# Current state-of-the-art in eHealth in Slovenia
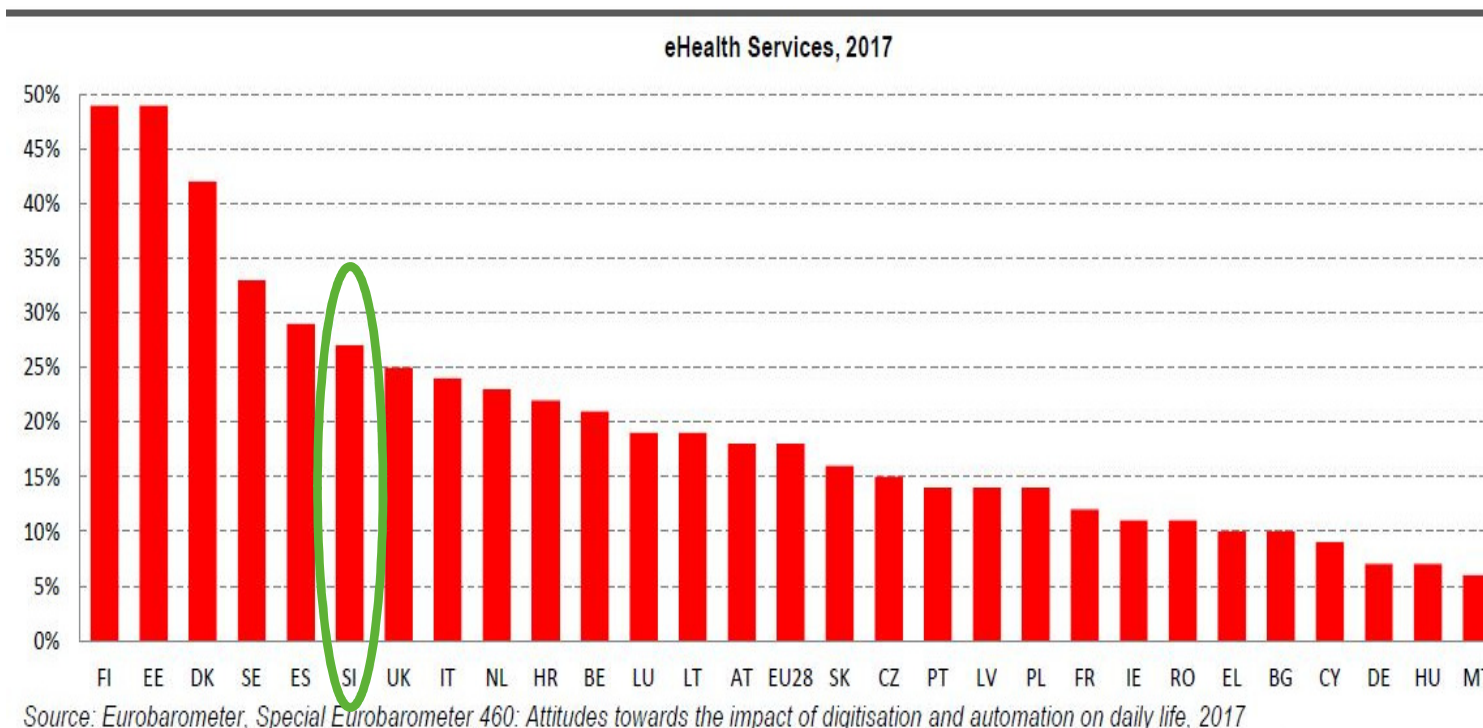
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Health Informatics

# Slovenia in DESI Report 2018



eHealth Services, 2017

Source: Eurobarometer, Special Eurobarometer 460: Attitudes towards the impact of digitisation and automation on daily life, 2017

**DESI Report 2018 – Digital Public Services**

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European Commission

*The Digital Economy and Society Index (DESI): https://ec.europa.eu/digital-single-market/en/desi*

# Contents

- Slovene eHealth Solutions
-  (eHealth) project
- Slovene Health Insurance Card (KZZ)
- ePrescription
- eAppointment
- Central Registry of Patient (CRPD, CRPP)
- Patient Portal zVEM

# Slovene eHealth Solutions

| eAppointment | ePrescription | Central Registry of Patient Data | Patient portal zVEM |
|---|---|---|---|
| TeleStroke | eRegistry of Vaccinated Persons | Teleradiology | eTriage |
| eCommuni-cation | eBook | Model Practice | Help Desk |
| | zNET | Interoperable Backbone | |
| | Security scheme | Data Security Management System DSMS) | |
| | OpenEHR | Registry of Health Care Providers and Workers | |

eZdravje · NIJZ Nacionalni inštitut za javno zdravje · REPUBLIKA SLOVENIJA MINISTRSTVO ZA ZDRAVJE · Naložba v vašo prihodnost OPERACIJO DELNO FINANCIRA EVROPSKA UNIJA Evropski socialni sklad

eZdravje

- eHealth solutions were established in the eHealth project, run by the Ministry of Health Slovenia, cofinanced by the EU.

