bio·logis
digital health

Genetic Information Management System

Efficient translation of genetic data into clinical practice

Who we are

bio·logis
digital health

- founded 2021
- located at
  Frankfurt Innovation Center
  Germany
- highly qualified team players with background in
  - Software Development
  - Bioinformatics
  - Human Genetics

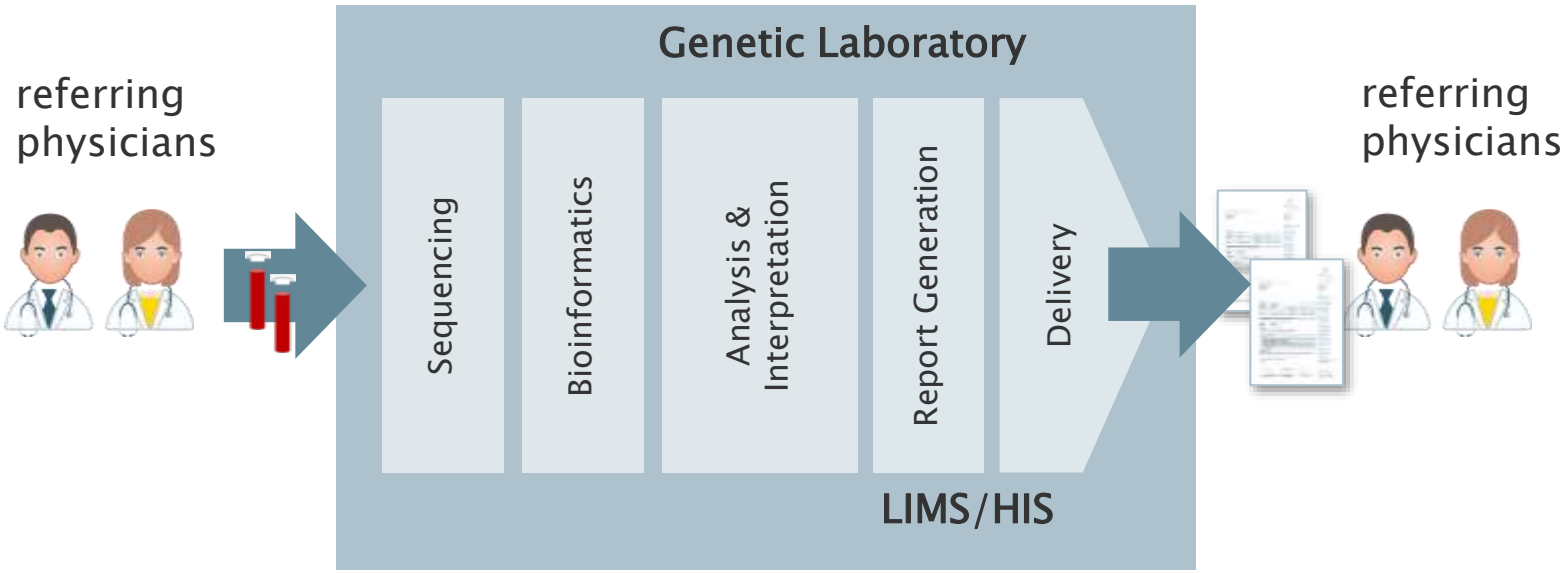
bio·logis
digital health

Our goal:
Support implementation of genetic diagnostics
into clinical practice

Our offer:
IT-tools and services
for management and curation of clinically
relevant interpretations of genetic variants.
Creation of a virtual space for a human “Interpretome”

