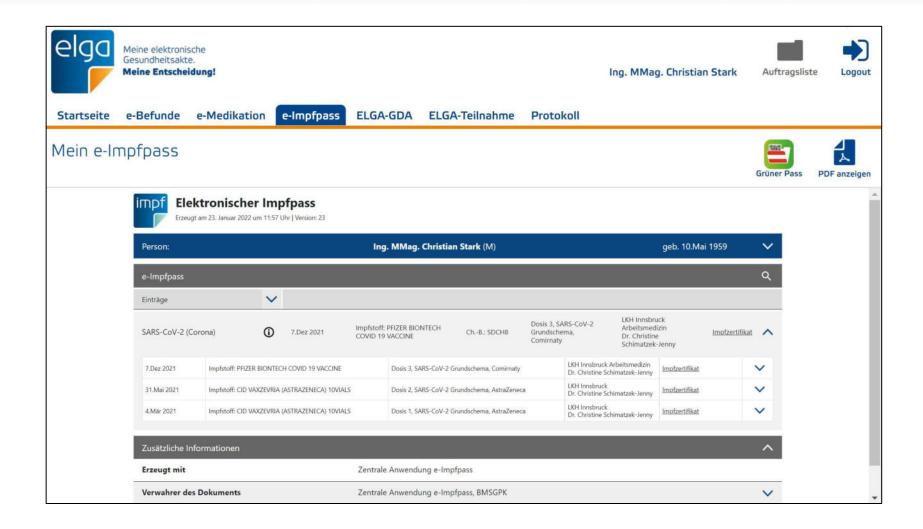


### eMedication Overview in ELGA



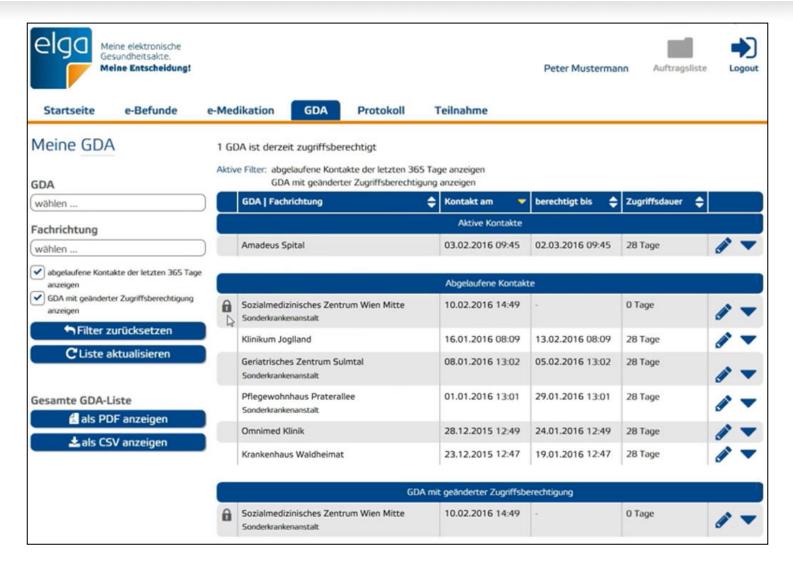


### e-Immunization Status in ELGA



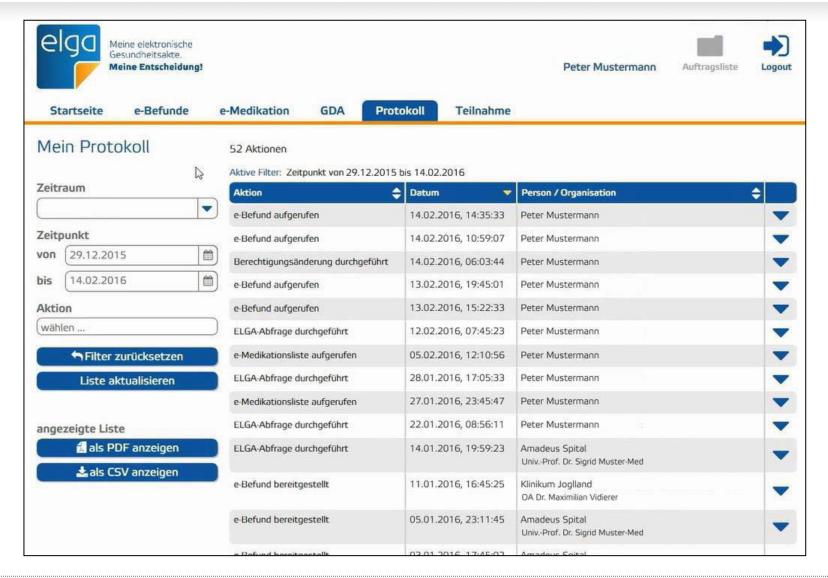


### **ELGA Healthcare Provider Contact Protocol**





### **ELGA Access Protocol**



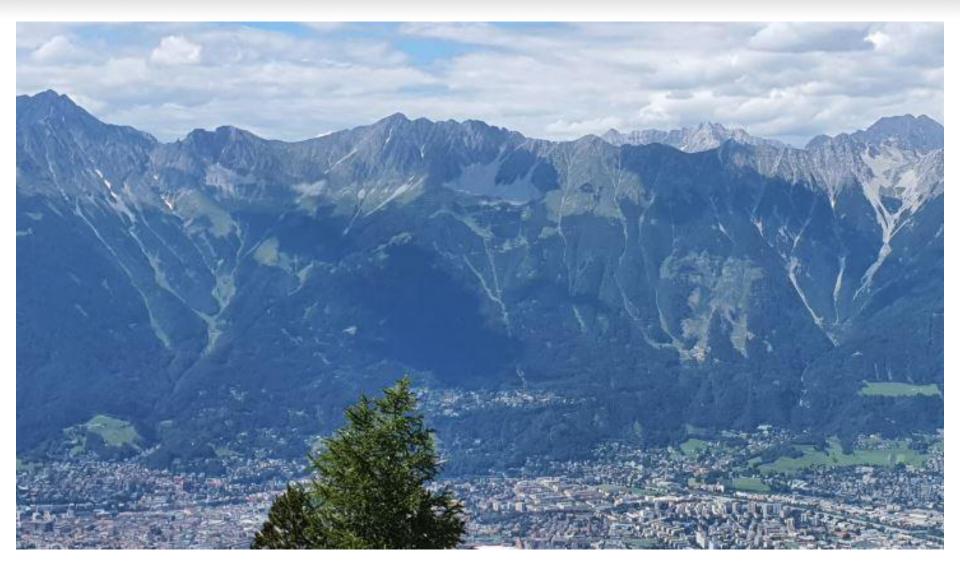


### Opt-Out / Opt-In via ELGA Portal





## Outlook and next Steps in ELGA & eHealth Projects



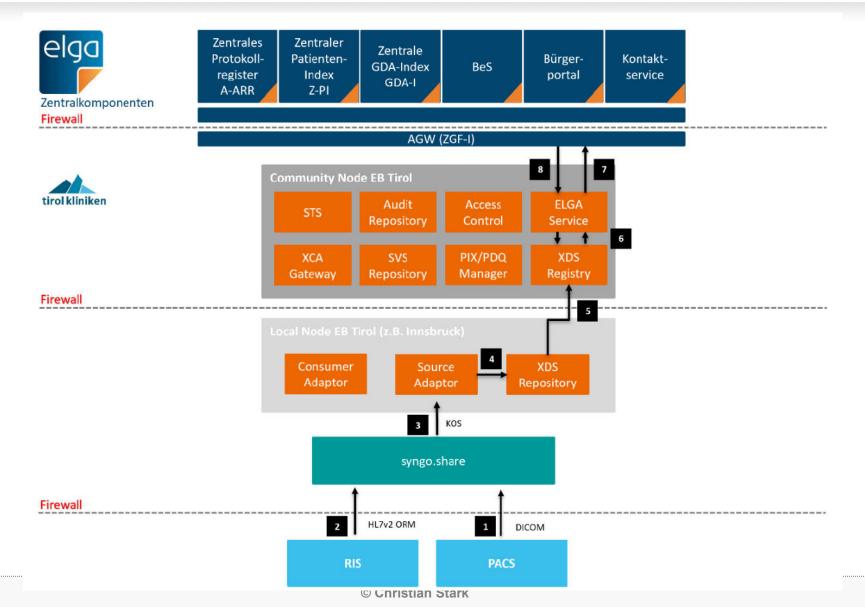


### **ELGA-Registration of DICOM Images in Tirol**

- DICOM-Images are a very important information entity in ELGA
- Making images avaliable via ELGA has already been piloted in Vienna and other regions in Easter Austria
- Cross-institutional availability of medical images helps to reduce the exposure of the patient to ionizing radiation and avoids handling costs (no CD/DVD buring etc.)
