



GA N° 668353

H2020 Research and Innovation

Deliverable N°: D6.3

Title: Survey to evaluate the state of PGx knowledge in the 7 participating countries

WP N° and Title: **WP6 – Training and education of health care professionals,
patients and other stakeholders**

Lead beneficiary: **P3-BfArM**

Type: **Report**

Dissemination level: **Public**

Start date of project: 01/01/2016

Duration: 60 months

Due date of deliverable: Month 18

Actual submission date: 06/09/2016 (Month 9)

Comment: [e.g. explanation for delay]




Introduction


To assess the level of knowledge and opinion on PGx among physicians and pharmacists at the start of the project, we created a survey. Regarding the heterogeneity of implementation sites, cultural, institutional differences and differences in personnel, we decided to conduct the survey as a basis for an e-learning programme for training and education of healthcare professionals within U-PGx.

Results

Select another language



U-PGx | Ubiquitous Pharmacogenomics



U-PGx Clinician's Questionnaire

SECTION 1: EXPERIENCE AND ATTITUDE

1) Pharmacogenomics is relevant to my current practice. (Please rank.) *

Disagree Somewhat disagree Somewhat agree Agree

2) How are you involved in the U-PGx project? *

I am not involved at all

I treat patients that get tests

I adjust doses/ provide recommendations

I order tests by myself

Other

3) In general, on which of the following do you predominantly base your drug dosing?
(please select all that apply) *

indication

body weight

body height

body surface

renal function

This survey was available via the U-PGx website for healthcare professionals working in clinical practice at the 7 implementation sites (<http://upgx.eu/for-clinicians/>).

In the survey (see Appendix 1), we asked for:

- experience and attitudes towards PGx (questions (Q) 1-5),
- self-perceived knowledge (Q 6-11),
- knowledge testing (Q 12-15),
- needs assessment (Q 16-20) and
- demographics (Q 21-29).



In agreement with the WP4 leaders (heads of implementation sites), the survey was published in English and translated to Spanish and Greek. The questionnaire was piloted in Germany. Duration of 5-10 minutes was estimated to fill in the complete survey. In accordance with the WP4 leaders, this was found to be a reasonable need of time.

The survey was online from June 13 2016 to August 31 2016 and spread by the WP4 leaders among the healthcare professionals at the implementation sites.

In total 70 healthcare professionals participated in the survey (see Appendix 2). The majority agreed that pharmacogenomics was relevant for their current practice, but again the majority so far did not recommend or order a pharmacogenomics test during the last year. Almost 40% was not sure whether they would be able to identify drugs that need pharmacogenomics testing, and again nearly 40% was insecure how to make an appropriate treatment adjustment regarding the pharmacogenomics test results. A broad panel would be needed to implement pharmacogenomics testing into clinic with the majority voting for better knowledge on genetics, pharmacology, drug metabolism, and on the basic concept of pharmacogenomics.

Summary/Conclusions

The needs of healthcare professionals regarding training towards pharmacogenomics implementation were filtered and shall be addressed. Upon the results of the survey, we will create an e-learning program for the participating healthcare professionals in the 7 implementation sites addressing goals and topics of interest of PGx knowledge.

Appendices

Appendix 1: Survey - Questions

Appendix 2: Survey - Results



U-PGx Clinician`s Questionnaire

QUESTIONNAIRE for PHARMACISTS and PHYSICIANS

To whom the questionnaire addresses:

- physicians (treating and dosing patients)
- hospital pharmacists (therapy adjustments, dose adjustments)

Introduction

This is an anonymous questionnaire to evaluate the views and knowledge of current drug prescribers on pharmacogenomics and its role in individualizing patient treatment. This study is part of the work being carried out by a pan-European research collaboration called Ubiquitous Pharmacogenomics (U-PGx: <http://upgx.eu/>). The results of this questionnaire will support the development of a short e-Learning Tool on pharmacogenomics for clinicians and pharmacists. This questionnaire is anonymous. However, the outcome of the questionnaire will be published in a scientific journal. We are grateful to you for taking the time to answer the following questions.



SECTION 1: EXPERIENCE AND ATTITUDE

1)

Please rank.

disagree agree

1 2 3 4

Pharmacogenomics is relevant to my current practice.

0 0 0 0

2)

How are you involved in the U-PGx project?

- I am not involved at all
- I treat patients that get tests
- I adjust doses/provide recommendations
- I order tests by myself

(if other, please specify)

other: _____

3)

In general, on which of the following do you predominantly base your drug dosing?
(please select all that apply)

- indication
- body weight
- body height
- body surface
- renal function
- liver function
- age
- sex
- therapeutic drug monitoring
- pharmacogenomics
- biomarker
- comorbidities
- comedication

(if other, please specify)

other: _____



4a)

- How many times did you order/ recommend a pharmacogenomics test last year?
- 0
 - 1/ month
 - 2-5/ month
 - 6-10/ month
 - 11-20/ month
 - >20/ month

4b)

Please select why you would not order a test:
(please select all that apply)

- not applicable
- concerns about privacy
- little-or-no, or uncertain about the value of testing
- lack of insurance coverage for testing
- not enough personal knowledge about genomic testing
- not familiar with the legal issues and regulations of pharmacogenomics testing
- patients' resistance to genomic testing
- I do not prescribe drugs with genomic tests available or recommended
- other: _____

(if other, please specify)

4c)

If ≥ 1 , could you use the test result?

- Yes
- No, I did not know how to interpret it.
- No, because it took too long for the pharmacogenomics test result to come back
- There was no abnormality.
- other: _____

(if other, please specify)

4d)

If ≥ 1 , who paid for the test? (one)

- patient
- clinic
- health insurance
- other: _____

(if other, please specify)

5)

Why do you usually order pharmacogenomics tests?
(please select all that apply)

- obligatory companion diagnostic
- preventing/ explaining side effects
- dose adjustments
- for research purposes
- tumour diagnostic
- not applicable
- other: _____

(if other, please specify)



SECTION 2: KNOWLEDGE

Please rank your perceived knowledge on a scale.