We are bridging the gap
between genetic knowledge
and clinical implementation

Genetic Diagnostics: Workflow

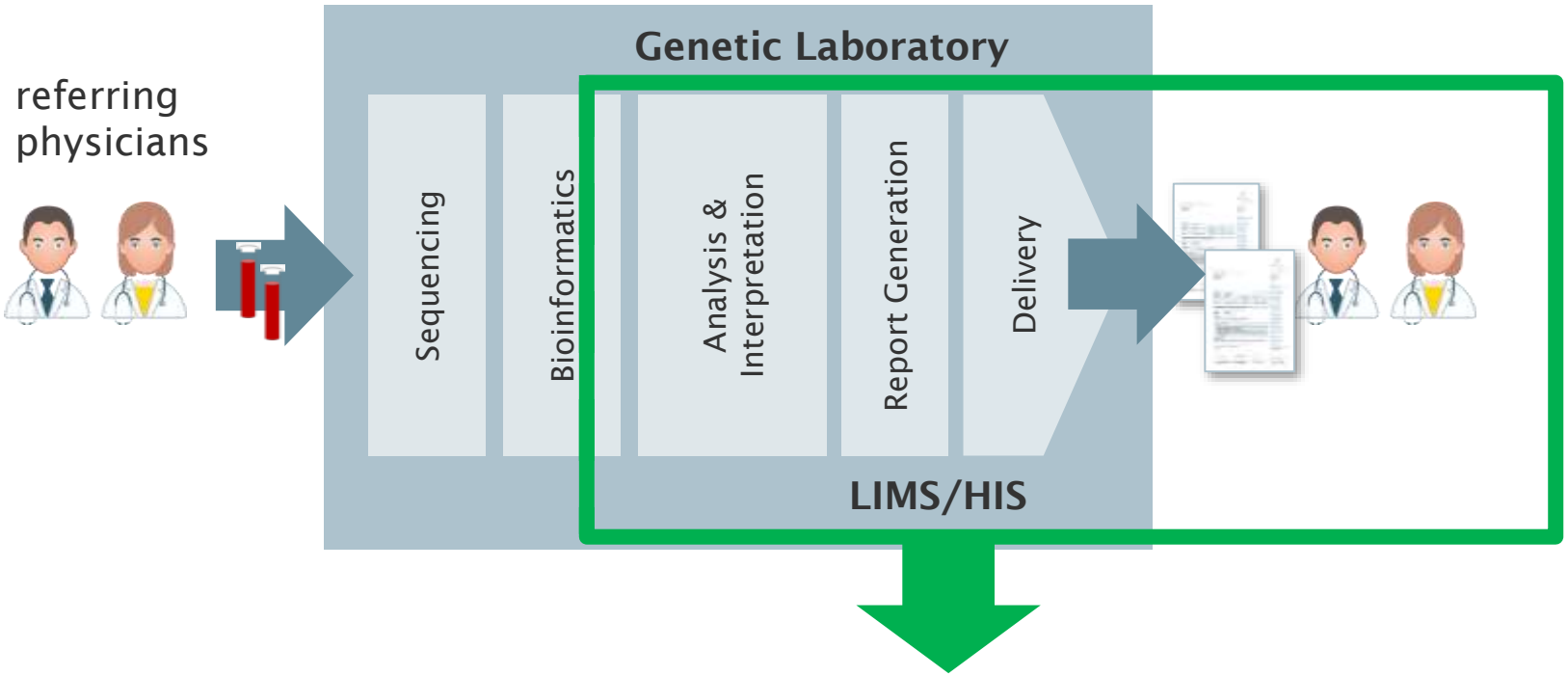


Problem: highly fragmented manual processes consuming time & money

actually NO ONE workflow available for processing of complex genetic diagnostics

bio.logis delivers the solutions to overcome this situation stepwise

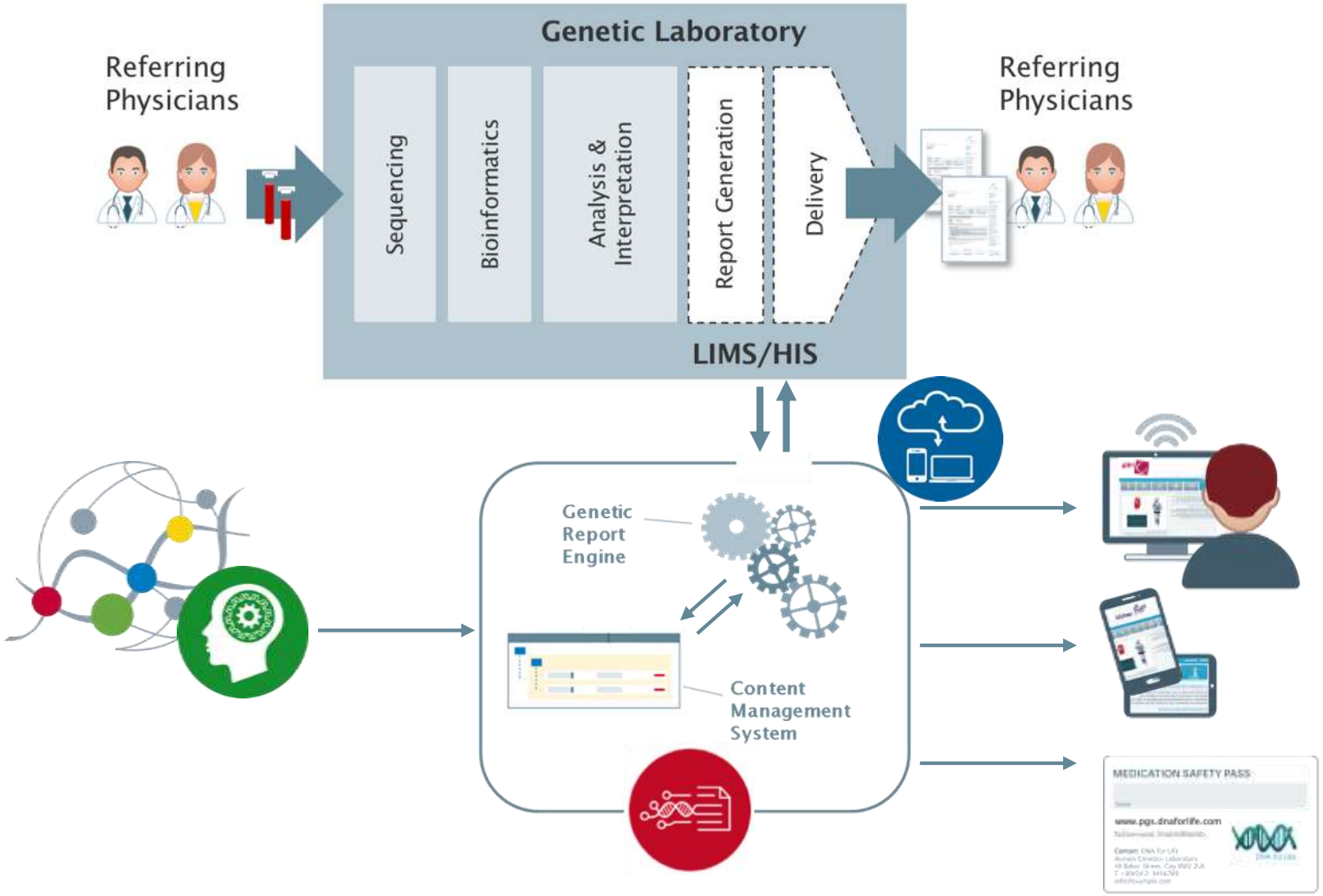
Genetic Diagnostics: Workflow



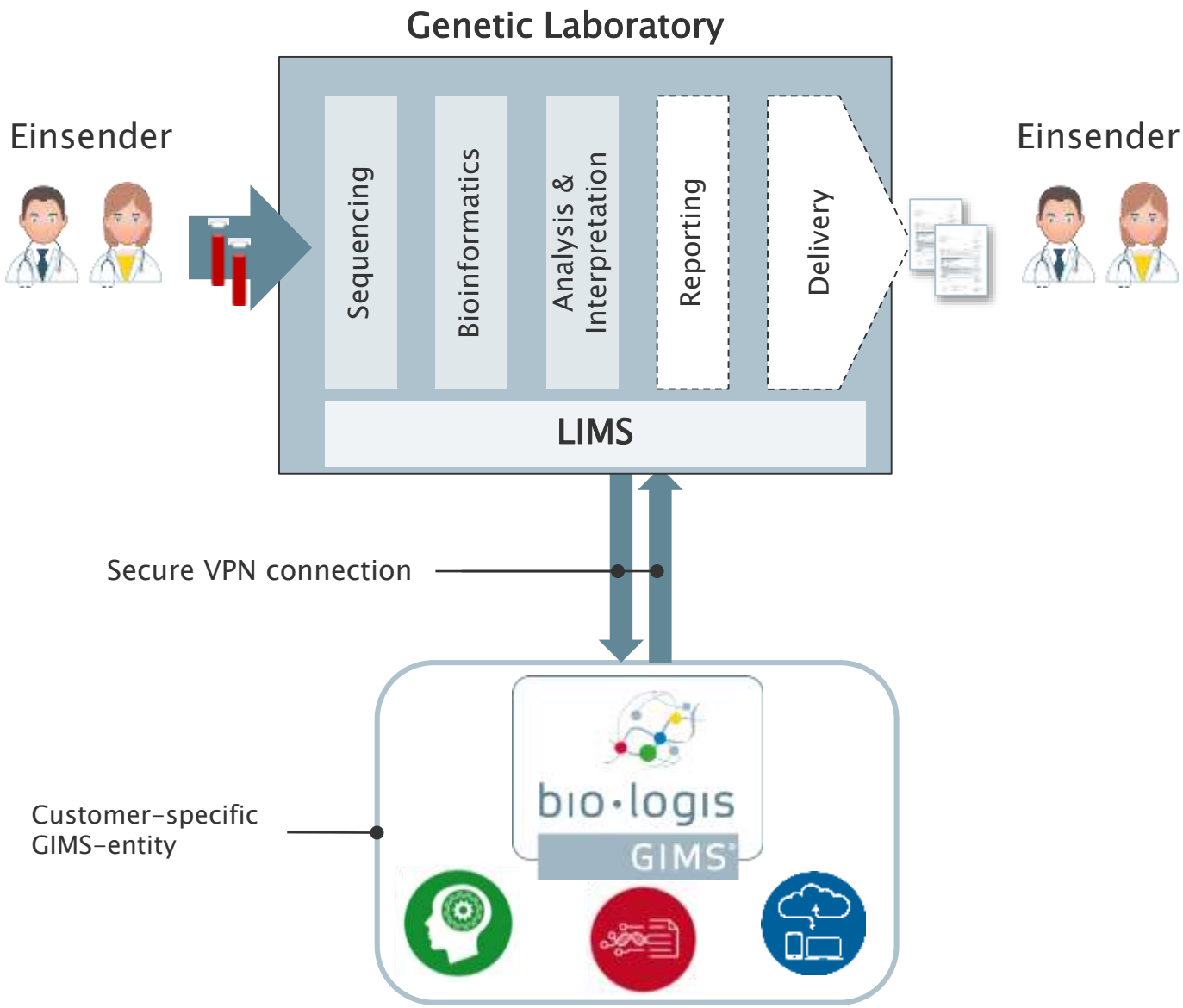
Genetic Information Management System

bio·logis GIMS®

GIMS®: Genetic Information Management System



GIMS Integration



Genetic Information Management System

Modules

DRM

RLE

Setting new standards for DX report production

- Efficient management of medical content
- Automated production of clinical reports

CE
certified as
Medical Device

KMM

Closing the gap between interpretation and reporting

- Structured documentation and sharing of genetic information for clinical decsision support

DM

Providing seamless and secure access to results and insights

- Provision and presentation of results, background information and references via web-based applications at the Point of Care

Use case:

Pharmacogenetics

Finding the right drug and dosage for patients based on their individual genetic make-up

Why is it not used in clinical practice?

