



ELECTRONIC PRESCRIBING RISK AND SAFETY EVALUATION

“Helping us optimise our systems”

## User Guide

For the ePrescribing Risk and Safety Evaluation Tool

### Introduction

ePRaSE is a web based tool intended to help NHS hospital sites assess and evaluate their e-prescribing systems to support optimisation and reduce harm caused by adverse drug events, ultimately improving medication safety.

The tool provides a set of ‘fictional’ patients which users set up in their live or test prescribing environments and then provides a set of randomised prescribing scenarios to challenge their system responses to risk. The performance of the prescribing system to the risk scenarios is provided in real time with a text based report and accompanying visuals. This is intended to guide and assist e-prescribing system users and new implementers in the optimisation of their systems.

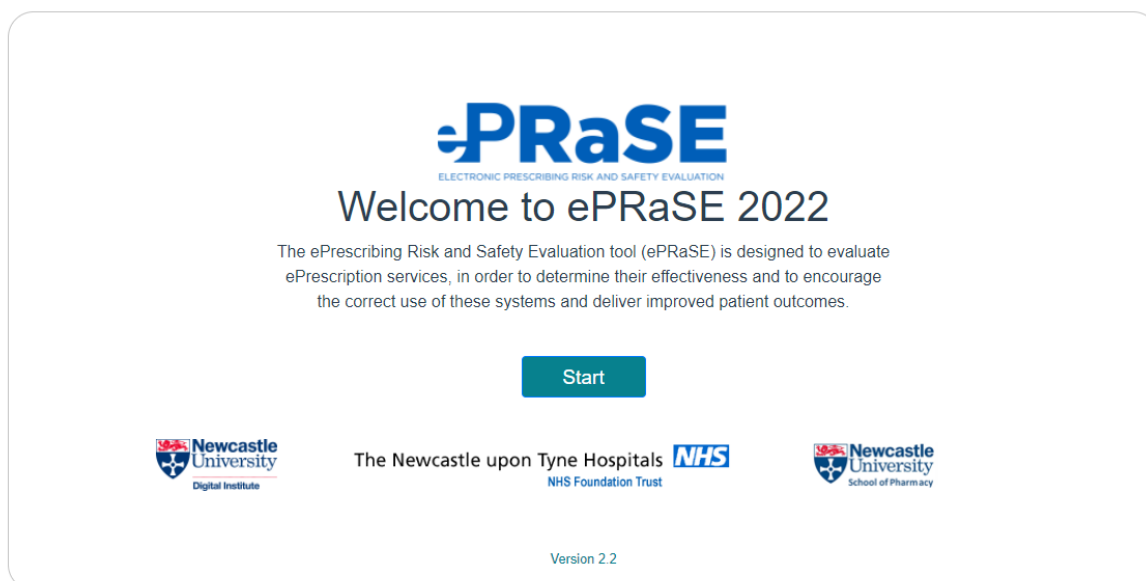
Version 2022 is suitable for all sites actively using electronic prescribing systems for adult inpatients.

ePRaSE Tool version 2022 is accessible to registered users with nhs.uk or nhs.net emails accounts. Version 2022 creates an institutional report, against which up to four users from the same institution can register.