6a)

I am familiar with classical genetics.

disagree		agree	
1	2	3	4
0	0	0	0

6b)

Where did you learn about this topic?

university
 as a junior staff member
 conference
 journal
 internet
 never
 other: _____

(if other, please specify)

6c)

When did you learn about this topic the last time?
(How many years ago?)

1-2
 2-3
 3-5
 5-10
 >10
 never

Please rank your perceived knowledge on a scale.

7a)

I am familiar with pharmacology and drug metabolism.

disagree		agree	
1	2	3	4
0	0	0	0

7b)

Where did you learn about this topic?

university
 as a junior staff member
 conference
 journal
 internet
 never
 other: _____

(if other, please specify)

7c)

When did you learn about this topic the last time?
(How many years ago?)

1-2
 2-3
 3-5
 5-10
 >10
 never



Please rank your perceived knowledge on a scale.

8a)

I am familiar with pharmacogenomics.

disagree

1 2 3 4

agree

0 0 0 0

8b)

Where did you learn about this topic?

- university
- as a junior staff member
- conference
- journal
- internet
- never

(if other, please specify)

other: _____

8c)

When did you learn about this topic the last time?
(How many years ago?)

- 1-2
- 2-3
- 3-5
- 5-10
- >10
- never

Please rank your perceived knowledge on a scale.

9a)

I am familiar with the role of drug metabolizer phenotypes (e.g. a poor metabolizer).

disagree

1 2 3 4

agree

0 0 0 0

9b)

Where did you learn about this topic?

- university
- as a junior staff member
- conference
- journal
- internet
- never

(if other, please specify)

other: _____

9c)

When did you learn about this topic the last time?
(How many years ago?)

- 1-2
- 2-3
- 3-5
- 5-10
- >10
- never



SECTION 3: KNOWLEDGE TESTING

Please answer the following questions to the best of your knowledge (select one answer only per question).

12)

What may be the consequence of a pharmacogenomic polymorphism?

- an individual cannot metabolize any drugs
- an individual has a higher risk for toxicity when using prescription drugs
- a single drug dose is appropriate for a given indication
- individualized dose adjustments should be made according to body surface area

13)

The European Medicine Agency currently includes pharmacogenomics information in the drug labels of how many medications?

- 5-10
- 11-50
- 51-100
- >100

14)

What does a poor metabolizer (PM) phenotype indicate?

- lower drug safety because of poor metabolism
- good drug efficacy because of poor metabolism
- decreased enzyme activity
- increased enzyme activity

15)

A person who is a PM for CYP2D6 gets a medication that induces CYP2D6. What may be a consequence?

- decreased CYP2D6 activity
- no activity of CYP2D6, no consequence
- increased CYP2D6 activity
- the person becomes an intermediate metaboliser (IM) for CYP2D6



SECTION 4: NEEDS ASSESSMENT

Please rank.	disagree				agree
16)	1	2	3	4	
I can identify drugs that require pharmacogenomics testing.	0	0	0	0	

Please rank.	disagree				agree
17)	1	2	3	4	
I am confident that I can use the results of pharmacogenomics tests to make an appropriate adjustment to a patient's drug therapy.	0	0	0	0	

- 18)**
To adjust therapy based on pharmacogenomics tests (more often) I would need...
(please select all that apply)
- better knowledge on genetics
 - better knowledge on pharmacology
 - better knowledge on drug metabolism
 - better knowledge on the basic concepts of pharmacogenomics
 - a better evidence base that pharmacogenomics improves clinical outcomes
 - better ability to apply my knowledge
 - better knowledge of legal regulations
 - support of my working institution
 - insurance coverage
 - expert counsel
- (if other, please specify) other: _____

- 19)**
What would be your preferred format for learning more about pharmacogenomics in the future?
(please select all that apply)
- scientific article
 - conference talk
 - accredited learning course
 - continuing medical education-accredited workshop
 - patient cases
 - medical app
 - e-learning course
- (if other, please specify) other: _____

- 20)**
How much time would you spend on an e-learning program on pharmacogenomics?
- < 30 minutes
 - 30 minutes
 - 60 minutes
 - 90 minutes



SECTION 5: DEMOGRAPHICS

Please tell us:

21)

Your year of birth? _____

22)

Your gender? male female

23)

Your profession? pharmacist
(please select what applies best) physician
(if other, please specify) other: _____

24)

In which country do you work? Austria
 Great Britain
 Greece
 Italy
 Netherlands
 Slovenia
 Spain

25)

Number of years working within your profession since graduating from university? 1
 2-5
 6-10
 11-20
 >20

26)

What is your primary practice setting? hospital outpatients or ambulatory care
(please select what applies best) hospital inpatients
 community-based nursing home
 academia
 research
(if other, please specify) other: _____



27)

What is your speciality? (one)

- anaesthetics
- biochemistry
- cardiology
- clinical pharmacology
- emergency or acute medicine
- endocrinology and diabetes
- gastroenterology
- general pharmacy
- genetics
- infectious diseases and microbiology
- haematology
- hospital pharmacy
- nephrology
- neurology
- obstetrics/gynaecology
- oncology
- pathology
- paediatrics
- primary care/ family medicine
- psychiatry
- radiology
- respiratory
- rheumatology
- surgery
- other: _____

(if other, please specify)

28)

How would you describe your practice setting? (one)

- university/academic
- urban
- suburban
- rural

(if other, please specify)

other: _____

29)

Please list any additional comments or feedback here: (max. 250 words)



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Survey and Survey Results



Federal Institute
for Drugs
and Medical Devices

U-PGx Survey

Survey on health care professionals participating in U-PGx

- Experience and Attitude towards PGx Q1-5
- Self estimated knowledge Q6-11
- Knowledge testing Q12-15
- Needs assessment Q16-20
- Demographics Q21-29



U-PGx Clinician's Questionnaire

→ Survey online from June 13 to August 31

SECTION 1: EXPERIENCE AND ATTITUDE

1) Pharmacogenomics is relevant to my current practice. (Please rank.) *

Disagree Somewhat disagree Somewhat agree Agree

2) How are you involved in the U-PGx project? *

- I am not involved at all
- I treat patients that get tests
- I adjust doses/ provide recommendations
- I order tests by myself
- Other