- One of the largest projects of public services informatization.

- In dec 2015, NIPH took over the management of 20 solutions.

- All solutions are on the <u>national</u> level.

- Solutions were in different stages of implementation => a lot of challenges in implementation to Slovenian health system.

# Slovene Health Insurance Card



- <u>All</u> people living in Slovenia have this card.

- It is an official identity document of insured person, issued by the Health Insurance Institute of Slovenia (ZZZS)

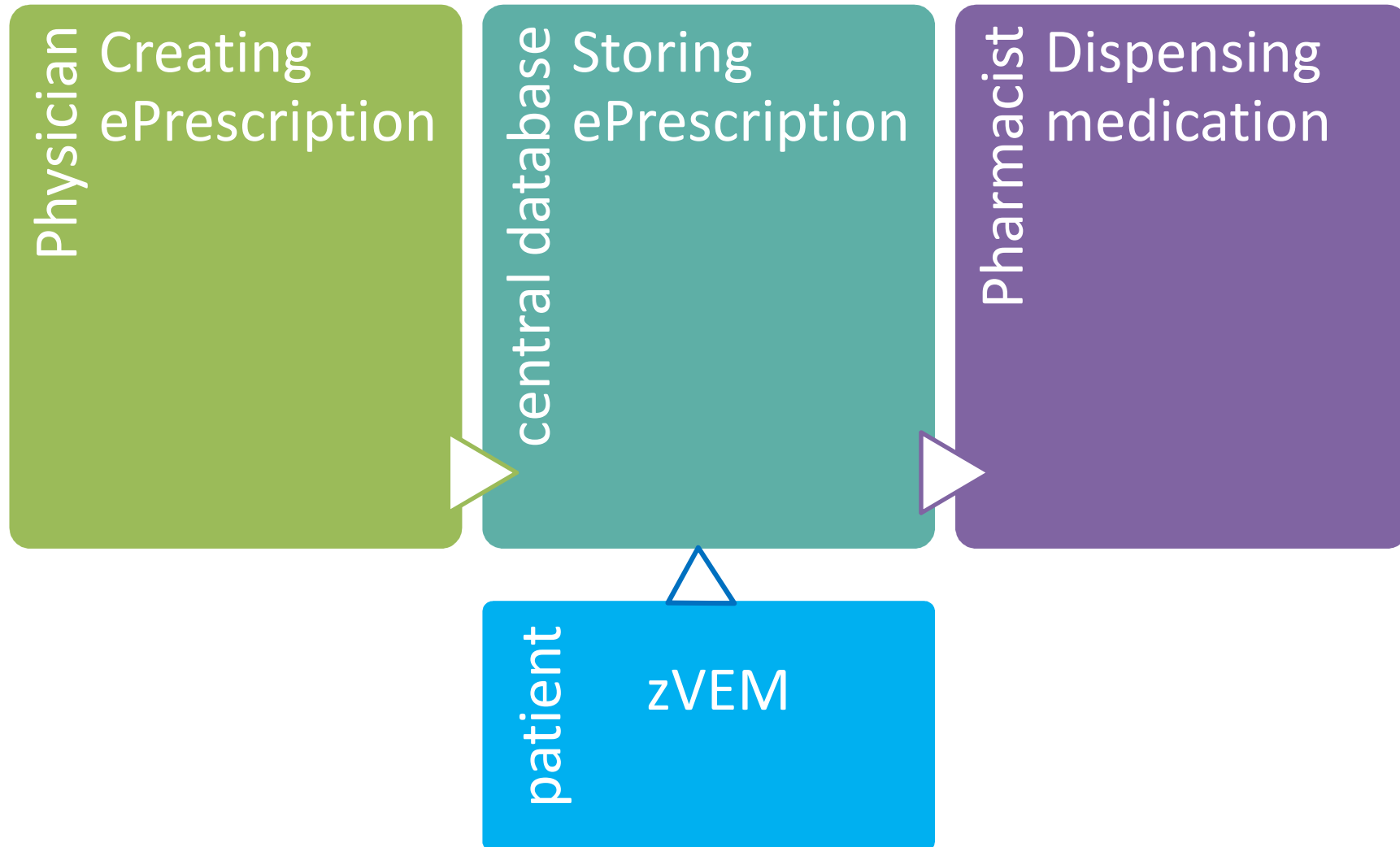- It is an official pacient identity for eHealth solutions in Slovenia.