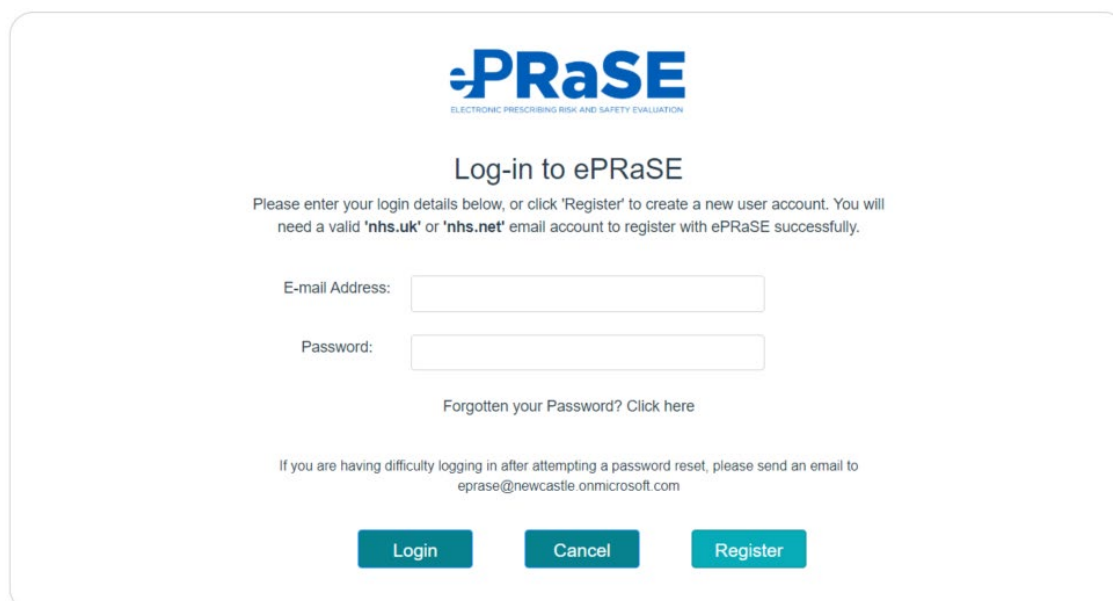
### Accessing ePRaSE and registering for the first time

<https://eprase.nhs.uk>

The web based ePRaSE application is compatible with all modern browsers: Google Chrome, Mozilla Firefox, Opera, Safari and Edge.




Press the **Start** button to access the login page and registration button. If you are registering for the first time click the **Register** button, otherwise enter your login details that will take you directly to the home page. Up to four users with individual email accounts may register with one institution. All institution users will work with the same patient set.



The image shows the 'Log-in to ePRaSE' screen. At the top center is the ePRaSE logo, which consists of a stylized 'e' followed by 'PRaSE' in a bold, blue, sans-serif font. Below the logo, the text 'ELECTRONIC PRESCRIBING RISK AND SAFETY EVALUATION' is written in a smaller, blue, sans-serif font. Below this, the heading 'Log-in to ePRaSE' is displayed in a large, black, sans-serif font. Underneath the heading, a paragraph of text instructs users to enter their login details or click 'Register' to create a new account, noting that a valid 'nhs.uk' or 'nhs.net' email account is required for successful registration. Below this text are two input fields: 'E-mail Address:' followed by a text box, and 'Password:' followed by a text box. Below the password field is a link that says 'Forgotten your Password? Click here'. At the bottom of the screen, three buttons are displayed: 'Login', 'Cancel', and 'Register'. A small note at the bottom center states: 'If you are having difficulty logging in after attempting a password reset, please send an email to eprase@newcastle.nimicrosoft.com'.

Clicking **Register** opens the full user registration page.



### Register

To register with the ePRaSE system, please provide the following information.

Please enter an "nhs.uk" or "nhs.net" email address.

E-mail Address:

Select your NHS trust.


Select Institution:

Choose a password.

Password

Re-enter Password:

Please enter your NHS email address, select your institution and create an account password. Please keep a record of your password securely. Click the Register button to confirm. You will be directed to the login page where you will be able to login with your email and password. Once successfully logged in, you will see the ePRaSE home page.



## Welcome to the ePRaSE Assessment

The following assessment is designed to evaluate the performance of an e-prescription system against a range of indicators.

The ePRaSE assessment will be repeated annually.

### Instructions

The assessment comprises 4 parts. You will be asked to admit a series of test patients to hospital's admissions system and then to prescribe a series of medications to those patients. You will then be asked to provide feedback about any advice or intervention from the system.

Disclaimer: these patients have been designed to support the test tool and may not necessarily resemble real life. Please enter all information exactly as presented.

### 2022 ePRaSE Assessment

The original ePRaSE assessment was released in July 2019.  
To take part in the current ePRaSE assessment, click the button below.