3) In general, on which of the following do you predominantly base your drug dosing?
(please select all that apply) *

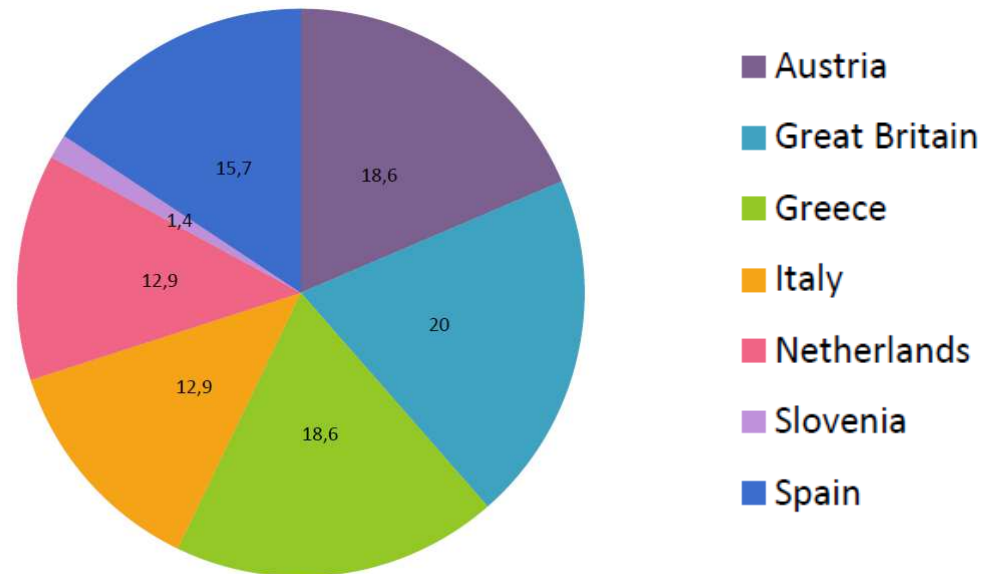
- indication
- body weight
- body height
- body surface
- renal function



Results - Demographics

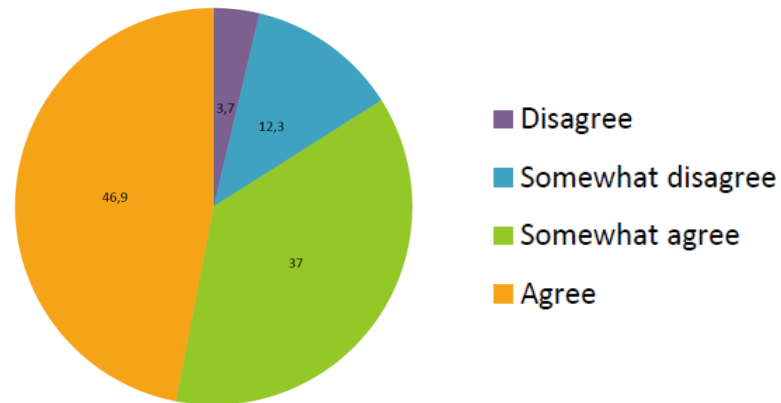
n = 70;

- 47% male, 53% female; mean age 39 y (25-67)
- 16% pharmacists, 76% physicians, 8% other
- 50% hospital inpatient, 31% outpatient, 17% academia/research, 2% other
- Work experience:
 - 11.4%: 1 y
 - 21.4%: 2-5 ys
 - 15.7%: 6-10 ys
 - 30.0%: 11-20 ys
 - 21.4%: > 20 ys

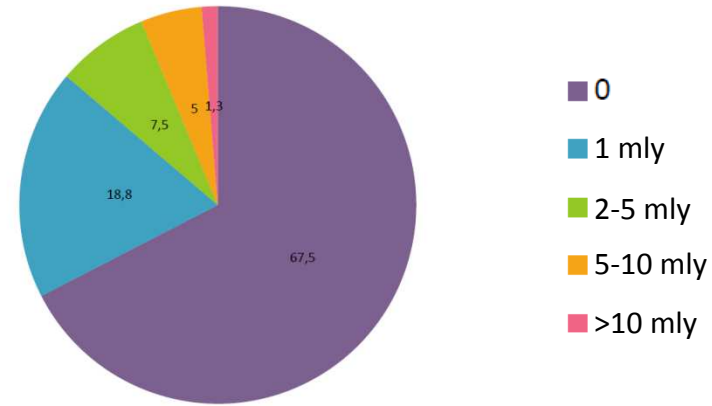


Results – Experience and Attitude

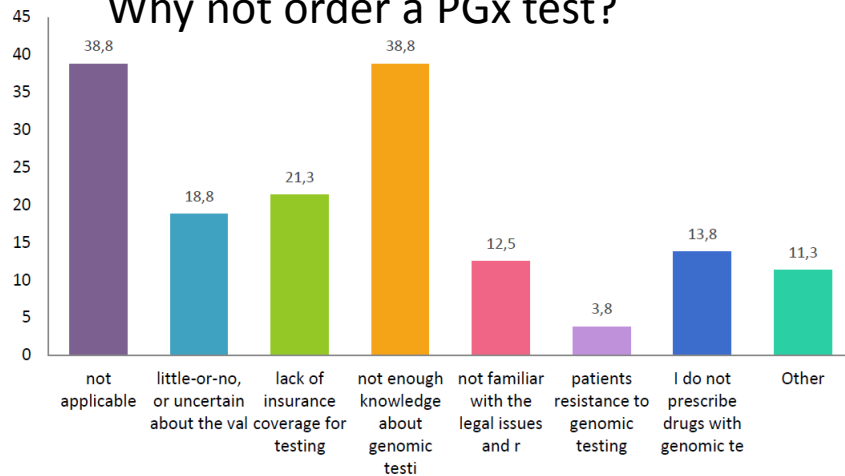
PGx important to current practice.