What is needed

Efficient and standardized translation of analysis results into clinical recommendations

Digital decision support at Point of Care

Use Case


U-PGx | Ubiquitous Pharmacogenomics
upgx.eu
U-PGx | Ubiquitous Pharmacogenomics
News / Events
Participating organisations
Work packages
Contact
WE WANT TO MAKE EFFECTIVE TREATMENT OPTIMIZATION ACCESSIBLE TO EVERY EUROPEAN CITIZEN
TELL ME MORE
OUR FOCUS
We want to improve the safety and efficacy of pharmacotherapy for every European patient by enabling clinical pharmacogenomics
SHARED EUROPEAN GUIDELINES
Maintenance and dissemination of pharmacogenomics guidelines in the European Union
IMPLEMENTATION AND EVALUATION
Clinical implementation and outcome evaluation of pre-emptive pharmacogenomics in a multitude of European countries
ENABLING TECHNOLOGIES
Development of powerful and barrier-free clinical decision support systems and novel pharmacogenomics methodologies
COMMUNICATION AND EDUCATION
Development of a program to reach out to patients, health care professionals, regulatory agencies, politics and health insurance organisations

U-PGx | Ubiquitous Pharmacogenomics

- EU-funded project within the Horizon 2020 program
- Aiming to support implementation of pharmacogenomics in clinical practice
- bio.logis GIM responsible for implementing GIMS at 7 selected hospitals across Europe

European Commission | Horizon 2020 European Union funding for Research & Innovation

MEDIZINISCHE UNIVERSITÄT WIEN

UNIVERSITY OF LIVERPOOL

CRO AVIANO

Univerza v Ljubljani

Servicio Andaluz de Salud
CONSEJERÍA DE SALUD

ΠΑΝΕΠΙΣΤΗΜΙΑΚΟ ΓΕΝΙΚΟ ΝΟΣΟΚΟΜΕΙΟ ΠΑΤΡΩΝ "ΠΑΝΑΓΙΑ Η ΒΟΗΘΕΙΑ"

LUMC Leids Universitair Medisch Centrum

U-PGx | Ubiquitous Pharmacogenomics

KNMP

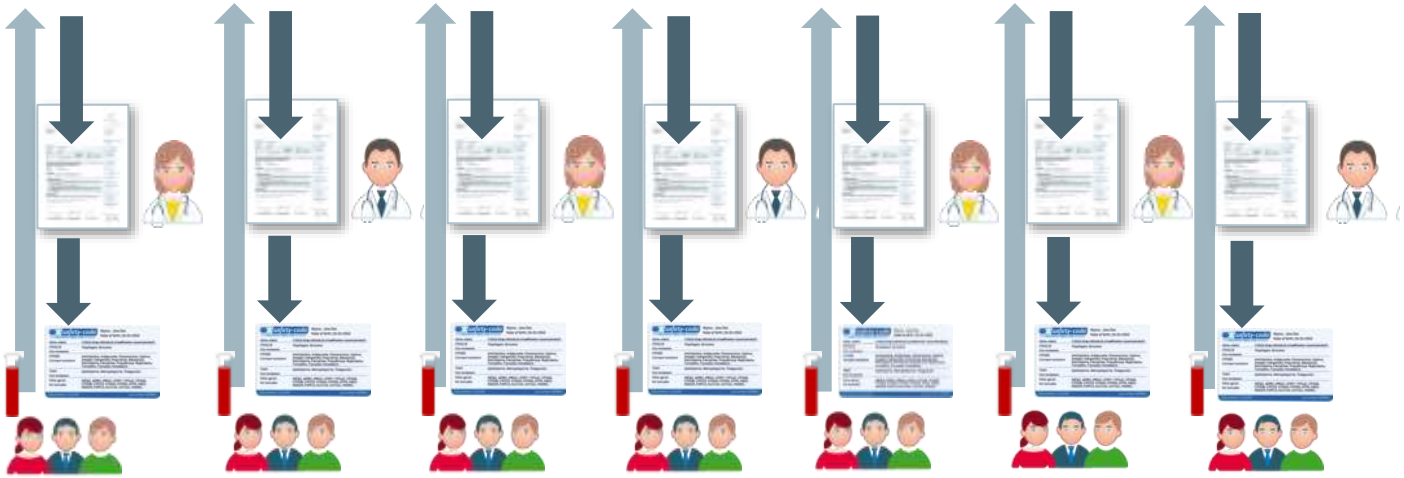
Dosing recommendations

for:	78 drugs
based on:	≈50 variants
in:	13 genes
available:	7 languages

bio·logis GIMS®

Project Sites

Leiden | Liverpool | Vienna | Aviano | Granada | Patras | Ljubljana



Patients

Standardized Genotyping

13 Genes ≈50 Variants

Table 1: Selected pharmacogenes and respective variants (RS number included).

Genes	Allele	Major Nucleotide Variation	dbSNP RS ID	Effect on protein	Functional Status
CYP2B6	*6/*9	516G>T	rs3745274	Q172H	Decreased or Inactive
CYP2B6	*4/*16	785A>G	rs2279343	K262R	Decreased or Inactive
CYP2B6	*18	983T>C	rs28399499	I328T	Decreased or Inactive
CYP2C9	*2	430C>T	rs1799853	R144C	Decreased
CYP2C9	*3	1075A>C	rs1057910	I359L	Decreased
CYP2C9	*5	1080C>G	rs28371686	D360E	Decreased
CYP2C9	*11	1003C>T	rs28371685	R335W	Decreased
CYP2C19	*2	681G>A	rs4244285	Splicing defect	Inactive
CYP2C19	*3	636G>A	rs4986893	W212X	Inactive
CYP2C19	*4A/B	1A>G	rs28399504	M1V	Inactive
CYP2C19	*5	1297C>T	rs56337013	R433W	Inactive
CYP2C19	*6	395G>A	rs72552267	R132Q	Inactive
CYP2C19	*8	358T>C	rs41291556	W120R	Inactive or Decreased
CYP2C19	*9	431G>A	rs17884712	R144H	Decreased
CYP2C19	*10	680C>T	rs6413438	P227L	Decreased
CYP2C19	*17	-806C>T[3]	rs12248560	X	Increased
CYP2D6	*xN	Gene duplication or multiplication	X	X	Increased
CYP2D6	*3	2549delA	rs35742686	259Frameshift	Inactive
CYP2D6	*4	1846G>A	rs3892097	Splicing defect	Inactive
CYP2D6	*5	Gene deletion	X	Gene deletion	Inactive
CYP2D6	*6	1707delT	rs5030655	118Frameshift	Inactive
CYP2D6	*8	1758G>T	rs5030865	G169X	Inactive
CYP2D6	*9	2615delAAG	rs5030656	K281 deletion	Decreased
CYP2D6	*10	100C>T	rs1065852	P34S	Decreased
CYP2D6	*14A/B	1758G>A	rs5030865	G169R	Decreased
CYP2D6	*17	1023C>T	rs28371706	T107I	Decreased
CYP2D6	*41	2988G>A	rs28371725	Splicing	Decreased
CYP3A5	*3	6986A>G	rs776746	Splicing defect	Inactive
CYP3A5	*6	14690G>A	rs10264272	Splicing defect	Inactive
CYP3A5	*7	27131_27132insT	rs41303343	346Frameshift	Inactive
DPYD	*2A	IVS14 + 1G>A (1905+1G>A)	rs3918290	X	Inactive
DPYD	*13	1679T>G	rs55886062	I560S	Inactive
DPYD	X	2846A>T	rs67376798	D949V	Decreased
DPYD	X	1236G>A	rs56038477	E412E	Decreased
F5	X	1691G>A	rs6025	R506Q	Decreased
HLA-B	*5701	T>G	rs2395029		Tagging SNP
SLCO1B1	*5/*15/*17	521T>C	rs4149056	V174A	Decreased
TPMT	*2	238G>C	rs1800462	A80P	Inactive
TPMT	*3B	460G>A	rs1800460	A154T	Inactive
TPMT	*3C	719A>G	rs1142345	Y240C	Inactive
UGT1A1	*6	211(G>A)	rs4148323	G71R	Decreased
UGT1A1	*27	686(C>A)	rs35350960	P229Q	Decreased
UGT1A1	*28/*37	A(TA)6TAA>A(TA)7TAA /A(TA)8TAA	rs8175347	X	Decreased
VKORC1	X	1173C>T (C6484T)	rs9934438		Increased sensitivity

[3] Position in genomic DNA sequence is used, since there is no cDNA position for this mutation.