- Pilot Project in Tirol (Image Transfer via Siemens eHealth Solutions and syngo.share between the Hospital in Kufstein and the Medical University Center in Innsbruck) already proved the feasibility
- Project "Image Registration in the ELGA Domain of Tirol" has been started
- Plan: from Q4'2024 on all DICOM Studies (CR, CT, MRI, Sonography) from the Radiology Departments of all Tirol Kliniken Hospitals should be registered in ELGA
- In parallel the District Hospitals in Tirol will also start their image registration projects and further Radiologies (Radiology Physician Offices, Radiology Institutes, Radiologies in Private Hospitals) will hopefully follow soon.
- Focus for 2025: Registration of Images from Nuclear Medicine and Dentristry

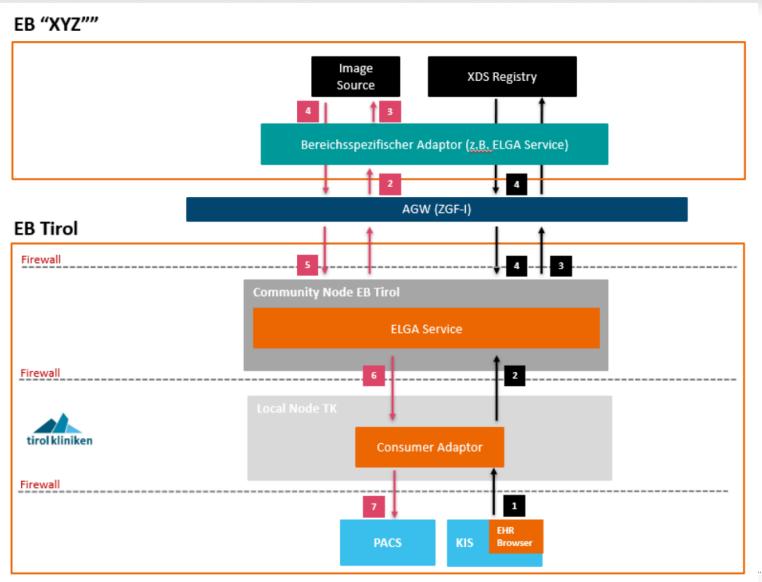