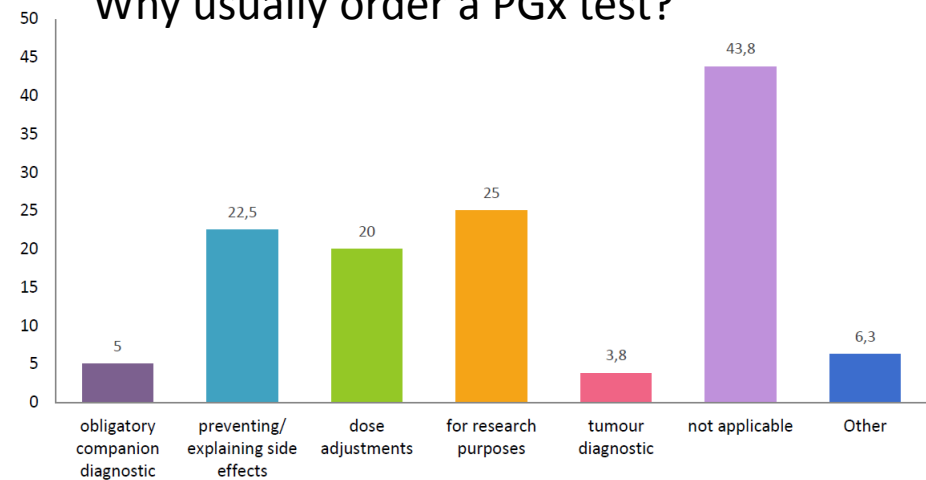
How many times PGx ordered last year?



Why not order a PGx test?

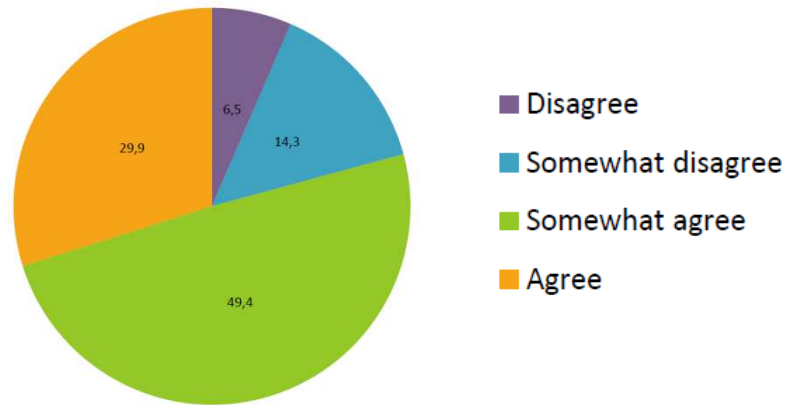


Why usually order a PGx test?

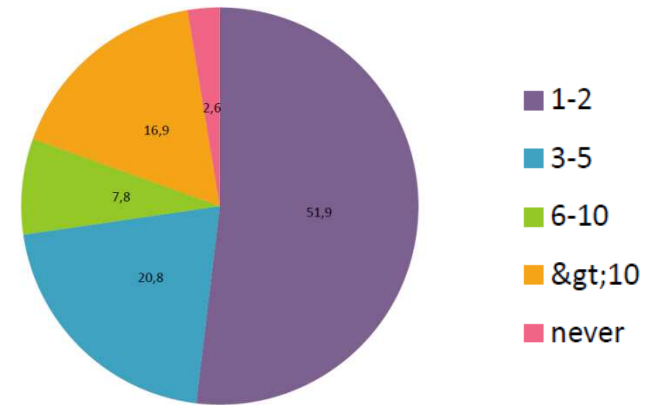


Results – perceived knowledge

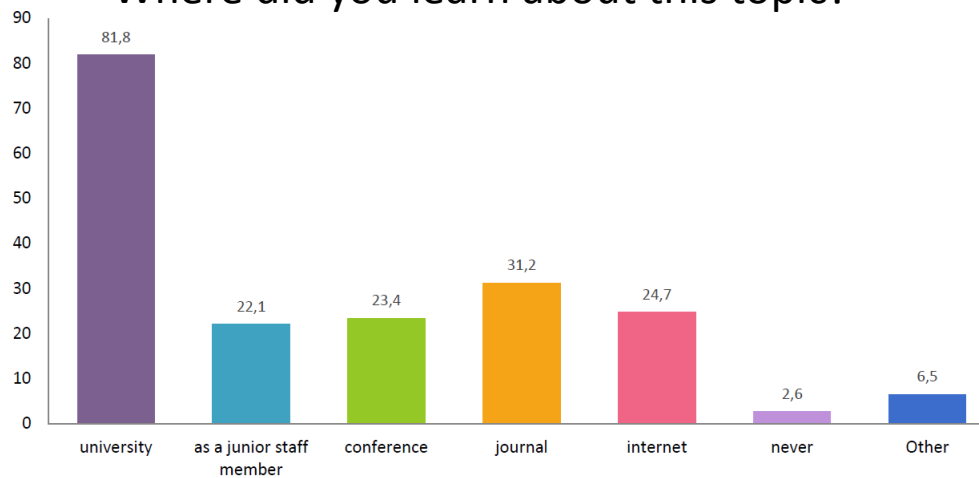
Familiar with ... CLASSICAL GENETICS.



How many years ago?

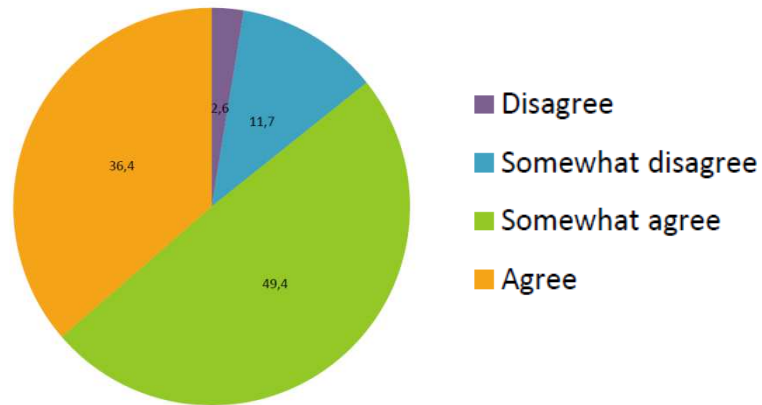


Where did you learn about this topic?