Your organisation ASSESSMENT STATUS is : Not Started

[Begin 2022 Assessment](#)

[About](#) [Instructions](#) [Reports](#) [User Guide](#) [Contact](#) [Logout](#)

The home page has a bottom button bar which will produce pop-up windows for **About**, **Instructions** and **Contact**. The **Reports** button will take the user to any existing institutional reports. Example of the Contact pop-up below.



Click on the '**Begin 2022 Assessment**' button to start. Any progress you (or another user registered with your institution) may have made on the assessment so far, will show in the ASSESSMENT STATUS line highlighted above the button.

## 2022 ePRaSE Assessment

The original ePRaSE assessment was released in July 2019.  
To take part in the current ePRaSE assessment, click the button below.

Your organisation ASSESSMENT STATUS is : Not Started

Begin 2022 Assessment

In the case below, progress has already been made on the 2022 assessment and clicking Continue 2022 Assessment will take the user to the stage in the assessment where additional patient data is entered.

Your organisation ASSESSMENT STATUS is : Create Patients Complete

Continue 2022 Assessment

At the start of the assessment the first stage is to enter details about your ePrescribing system. Some of the questions appear conditionally on the previous question being selected as 'Yes'.

## EP System Information

Please answer the following questions about your ePrescribing system:

Which electronic prescribing (eP) service are you using? \*

EPIC ▾

What version of the service are you currently using? \*

2021

Approximately what percentage of inpatient prescription orders are prescribed through the eP system across your organisation? \*

51-75% ▾

Are there other e-prescribing systems in use in the organisation? if so, please provide their names.

No

**Is your hospital laboratory results system fully integrated with your e-prescribing system? \***

Yes ☒ No ☐

► Are you able to manually enter laboratory results into your patient admin and/ or e-prescribing test system that you are using to do this assessments?

Yes ☐ No ☐

**Are you able to manually enter diagnosis and medical history into your test system? \***

Yes ☒ No ☐

► Are you able to enter diagnosis or comorbidities into your test system that you are using to do this assessments?

Yes ☐ No ☐

Below these required questions are checkboxes that ask about the ePrescribing system in more general terms.

Is the e-prescribing system used to prescribe the following?

- ☐ Warfarin
- ☐ Insulin
- ☐ Fluids
- ☐ Oxygen
- ☐ Patient controlled analgesia (PCA)
- ☐ Continuous infusions
- ☐ Parenteral nutrition
- ☐ Enteral nutrition
- ☐ Nutritional supplements (not classed as a medicine)
- ☐ Medicines undefined with the catalogue (free text function)

Is the e-prescribing system used in the following areas?

- ☐ Adult Critical Care
- ☐ Paediatric Critical Care
- ☐ A & E
- ☐ Chemotherapy
- ☐ Outpatients
- ☐ Community Beds
- ☐ Day Cases
- ☐ Clinical Trials
- ☐ Intermediate Care

The following section shows your auto-generated patient set. This will consist of 15 adults. Only basic information about the patients is supplied at this stage.

## Assessment Patient Preparation

In preparation for the assessment, please complete the following tasks:

### Patient Data

Please admit the following test patients into your hospital's patient admissions system (or a test environment).

Populate any other mandatory fields with appropriate self-generated information. When you are done, click **Next** to continue.

Name	Date of Birth	Gender
Jamil zzzPatel	10/01/1936	male
Gerald zzzMcEwan	16/05/1950	male
Roberta zzzKelso	19/07/1949	female
Robert zzzWarren	11/04/1952	male
Ada zzzRowell	19/03/1985	female

It is important to click the **Done** button at the bottom of the page, to save this set of patients to your institution's 2020 assessment.

In the next stage, more details about each patient must be entered. Ideally, do this a day ahead of the actual assessments and enter any system information in the form of alerts or difficulties into the text box provided.

## Patient Information


Please enter the following patient information into your EP system.

Prescribe any medication listed below using your usual prescribing process. Populate any other mandatory fields with appropriate self-generated information.

When you are done, click **Next** to continue.