U-PGx | Ubiquitous Pharmacogenomics

78 active ingredients (dynamic list)

Antiarrhythmic drugs:

- Amiodarone
- Disopyramide
- Flecainide
- Kinidine
- Propafenone

Anticoagulants:

- Acenocoumarol
- Clopidrogrel
- Phenprocoumon
- Prasugrel
- Ticagrelor
- Warfarin

Antidiabetic drugs:

- Glibenclamide
- Gliclazide
- Glimepiride
- Tolbutamide

Antidepressants:

- Moclobemide

NARI

- Atomoxetine

SSRI

- Citalopram
- Duloxetine
- Escitalopram
- Fluoxetine
- Fluvoxamine
- Paroxetine
- Sertraline
- Venlafaxine

TCA

- Amitriptyline
- Clomipramine
- Doxepin
- Imipramine
- Mirtazapine
- Nortriptyline

Analgetics:

- Codeine
- Oxycodone
- Tramadol

beta Blockers:

- Atenolol
- Bisoprolol
- Carvedilol
- Metoprolol
- Soltalol

HIV therapy:

- Abacavir
- Efavirenz

Immunotherapy:

- Azathioprine
- Tacrolimus

Contraceptives:

- Oestrogen containing drugs

Neuroleptics:

- Aripiprazole
- Clozapine
- Flupentixol
- Fluphenazine
- Haloperidol
- Olanzapine
- Pimozide
- Quetiapine
- Risperidone
- Zuclopenthixol

PPIs:

- Esomeprazole
- Lansoprazole
- Omeprazole
- Pantoprazole
- Rabeprazole

Cholesterol-lowering drugs:

- Atorvastatin
- Fluvastatin
- Simvastatin

Tumor therapy:

- Capecitabine
- Fluorouracil
- Gefitinib
- Irinotecan
- Mercaptopurine
- Tamoxifen
- Tegafur
- Tioguanine

Others:

- Clonidine
- Dexmethylphenidate
- Eliglustat
- Flucloxacillin
- Methylphenidate
- Phenytoin
- Voriconazole
- Siponimod

What is needed

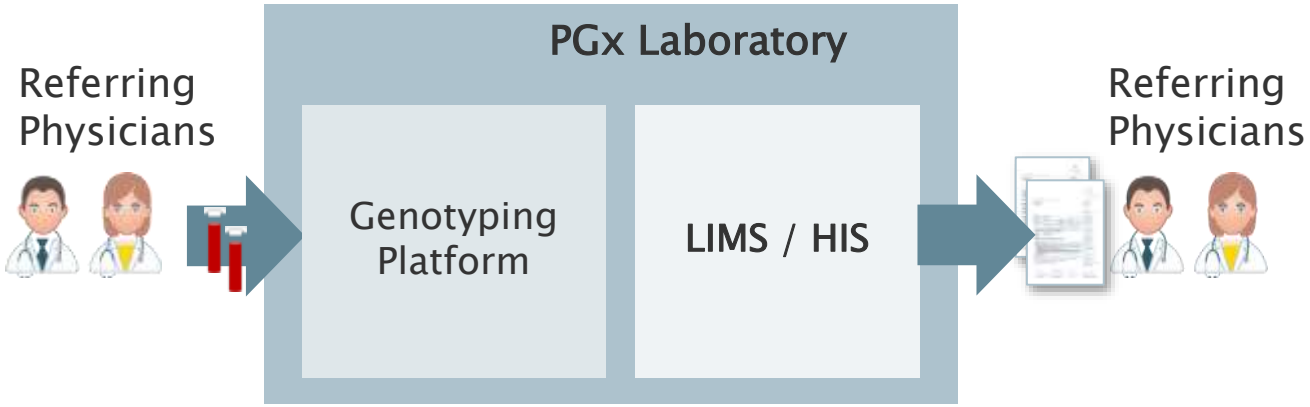
Efficient and standardized translation of analysis results into clinical recommendations

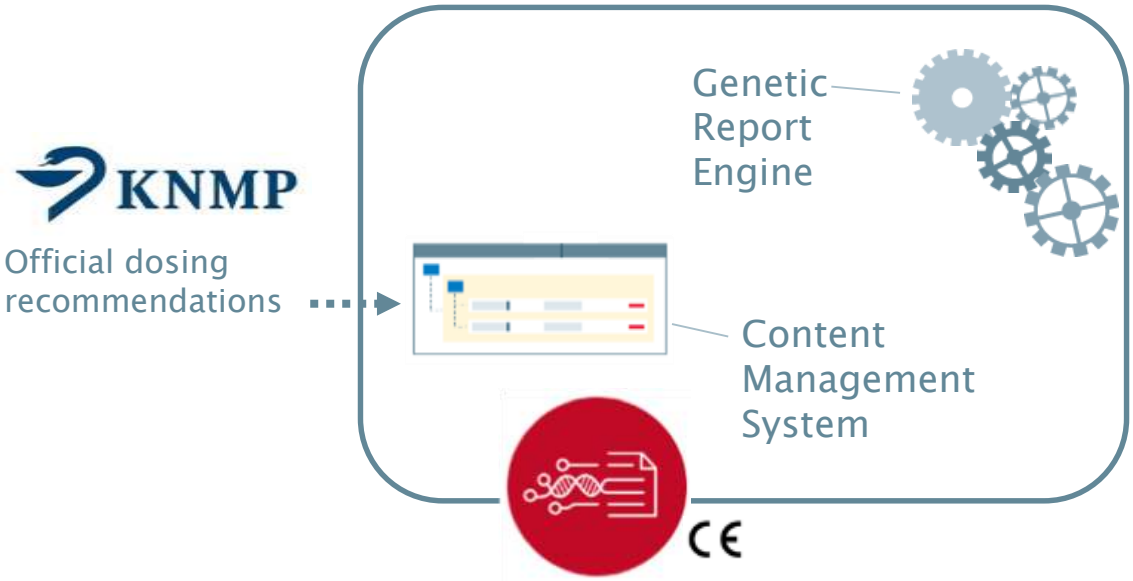
Digital decision support at Point of Care