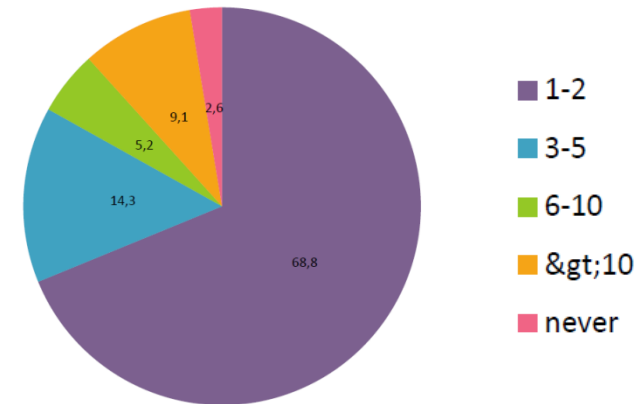


Results – perceived knowledge

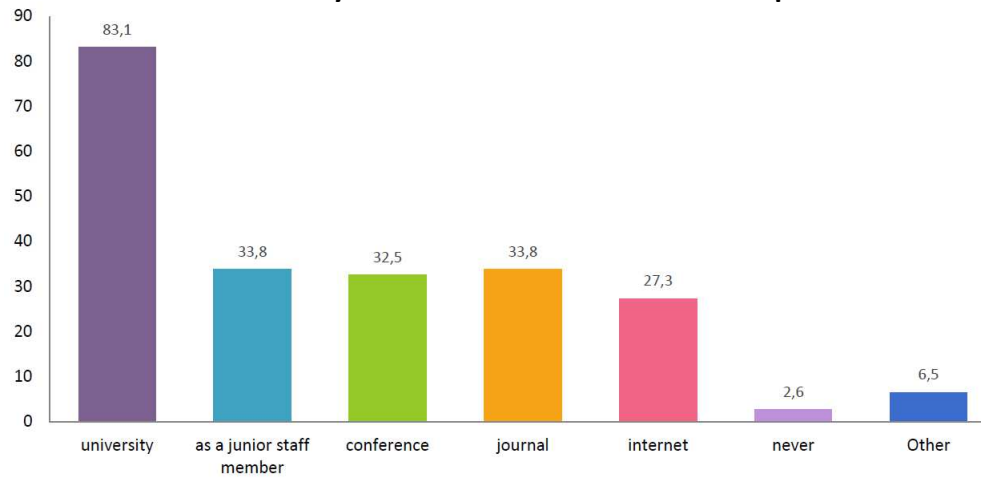
Familiar with ... PHARMACOLOGY AND DRUG METABOLISM.



How many years ago?

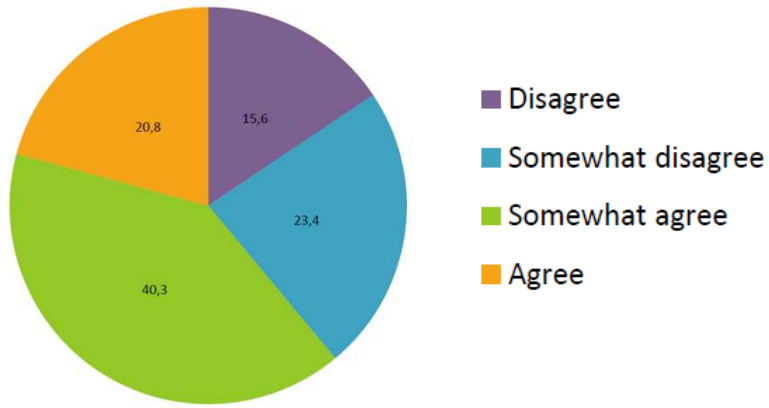


Where did you learn about this topic?



Results – perceived knowledge

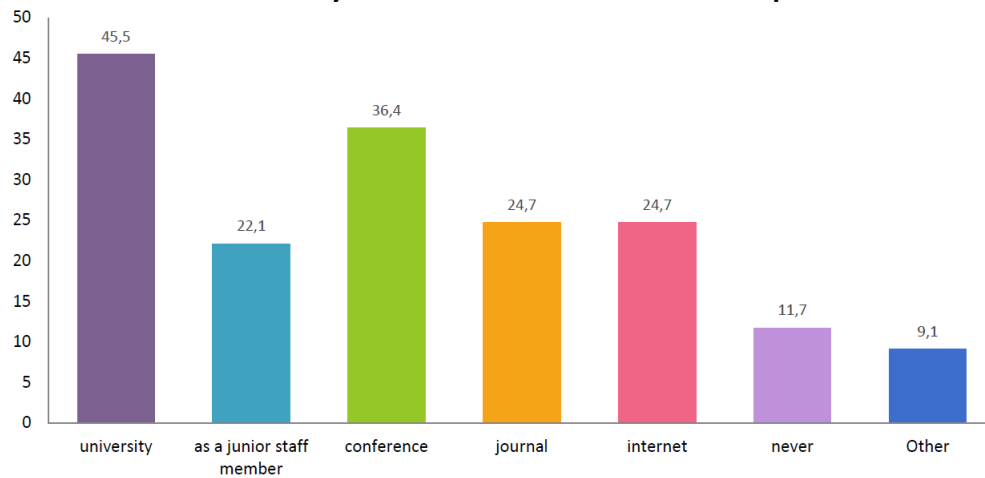
Familiar with ... PHARMACOGENOMICS.



How many years ago?

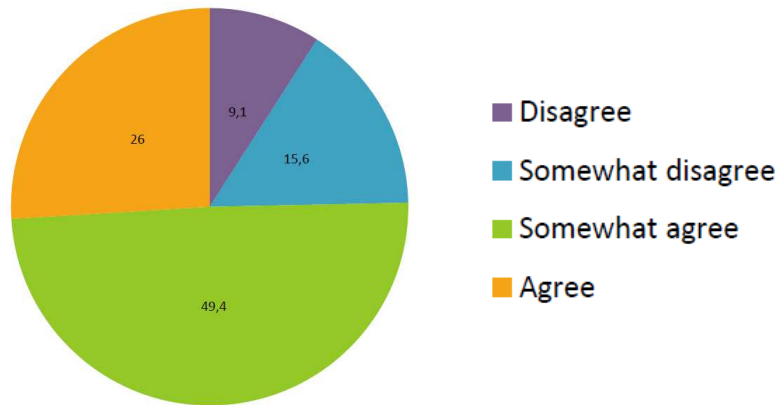


Where did you learn about this topic?