# ePrescription

**Electronic Prescription**

**Medication Dispensing**

# ePrescription users

- Physicians (general practitioner, medical specialists)
  - creating  ePrescription
  - access to patient medication history, drug interactions database
- Pharmacists
  - Retrieving ePrescriptions, dispensing medication
  - access to patient medication history, drug interactions database
- Patients via patient portal zVEM
  - access to ePrescriptions, prescribed & dispensed medication (full history)

## ePrescription:

- **92 % prescriptions are electonic**

- **1.220.000 ePrescriptions monthly**

- total 41.400.000 ePrescriptions

- issued from 1.165 health service providers

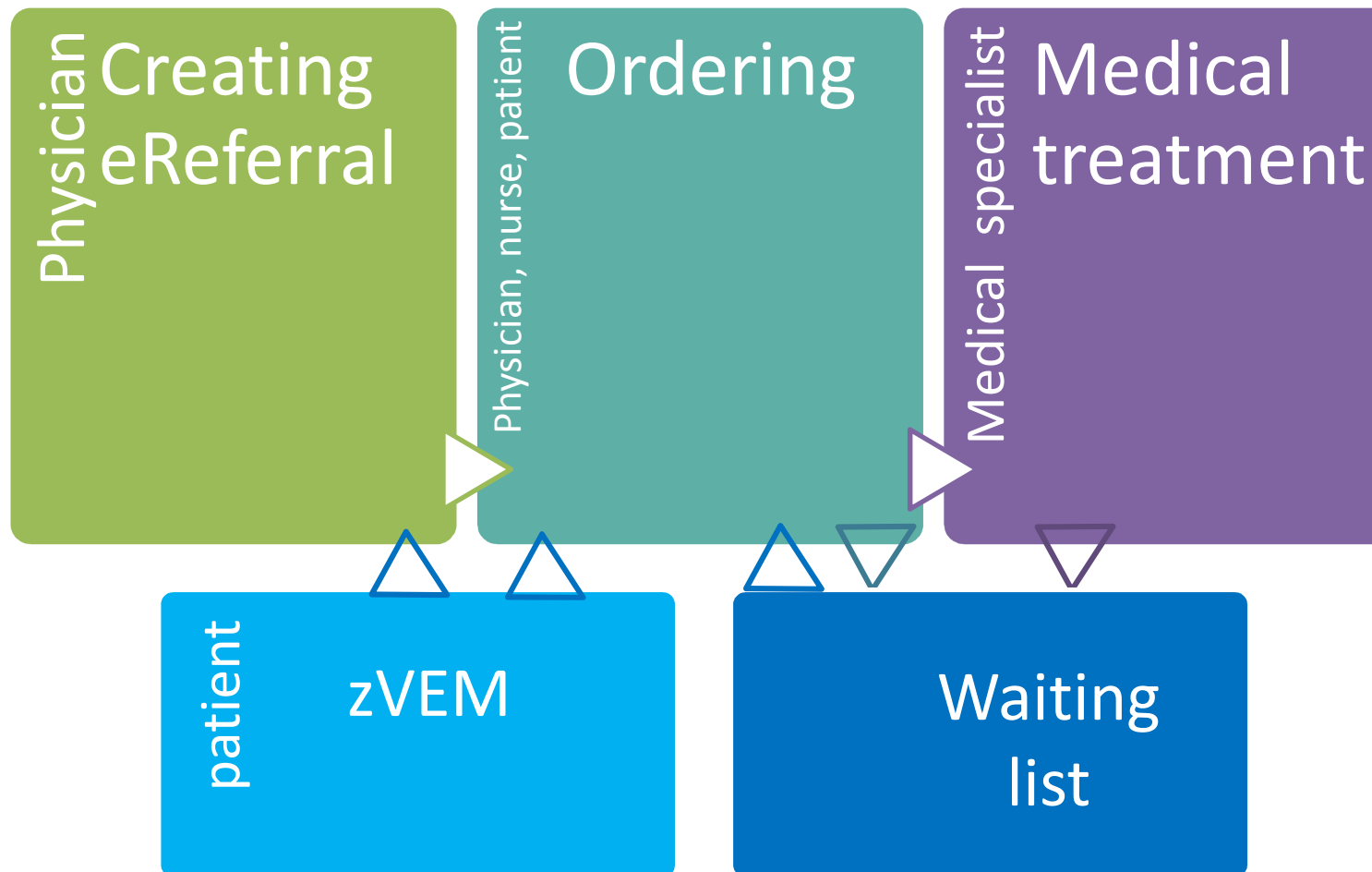- **at least one ePrescription: 1.882.543 patients (June 2018)**