The solution

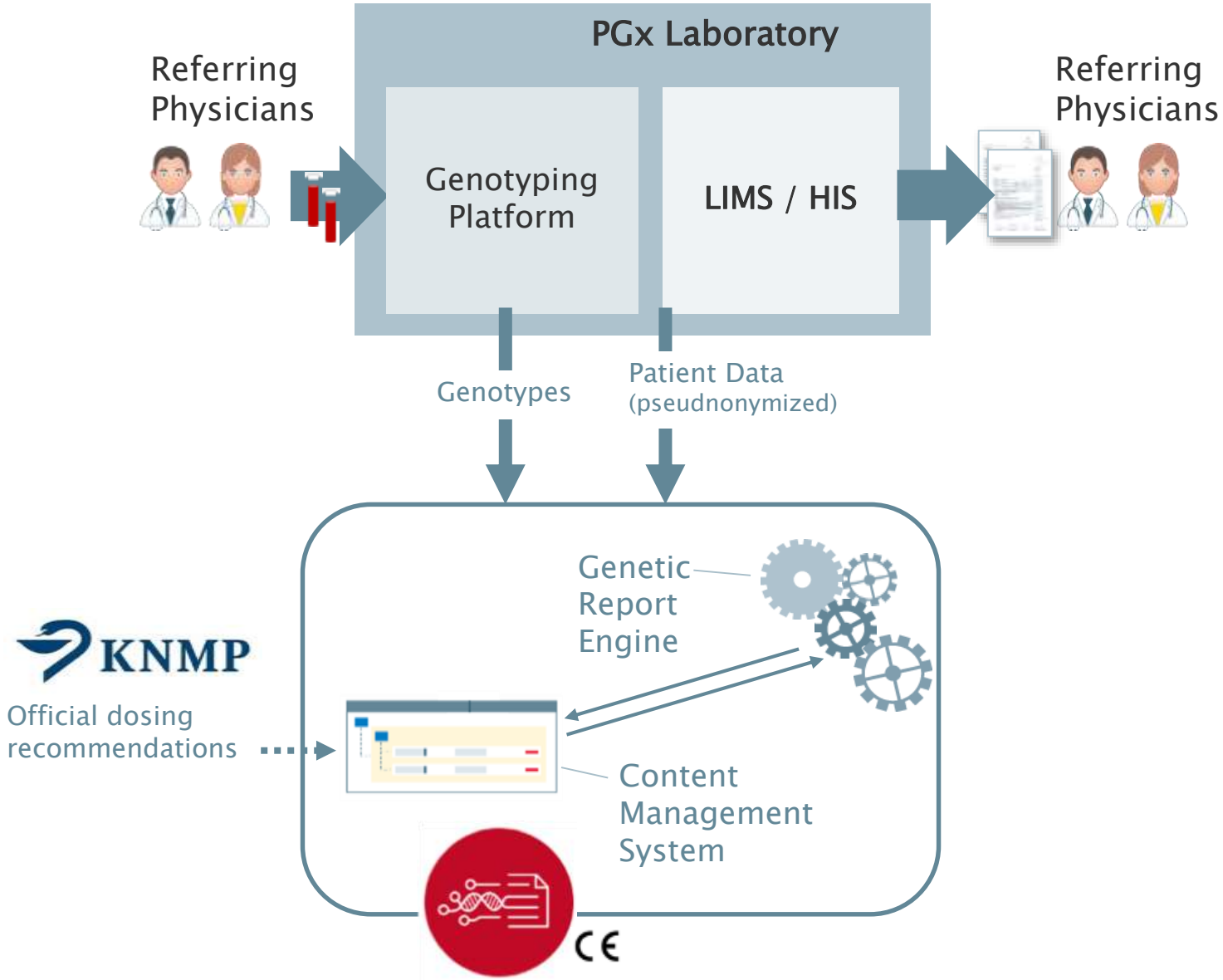
GIMS.pharma

GIMS.pharma


Referring
Physicians
PGx Laboratory
Genotyping
Platform
LIMS / HIS
Referring
Physicians


KNMP
Official dosing
recommendations
Genetic
Report
Engine
Content
Management
System
CE

GIMS.pharma


PGx Laboratory
Referring Physicians
Genotyping Platform
LIMS / HIS
Referring Physicians
Genotypes
Patient Data (pseudnonymized)
Genetic Report Engine
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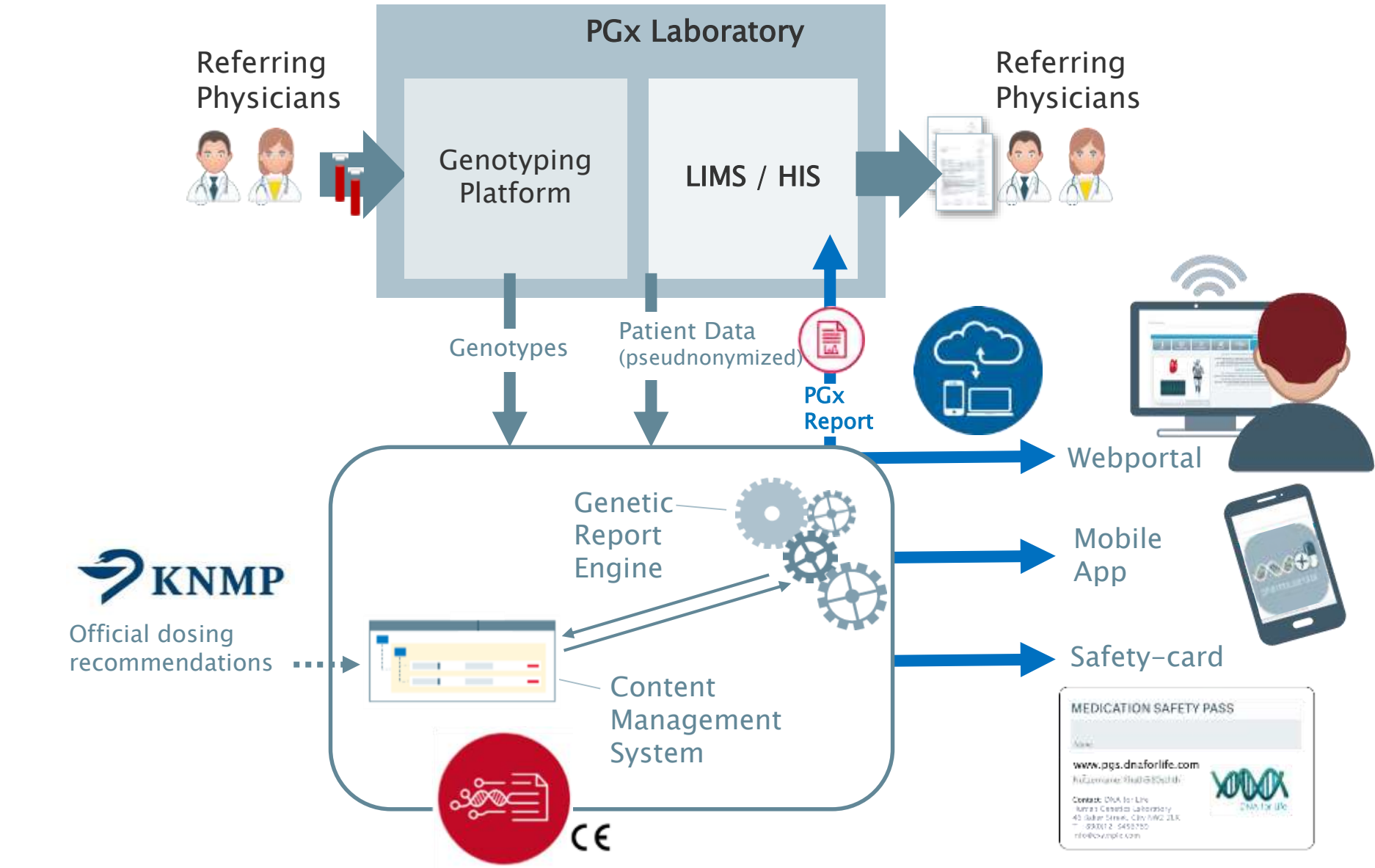
Official dosing recommendations
Content Management System
CE

