



## THE PROBLEM

- ▶ 10,1% of hospitalized patients experience adverse drug reactions<sup>1</sup>
- ▶ 3,5% of hospital admissions are related to adverse drug reactions<sup>1</sup>
- ▶ Adverse drug reactions are the 4th leading cause of death in the USA<sup>2</sup>



Personalized medicine  
in your pocket

## A POSSIBLE SOLUTION

- ▶ Based on a blood or saliva sample, pharmacogenomic (PGx) tests can detect specific individual variations in your genetic make-up that have an impact on the **safety** and **efficacy** of many common medications.
- ▶ The Medication Safety Code (MSC) system captures these PGx test results and provides personalized drug dosing recommendations whenever needed during medical care.

## THE MEDICATION SAFETY CODE AT A GLANCE

- ▶ The Medication Safety Code (MSC) is a QR code that captures PGx test results.
- ▶ After scanning the QR code with a smartphone, your physician is led to a website that displays drug dosing recommendations that are specifically tailored to your expected drug response.



- ▶ The Medication Safety Code system can help your physician **individualize** your drug therapy and thus **reduce your risk for adverse drug reactions and ineffective treatments**.
- ▶ The MSC can be printed on a **personalized card** that you can carry in your wallet, or it can be incorporated in a paper-based lab report.

## HOW MANY PATIENTS CAN BENEFIT?

- ▶ Over half of all European patients have at least one pharmacogenetic variation that would result in the recommendation of a significant therapy modification for several drugs.
- ▶ Over 30% of all patients older than 40 receive at least one drug for which PGx-based dosing recommendations are available.\*

\* based on US drug prescription data

## PRIVACY AND DATA SECURITY

- ▶ You have full control over your PGx results: The MSC system does not require central storage of your PGx data; all PGx data are inside the QR code of your pocket card or lab report.
- ▶ You can opt-in and opt-out at any time: You can choose whether or not you want to make your PGx data available to care providers.
- ▶ Your MSC captures only PGx data that can be used to optimize your drug therapy. No other sensitive health data (e.g. current medication or diseases) are captured.

## TRY IT OUT

Below you can see an exemplary MSC pocket card for a fictional patient. The front side contains the MSC QR code and laboratory contact details. To alert your health care provider, the back side of the card lists all drug substances for which essential therapy modifications are recommended based on your PGx test results.






*The Medication Safety Code initiative*

What is it?  
The Medication Safety Code on the left represents a patient-specific genetic profile regarding important pharmacogenes.

How does it work?  
After scanning the QR code (e.g. with a smartphone), you are led to a website that displays patient-specific drug dosing recommendations.

 [www.safety-code.org](http://www.safety-code.org)

**Laboratory contact**  
+0123456789  
Some lab name  
Some street name 123/45  
1234 Some city name



*The Medication Safety Code initiative*

Name: Jane Doe  
Date of birth: 01.02.1934

Gene, status	Critical drug substances (modification recommended!)
CYP2C19 Poor metabolizer	Clopidogrel, Sertraline
CYP2D6 Ultrarapid metabolizer	Amitriptyline, Aripiprazole, Clomipramine, Codeine, Doxepin, Haloperidol, Imipramine, Metoprolol, Nortriptyline, Paroxetine, Propafenone, Risperidone, Tamoxifen, Tramadol, Venlafaxine
TPMT Poor metabolizer	Azathioprine, Mercaptopurine, Thioguanine
Other genes Not actionable	ABCB1, ADRB1, BRCA1, COMT, CYP1A2, CYP2A6, CYP2B6, CYP2C9, CYP3A4, CYP3A5, DPYD, G6PD, HMGCR, P2RY12, SULT1A1, UGT1A1, VKORC1

Date printed: 15.03.2016

Card number: 0000001

## INTERESTED?

If you are interested in using the MSC system to reduce your risk for adverse drug reactions and ineffective treatments please do not hesitate to contact us.

Further information, including

- ▶ examples of adverse drug reactions that can potentially be prevented by using the MSC system
- ▶ a complete list of drug substances for which the MSC system provides recommendations

is available at

<http://www.safety-code.org>

## CONTACT

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## REFERENCES

[1] Bouvy, J. C., De Bruin, M. L. & Koopmanschap, M. A. Epidemiology of adverse drug reactions in Europe: a review of recent observational studies. *Drug Saf.* 38, 437–453 (2015).

[2] US Food and Drug Administration (FDA); <http://www.fda.gov>