# eAppointment

- eReferrals
- Ordering
- Waiting lists

# eAppointment Process

Physician **Creating eReferral**

Physician, nurse, patient **Ordering**

Medical specialist **Medical treatment**

patient **zVEM**

**Waiting list**

# eAppointments key benefits

- Central waiting list

  - health service providers are obliged to report promptly

- Monitoring patients' appointments

- Up to date information about reported waiting times

  - waiting times published for most of the available health services (cca 1.289 distinct health service types), reported by healthcare providers

- Online ordering via web application for patients

  - patient online booking is possible for 669 health service types

## narocanje    **eAppointment**

eReferrals

- 96 % referrals are electornic

- more than 350.000 monthly

- total: more than 5.872.333

- 2.015 health service providers issued at least one eReferral


- monthly more than 450.000 eOrdering

- total 6.549.194 eOrdering

- at least one service for eAppointment: 542 health service providers

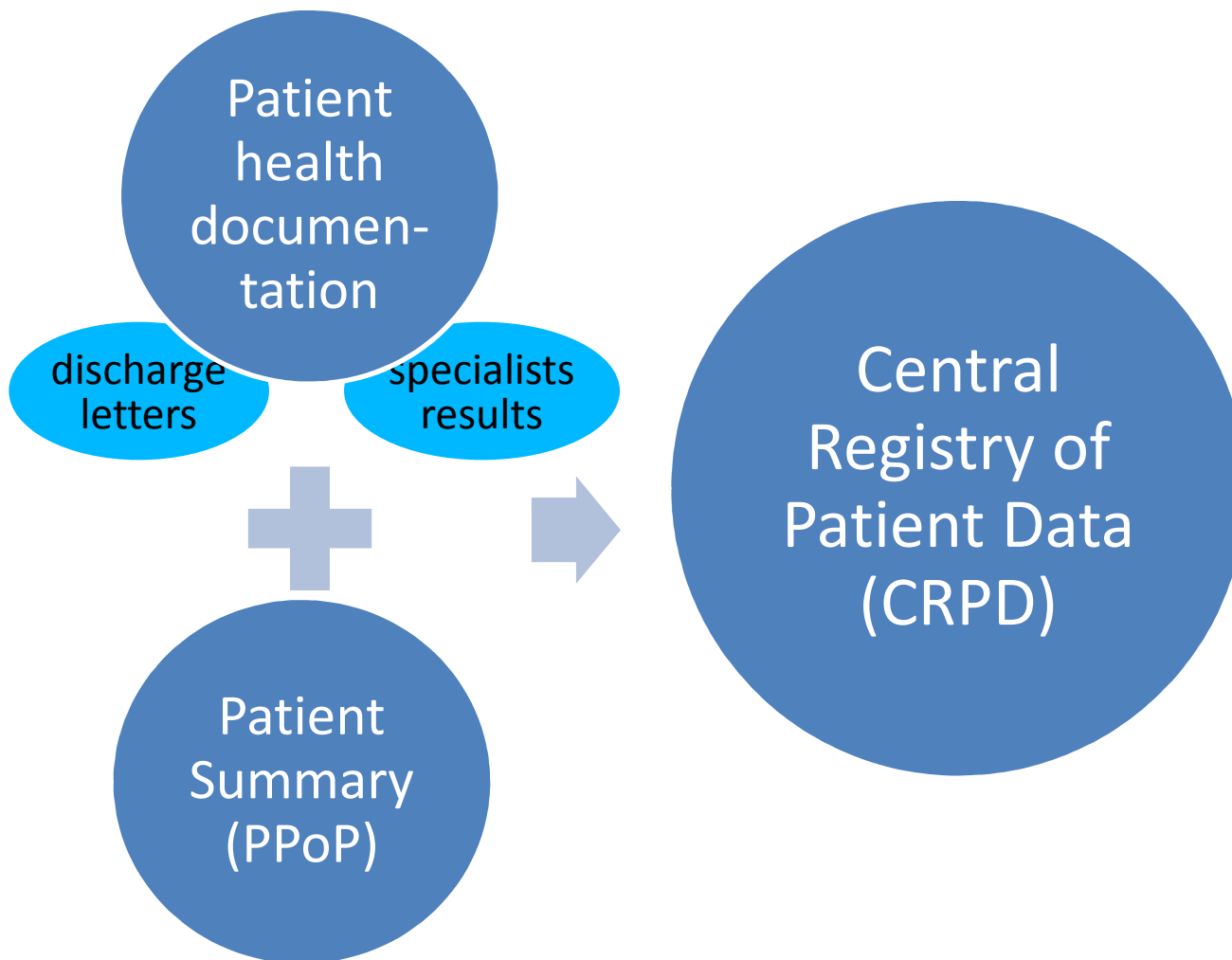# Central Registry of Patient (CRPD)