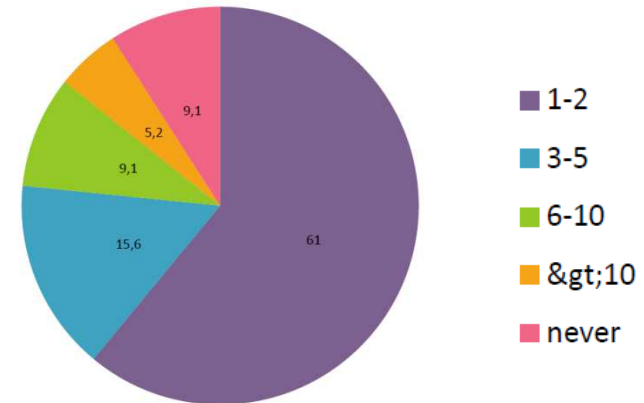


Results – perceived knowledge

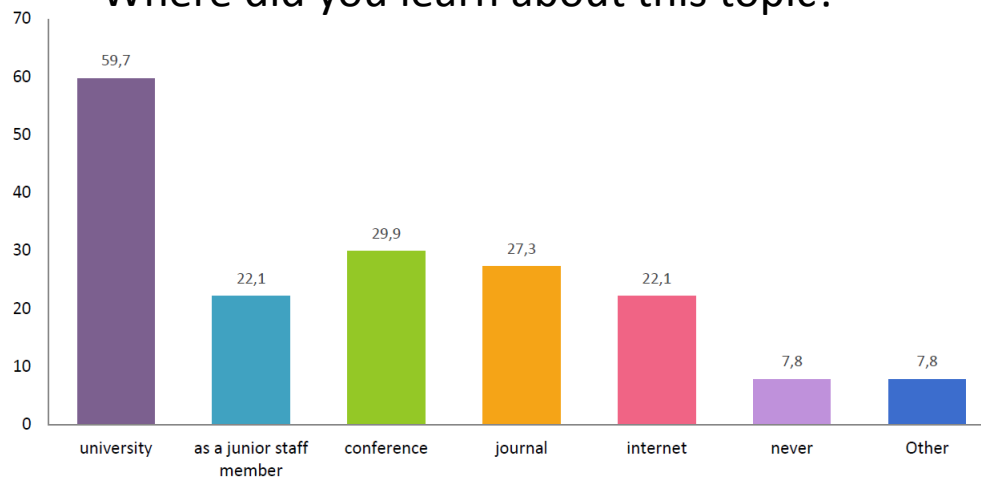
Familiar with ... DRUG METABOLIZER PHENOTYPES.



How many years ago?

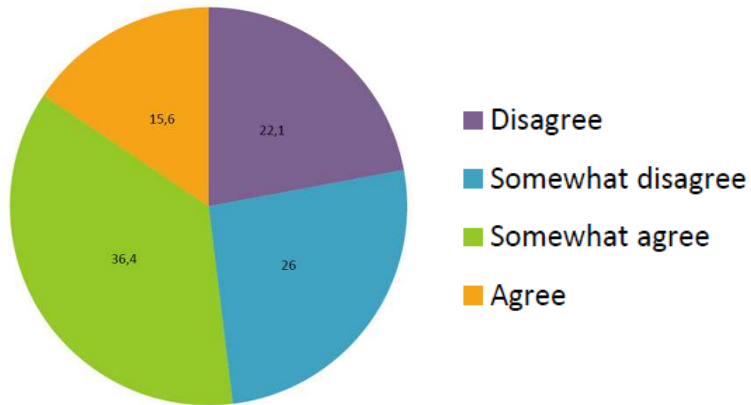


Where did you learn about this topic?

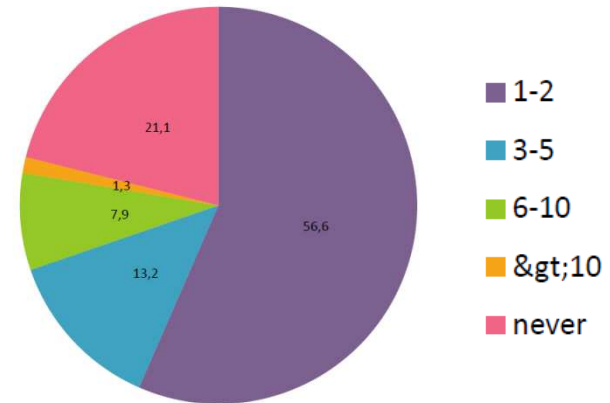


Results – perceived knowledge

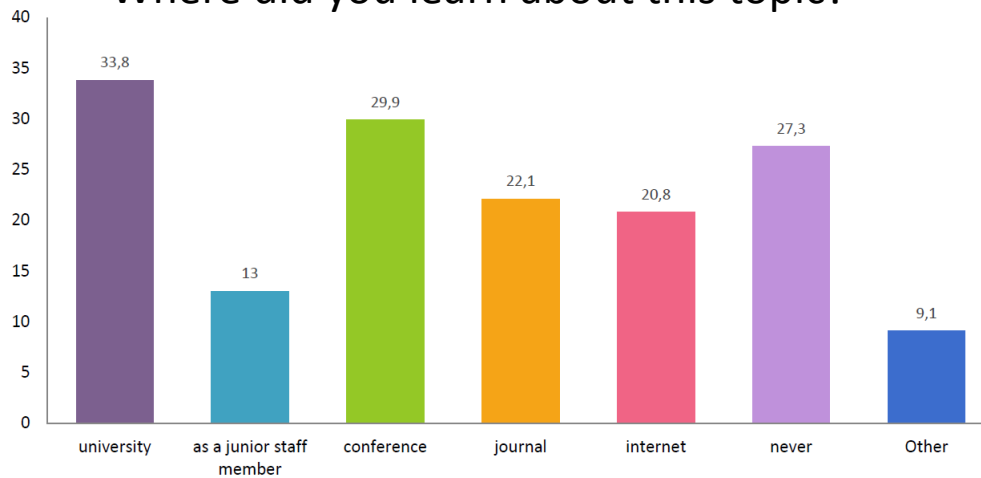
Familiar with ... INTERPRETING PGX TEST RESULTS.