## Registration of DICOM Images via syngo.share and Siemens eHealth Solutions





## Fetching and importing DICOM Images via syngo.share and Siemens eHealth Solutions





### European Health Data Space EHDS

The European Health Data Space is an EU initiative to define a health specific ecosystem comprised of rules, common standards and practices, infrastructures and a governance framework that aims at

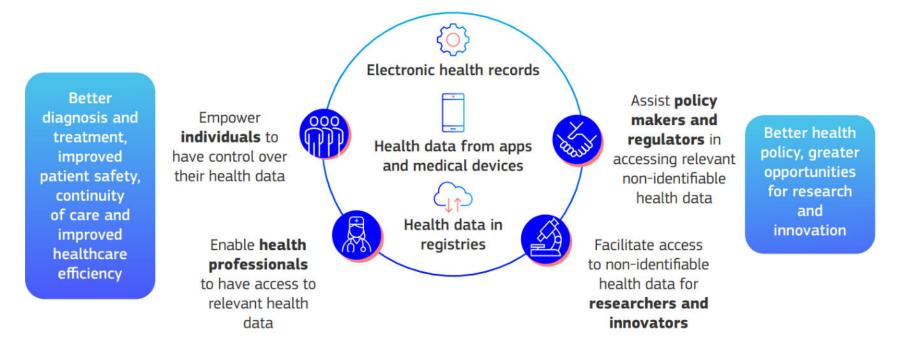
- empowering individuals through increased digital access to and control of their electronic personal health data, at national level and EU-wide, and support to their free movement, as well as fostering a genuine single market for electronic health record systems, relevant medical devices and high risk AI systems (primary use of data)
- providing a consistent, trustworthy and efficient set-up for the use of health data for research, innovation, policy-making and regulatory activities (<u>secondary use of data</u>)