GIMS.pharma


PGx Laboratory
Referring Physicians
Genotyping Platform
LIMS / HIS
Referring Physicians
Genotypes
Patient Data (pseudnonymized)
PGx Report
Webportal
Genetic Report Engine
Mobile App
KNMP
Official dosing recommendations
Content Management System
Safety-card
MEDICATION SAFETY PASS
www.pgs.dnaforlife.com
CE

The result:
Knowledge for usage at the Point of Care, in real-time

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46 Baker Street, City NW2 2LK, UK

Dr. med. Virchow
Charitéplatz 1
10117 Berlin

Department of Genetics
Osbridgeland Medical School
46 Baker Street, City NW2 2LK
T: +99 (0)999 9999
Email: info@example.com

Name / First name:
Date of birth: **24 Jan 1963**

Date of receipt: 18 Apr 2011
Sample number: 100000027
Type of sample: Saliva

Indication: Identification of genetic variants
Date of report: **11 May 2016**

Human genetic report on clinical question: simvastatin intolerance

Analysis of *SLCO1B1* gene

Genotype:
*SLCO1B*1B/*15*
Phenotype:
reduced transport capacity

Interpretation:
Increased simvastatin plasma level possible owing to reduced hepatic uptake.
Elevated risk for myopathy based on *SLCO1B1* genotype (see table 2).

Relevance for medication:

- **Maximum daily simvastatin dose of 40 mg*** (see table 1).
- Monitoring of creatine kinase activity indicated.
  or
- Use alternative medications (e.g. fluvastatin, pravastatin, rosuvastatin) in case of unwanted side effects (see table 1).
- Variants of *CYP2C9* gene are associated with enhanced fluvastatin plasma levels. In case of ADE under fluvastatin therapy genotyping of *CYP2C9* can be considered.

General information:
Avoid as possible if you are taking
• statins: Co-medication with substances inhibiting SLCO1B1
• simvastatin: CYP3A4 inhibitors
• fluvastatin, rosuvastatin: CYP2C9 inhibitors (see table 3)

CAP ACCREDITED

- Validated and targeted clinical recommendations based on guidelines from expert groups like e. g.
  - Clinical Pharmacogenetic Implementation Consortium (CPIC)
  - Dutch Pharmacogenetics Working Group (DPWG)

Medication Safety Pass

Medication Safety Pass

Name

https://pgx-oms/webapp/
Username: xWki3S94mFe2

Department of Genetics
Osbridgeland Medical School
46 Baker Street, City NW2 2LK
T: +99 (0)999 9999
Email: info@example.com

PLEASE NOTE

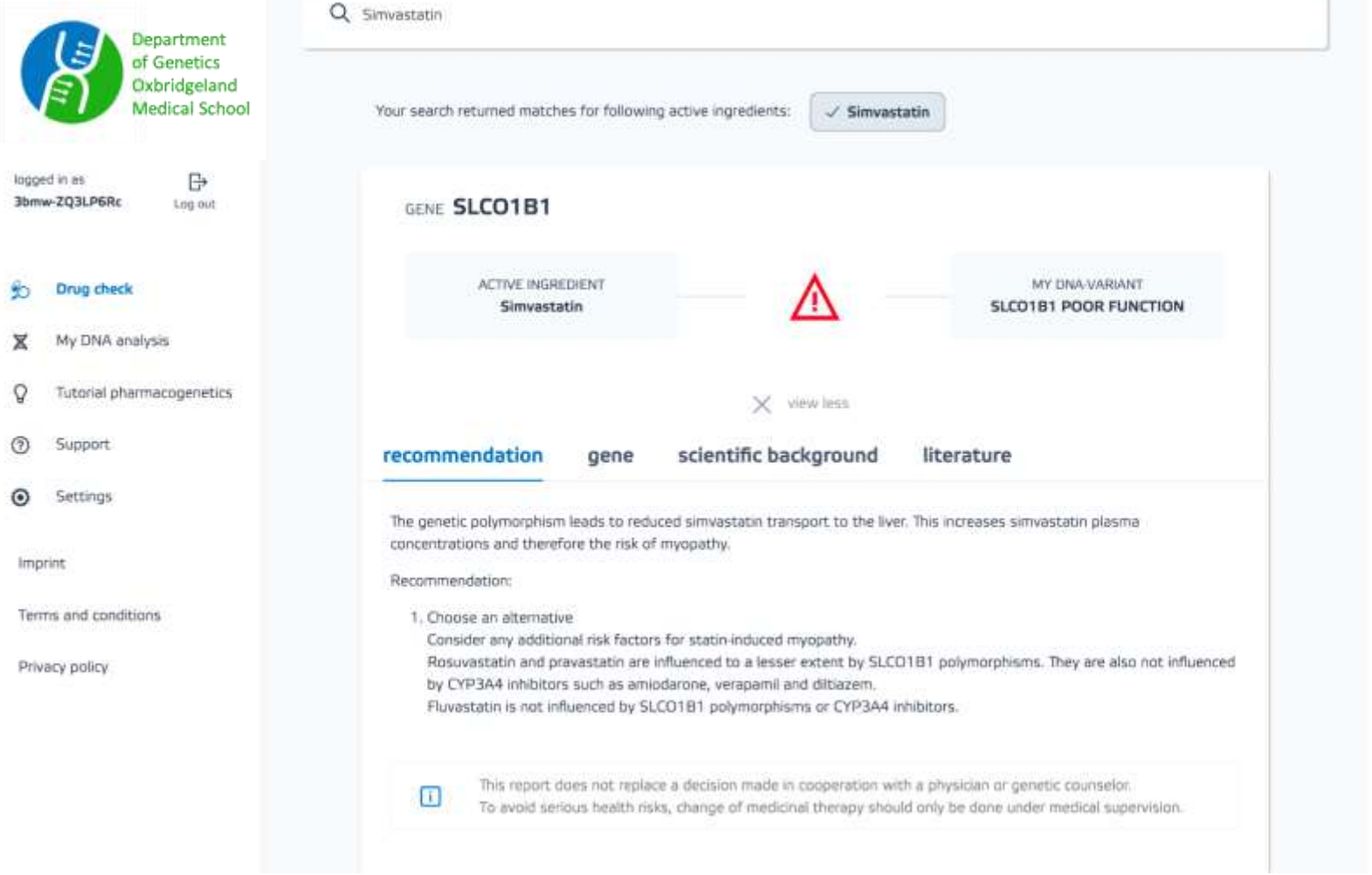
DNA variants are often responsible for too high or low efficacy of drugs and adverse events.