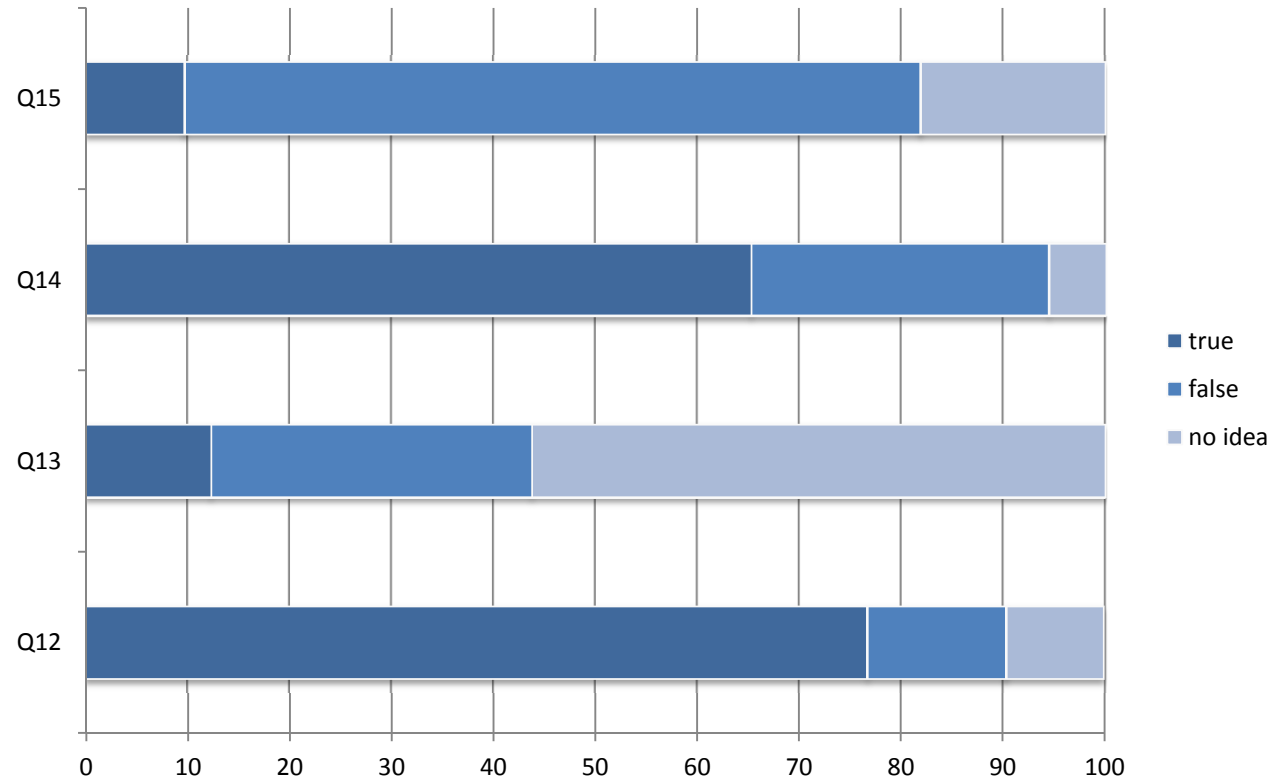
How many years ago?



Where did you learn about this topic?



Knowledge testing



Q12: What may be the consequence of a PGx polymorphism?

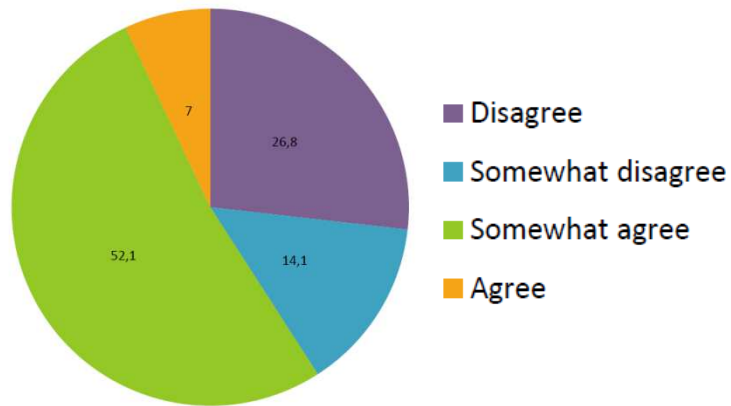
Q13: The EMA currently includes PGx information in the drug labels of how many medications?

Q14: What does a PM phenotype indicate?

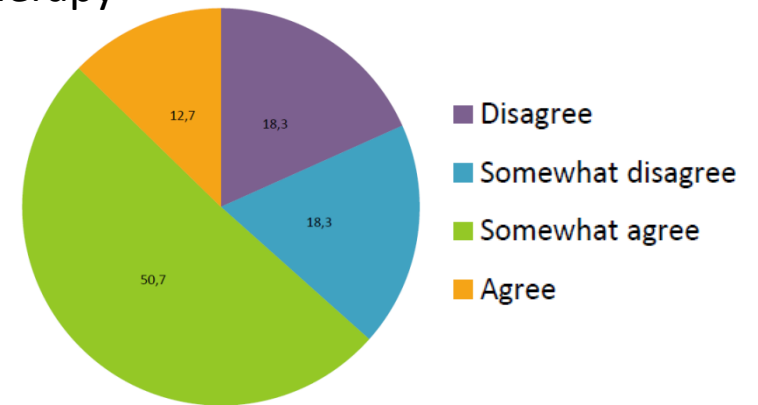
Q15: A person who is a PM for CYP2D6 gets a medication that induces CYP2D6. What may be a consequence?