Central Registry of Patient Data (CRPD)

Patient Health Documentation

# CRPD scope

- Data and documents to be exchanged between healthcare providers.

- Data and documents to be available to patient.

- Short-term storage for exchange purpose.


- Data and documents submitted by patient
  - patients consent documents; access to personal data

# Patient Summary – structured data, pdf view



**Patient Summary**

- Allergies Hypersensitivity
- Vaccination
- Diseases and Conditions
- Devices and Implants
- Surgical procedures
- Disabilities
- Pregnancy
- Recommendations for treatment
- Social history
- Clinical findings
- Medication

- **Alergije in ostale preobčutljivosti**

  **59037007** | Preobčutljivost za zdravilo

  | Datum | Manifestacija | Ime alergena |
  |-------|---------------|--------------|
  | 01.01.2000 | angioedem | Hiconcil 250 mg/5 ml prašek za peroralno suspenzijo |

- **Bolezni in stanja**

  **E10** | Insulin-dependent diabetes mellitus

  | Datum | BPI | Zavod |
  |-------|-----|-------|
  | 20.01.2017 | 10321 | ZD Kamnik |
  | 20.01.2017 | 10321 | ZD Kamnik |

  **K35** | Akute Appendizitis

  | Datum | BPI | Zavod |
  |-------|-----|-------|
  | 04.03.2015 | 10321 | ZD Kamnik |

# CRPD Read Access Matrix



| | | | Abdominalna kirurgija | Anesteziologija, reanimatologija in perioperativna intenzivna medicina | Babištvo | Čeljustna in zobna ortopedija | Delovna terapija | Dermatovenerologija | Družinska medicina | Fizikalna in rehabilitacijska medicina | Fizioterapija | Gastroenterologija | Ginekologija in porodništvo |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 101;201 | 102;202 | 150 | 401 | 506 | 103;203 | 302 | 104;204 | 507 | 105;205 | 106;206;306 |
| Abdominalna kirurgija | 101;201 | napotna listina, privolitev pacienta | | | | | | | | | | | |
| Anesteziologija, reanimatologija in perioperativna intenzivna | 102;202 | napotna listina, privolitev pacienta | | | | | | | | | | | |
| Čeljustna in zobna ortopedija | 401 | napotna listina, privolitev pacienta | | | | | | | | | | | |
| Dermatovenerologija | 103;203 | napotna listina, privolitev pacienta | | | | | | | | | | | |
| Družinska medicina | 302 | izjava o izbiri zdravnika, privolitev pacienta | | | | | | | | | | | |
| Fizikalna in rehabilitacijska medicina | 104;204 | napotna listina, privolitev pacienta | | | | | | | | | | | |

Requested from Information Commissioner

**RPP** **Central Registry of Patient (CRPD)**

- documents stored in CRPD: 15.682.462 (1.449.464 patients)

- unstructured documents 6.266.421 (1.259.238 patients)
  - (discharge letters, medical specialists results)

- structured Patient Summary records: 2.945.912 (800.681 pat.)