Source: EUROPEAN HEALTH DATA SPACE (europa.eu)



## Objectives of the European Health Data Space

- Empower individuals through better digital access to their personal health data. Support free movement by ensuring that health data follow people.
- Unleash the data economy by fostering a genuine single market for digital health services and products.
- Set up strict rules for the use of individual's non-identifiable health data for research, innovation, policy-making and regulatory activities





## European Health Data Space – Goals & Benefits

#### As a citizen

- you will have control over health data.
- You will have access to your health data in electronic form immediately and without any cost.
- You will be able to share your data with health professionals nationally or crossborder.
- You will be able to add information, rectify errors, restrict access and obtain information on how your data are used.
- You will have a right to health data, issued and accepted, in a common European format.
- Your security and privacy will be ensured

### As a health professional

- You will have faster access to patient's health records, including across borders.
- You will have easier access to health records from different systems, greatly reducing the administrative burden.

### Researchers, industry or public institutions

- will have access to health data only for specific purposes that benefit individuals and society.
- The researcher, industry or public institution may only access data that do not reveal the identity of the individual (anonymized data).
- The data may only be accessed and processed in closed, secure environments.
- As a researcher you will have access to large amounts of health data, of higher quality, in order to carry out research. You will be able to know what data is available, where, and of what quality. You will be able to access the data cheaper and more effectively.

Source: EUROPEAN HEALTH DATA SPACE (europa.eu)



### MyHealth@EU - eHealth Digital Service Infrastructure

The eHealth Digital Service Infrastructure (eHDSI) is an infrastructure ensuring the continuity of care for European citizens while they are travelling abroad in the EU. This gives EU countries the possibility to exchange health data in a secure, efficient and interoperable way. Citizens can easily recognise the availability of the services under the brand "MyHealth @ EU".



Source: Helene Prenner, ELGA GmbH



### Goals AT-eHDSI: ePrescription / eDispensation

- Establishment of the National Contact Point for eHealth (NCPeH) as the basic infrastructure of cross-border healthcare (BMSGPK).
- Establishment of ePrescription & **eDispensation** Service as:
  - Country A: for AT patients abroad
  - Country B: for EU patients in Austria
- Bundesministerium Soziales, Gesundheit, Pflege und Konsumentenschutz







**Patient** 



NCP

Country A

Prescription provider

**Prescriber** 

Dispensed medicine



**Patient** 

**NCP** 

Country B

Dispense

provider

Dispenser

Source: Helene Prenner, ELGA GmbH



### Outlook & Future Development Summary

- Continuing ELGA Rollout (Private Hospitals, Private Physician Offices, Radiology- and Laboratory Institutes, Dental Physician Offices ...)
- Increasing the EIS-Level of ELGA Documents to EIS Full Support (CDA-Level 3)
- ELGA Architecture 2.0 with FHIR
- ELGA Domain Tirol: Implementing Patient Update Notification (PUN) to receive current information about the death of a patient important for administration and for clinical research (diagnosis x + treatment y: how have people survived?)
- Enriching ELGA with more Content
  - Images (MR, CT, CR, Sono, Scans from Nuclear Medicine, Dental Images) Project already started in Tirol. First Dicom Images are being registered in ELGA from CT-Institute (private Radiology) since March. Tirol Kliniken will follow in Q4'2024.
  - Patient Summary: a patient's most important medical information in a nutshell
  - Parent Child Pass
  - **\langle** ...
- MyHealth@EU / European Health Dataspace
- Supporting cross institutional workflows via ELGA
- Interface to central Patient Will Declaration Database
- Radiation Pass





# Thank you very much for your attention!