Needs assessment

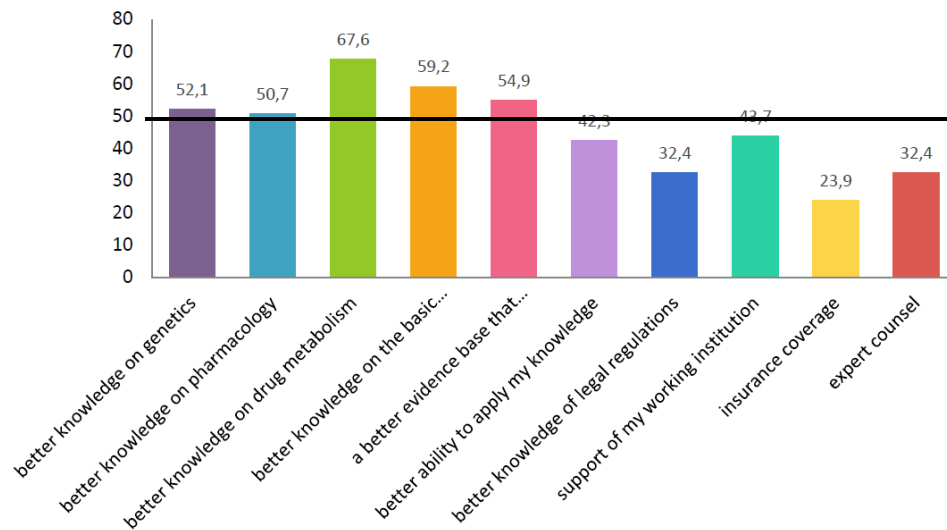
Can identify drugs that require PGx tests



Use results of PGx test to adjust drug therapy

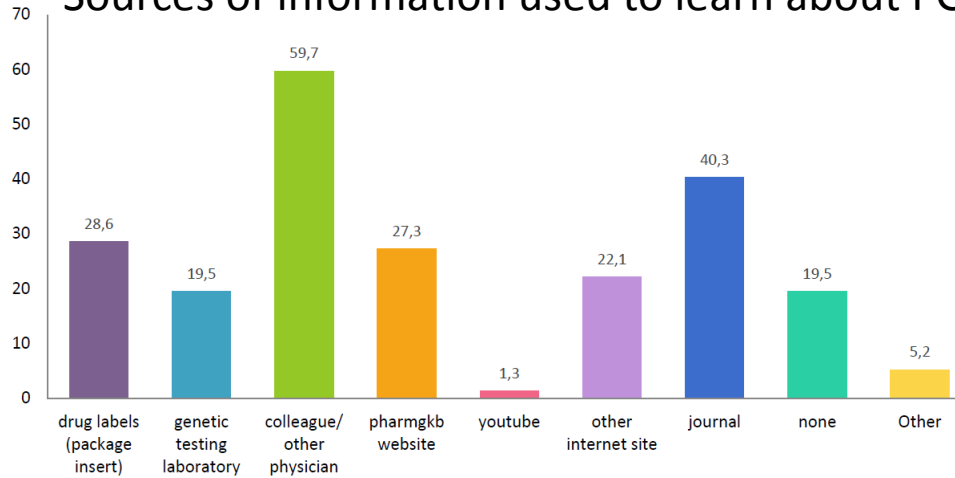


To adjust therapy I would need...

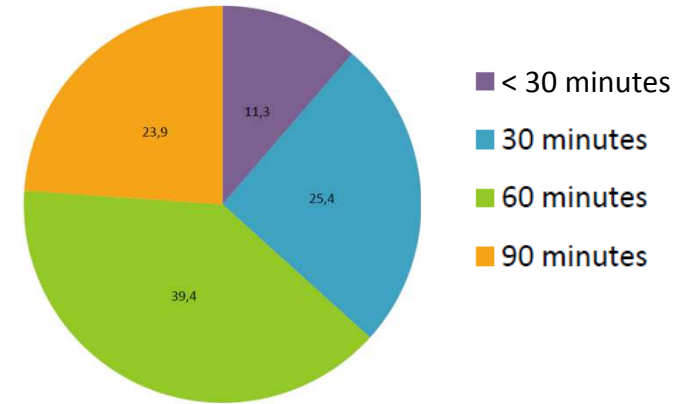


Needs assessment

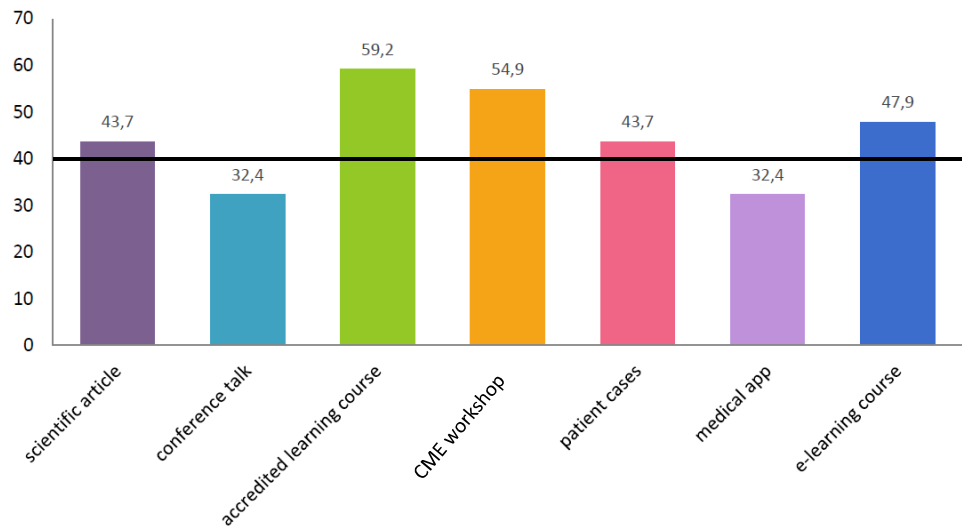
Sources of information used to learn about PGx



Time to spend on e-learning



Preferred learning format?



Summary Survey Results

- there is knowledge and interest in PGx
- application and interpretation causes uncertainty
- medical knowledge mainly generated at universities
- postgraduate education improvable
- accreditation would be desired

→ E-LEARNING PROGRAMME