For the owner of this Medication Safety Pass DNA variants have been analyzed which may be important to consider for prescribing medication

Before prescribing:

- Check if personal recommendations are to be considered
- Detailed information available
  - In personal patient account
  - Accessible by using the QR code above

Genetic Health Record



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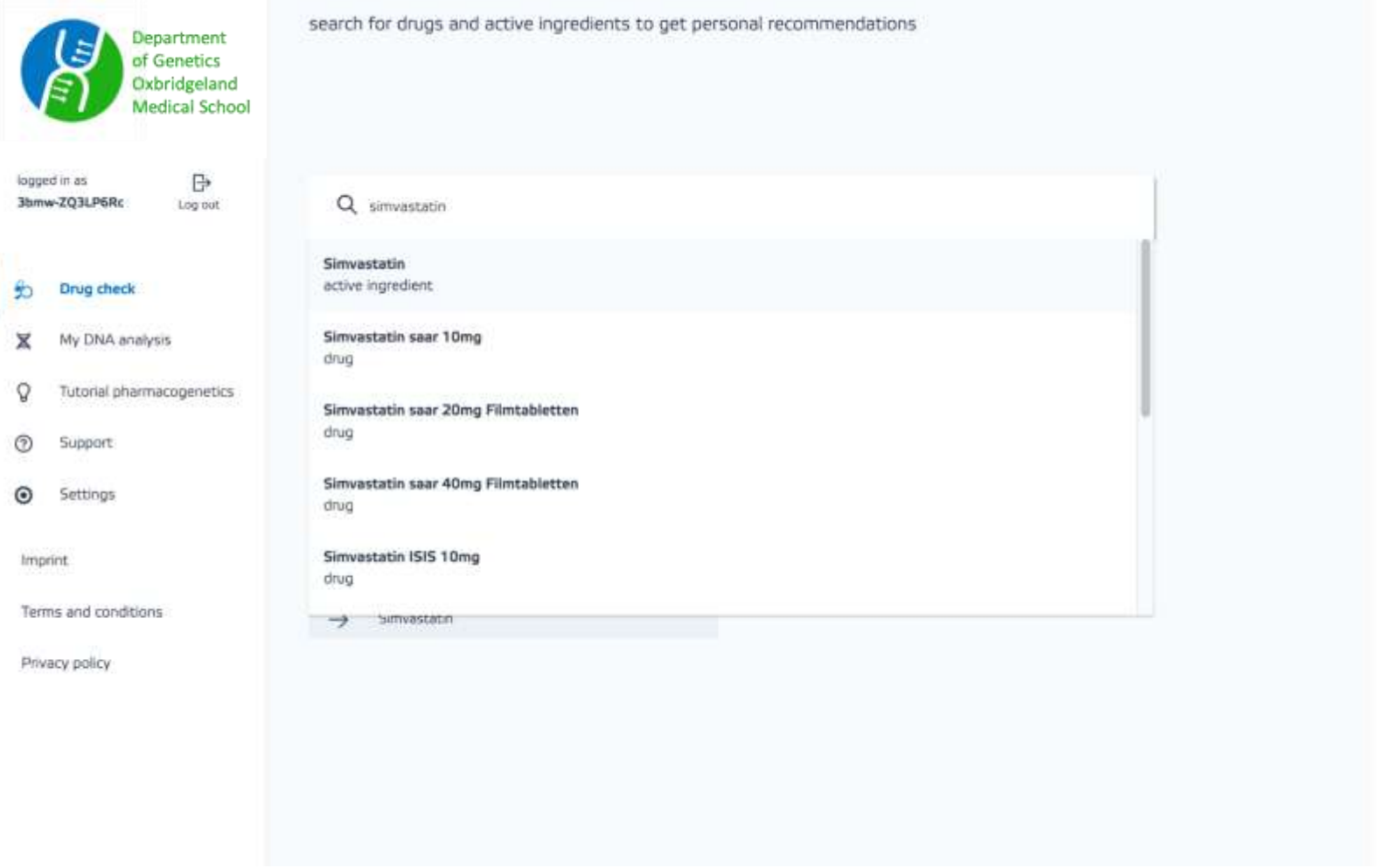
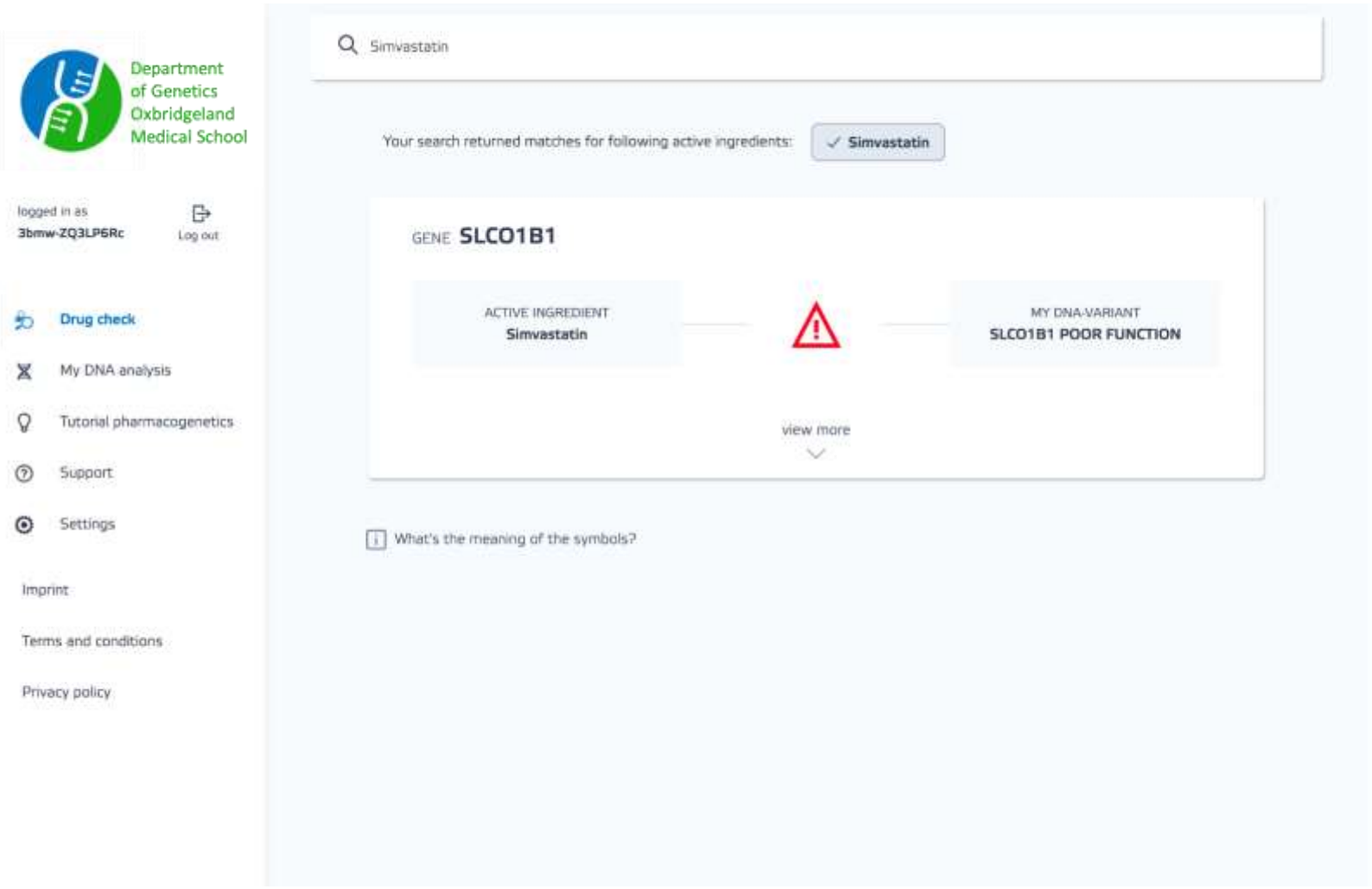
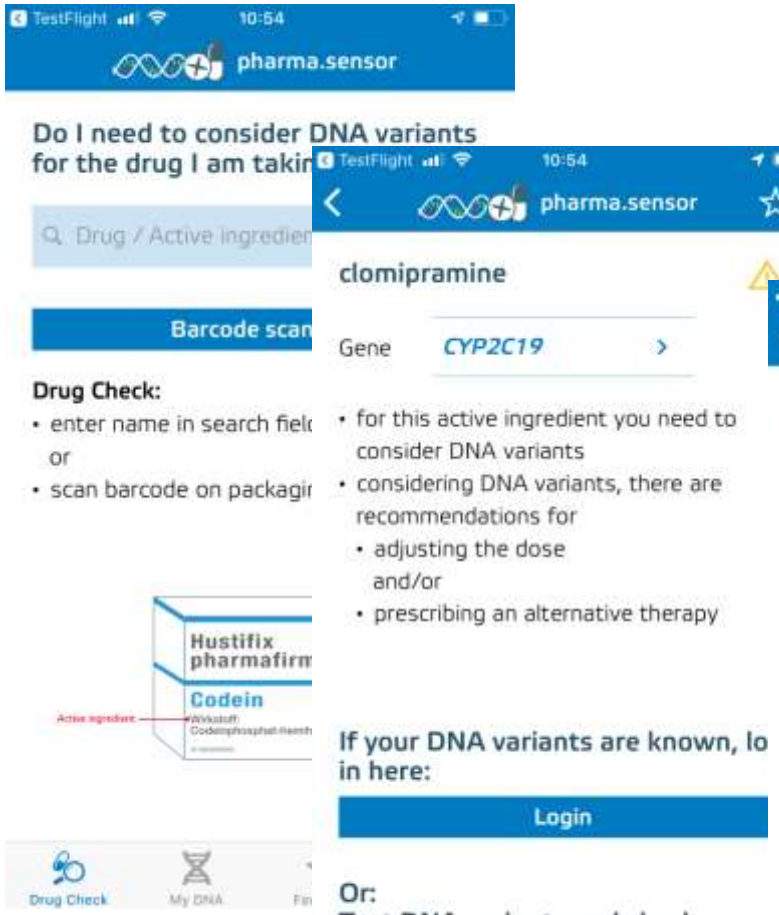
Genetic Health Record