- public hospitals sending data to CRPD: 21 of 27 (78%)

- community healthcare centers : 61 of 63 (97%)

- private providers of public healthcare service:  < 15%

# Patient Portal zVEM

## One Website for All Health Information

**ePrescription**

**eAppointment**

**CRPD**

**Patient Consents**

https://zvem.ezdrav.si/

**Digital certificate needed to access personal data**

zvem

| DOMOV | E-ZDRAVJE | OBJAVE | ISKANJE | PRIJAVA |

⚠ Dostop do eNaročanja brez prijave (brez kvalificiranega potrdila) je možen tudi preko zavihka **E-ZDRAVJE**.

⚠ Razvoj portala še ni zaključen. Objavljena je t. i. beta različica, zato so nekatere funkcionalnosti še omejene in lahko se pojavijo tudi napake.

# Dobrodošli na portalu zVEM

Portal zVem (zdravjeVsenaEnemMestu) omogoča varen dostop do storitev eZdravja, z možnostjo eNaročanja in dostopa do eReceptov ter elektronskih zdravstvenih podatkov.

Za prijavo je potrebno kvalificirano potrdilo.

**Prijavite se**

Navodila za prijavo

Še nimate računa zVEM? Prva prijava

# vem ePrescription

**TESTNA POSTAVITEV - MZ**

DOMAČA STRAN | MOJE E-ZDRAVJE | KOLEDAR | OBJAVE | UPRAVLJANJE | Dobrodošli MR

E-NAROČANJE | E-RECEPT | DOKUMENTI | PREGLED (NASTAVITVE)

Recepti | Dnevnik vpogledov v e-Recept

eAppointment

ePrescription

Patient Summary Documents

| Šifra predpisanega zdravila | Poimenovanje predpisanega zdravila | Status zdravila | predpisa |
|---|---|---|---|
| 001384 | Aspirin protect 100 mg gastrorezist.tbl. 30x | Porabljen | 18.10.2016 |
| 145460 | LEKADOL 1000 mg tbl. 16x | Predpisan | 04.10.2016 |
| MAG | druga zdravila za bolezni kože in podkožnega tkiva (Olivno olje 100 g (Lekarne Ljubljana)) - 60 g, Belobaza - 0,6 mL - 1X na dan - dermalno | Predpisan | 04.10.2016 |
| 061018 | Ospen 1 000 000 i.e. film.obl.tbl. 30x | Predpisan | 04.10.2016 |
| 055654 | LEKADOL 500 mg tbl. 20x | Predpisan | 27.06.2016 |
| MAG | ASPIRIN 10 MG SVEČKA ZA OTROKE | Predpisan | 17.06.2016 |
| 134201 | Paracetamol Kabi 10 mg/ml razt.za inf. viala 100 ml 10x | Predpisan | 16.06.2016 |
| 001384 | Aspirin protect 100 mg gastrorezist.tbl. 30x | Porabljen | 24.05.2016 |
| 001384 | Aspirin protect 100 mg gastrorezist.tbl. 30x | Porabljen | 24.05.2016 |
| 080608 | GLIVEC 100 mg film.obl.tbl. 120x | Porabljen | 04.05.2016 |

zdravje

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# zvem

- zVEM – 20.381 registered users

# Electronic Registry of Vaccinated Persons eRVP

Surveillance and Monitoring of Vaccinations

Monitoring of Adverse Reactions

# eRVP scope

- All vaccinations administered in Slovenia are recorded

- Patient's vaccinations and adverse reactions history

- Managing vaccination programs  (pediatricians)

- Population vaccination data by disease, age group, geographic areas etc.

- Surveillance, monitoring, policy, planning

- Efficient control of infectious diseases

# e RCO  Electronic Registry of Vaccinated Persons

- 136 health service providers

- 570.764 records

- 288.657 patients have at least one record

# Help desk August 2018

**eAppointment**

- no. requests: 5.188
  - waiting list information: 2.816
  - ordering: 2.205

**other solutions**

- no. occurrence: 1.279
- no. requests: 298

## Model practice

- 782 health service providers included (85%)

## Telestroke

- 12 health service providers (hospitals and in KC)
- 669 patients in 2018 (jan-sep)

## Teleradiology

- 20 health service providers

# Conclusion

- All people in Slovenia have an unique health identificator
- It is not needed to come to the doctor to get the prescription
- Patient can get the medications in any pharmacy in Slovenia.
- Patient can make the order to the medical specialist through the internet and see national waiting lists.
- General practitioner can see the specialist's results on-line.
- All vaccination data for all patients will be on the same place.
- Patient can see his/her (and also for his/her children) in one place
  - prescribed and dispensed medicines
  - discharge letters and specialist's results
  - vaccination data
  - health data in patient summary