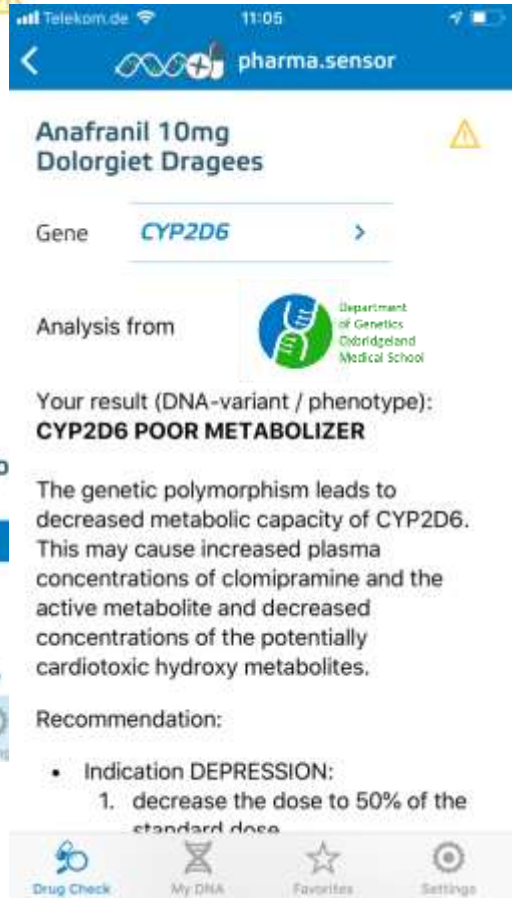


Genetic Health Record



Mobile App: pharma.sensor





Outlook: bio.logis´ new Development

A Genetic Information Management System (GIMS)
for transparently traceable DNA Variant Interpretation
and Report Generation

open source – for the genetics community and beyond

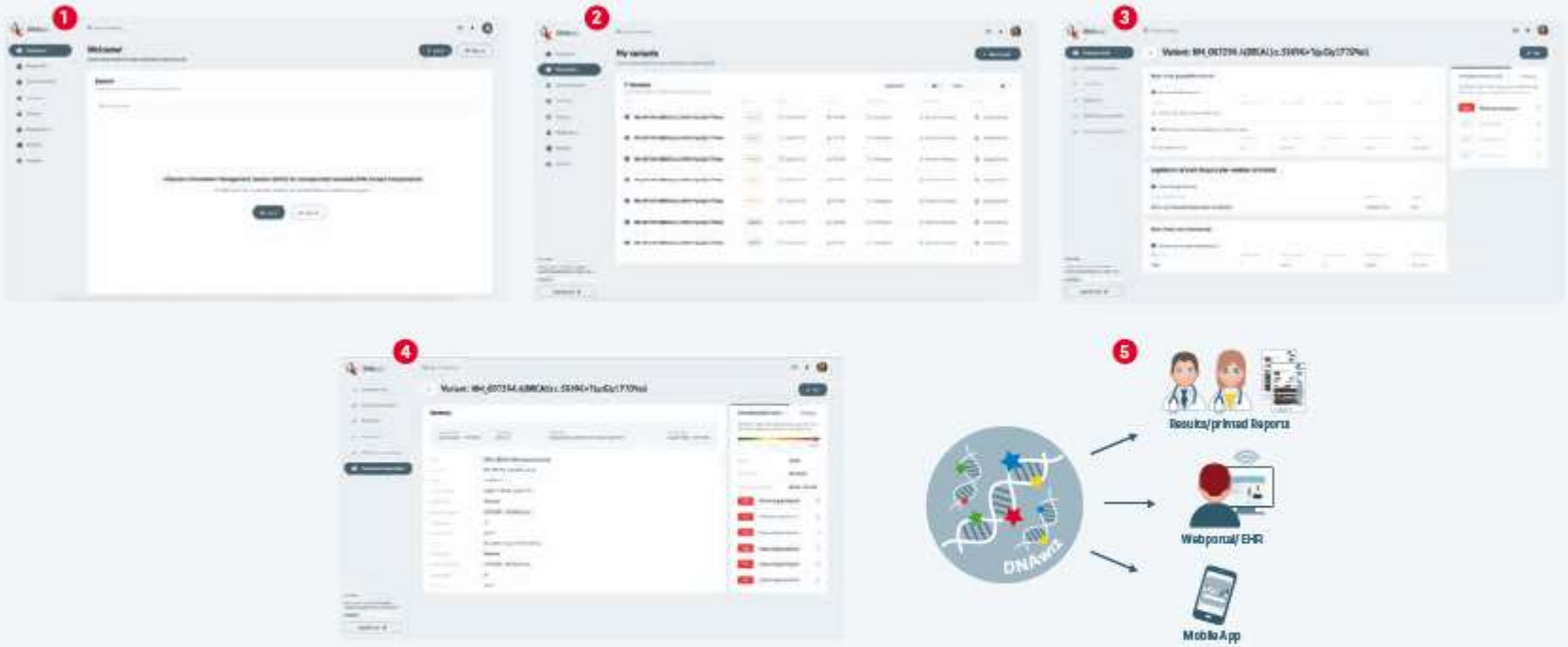
The solution

DNAwiz

Launch End of 2024

DNAwiz

How It works



1. Variant list (vcf) is uploaded with standard interfaces or manually
2. detected variants are listed and automatically connected with metadata from public sources
   a) if a variant is already available in the system and trustfully classified, it can be processed automatically for generation of a report in clinical grade
   b) to process formerly not classified variants the user is guided through variant assessment and interpretation process step by step. Decision and argumentation processes can be document and versionised
   c) where possible, the user can also draw variant information and existing assessments from the sharing network
3. completed assessments can be reviewed and approved using customizable workflows
   a) once assessments has reached a level of maturity, user can choose to share the knowledge within the network
4. Interpretations, diagnosis and recommendations are compiled in clinical reports available in multiple formats using content from databases amended with user´s comments where applicable
5. Results can be
   a) provided to physicians and patients as printed documents
   b) incorporated into EHR systems or
   c) distributed using customizable digital channels

translating DNA into health

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Request a Demo