### Jamil zzzPatel

(Patient 2 of 15)



#### Demographics

Height (m): unavailable

Weight (kg): 88

#### Allergies

No Known Drug Allergies

#### Presenting Complaint

Pulmonary embolism

#### Comorbidities

Parkinson's disease

To optimise the use of this tool please record ALL types of guidance that appears on your system screen

Please note any interventions from the system...

*If possible, you need to add clinical information for each patient onto your system – you may need assistance from other individuals in your organisation.*

*Please read and enter carefully all information exactly as presented.*

*Check everything has been entered correctly.*

*Record any system alerts or difficulties you experience when completing this stage*

Once you have worked through the 15 patients, the **Next** button will change to a **Done** button. Make sure you click this to save your progress through the application.

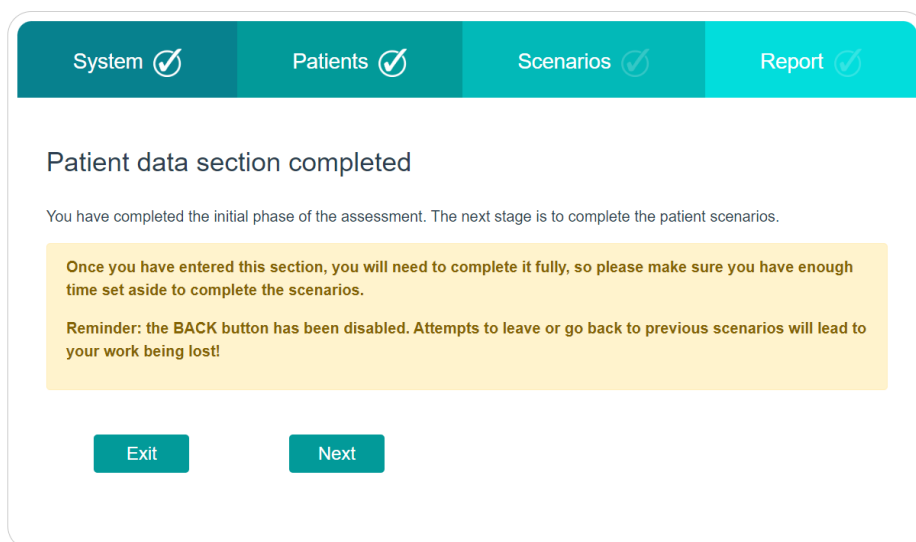
Please ensure you click the Done button to save your progress

Done

You are now nearing the scenarios stage of the assessment and will be taken to a page with a timer counting down. You can wait with the browser open until the **Next** button is activated, or exit the application. If you leave and log back in later, you will be fast tracked



to this page. It is important to set aside enough time to work through the scenarios, as once started, the section must be completed fully.



System ✓ Patients ✓ Scenarios ✓ Report ✓

### Patient data section completed

You have completed the initial phase of the assessment. The next stage is to complete the patient scenarios.

Once you have entered this section, you will need to complete it fully, so please make sure you have enough time set aside to complete the scenarios.

Reminder: the BACK button has been disabled. Attempts to leave or go back to previous scenarios will lead to your work being lost!

Exit Next

### Prescribe test scenarios

In the final stage of the application you are presented with a series of tests. Tests should be carried out in 'Consultant' status to avoid formulary issues.

There are 45 scenarios to complete, plus 2 free format questions. In each test you are presented with a specified patient name from the previously set up group of patients. Select the appropriate patient from your test environment and prescribe the medication as detailed in the scenario presented. Record the relevant advice or information that you receive while completing the task. Once you have clicked **Next**, you will not be able to return to this page again.

To avoid complicating system responses, please discontinue the prescription order before proceeding to the next scenario.

## Assessment Scenarios

Please follow the instructions for each scenario.

### Test 1

Prescribe the following medication to the specified patient using your normal prescribing practice, then answer the questions below.

Patient: Janet zzzFraiser

DOB: 13/09/1963

Drug	Dose	Route	Frequency	Duration
Daptomycin	1g	infusion, intravenously	every 24 hours	14 days

Indication

cellulitis

### Questions

Which of the following best describes the response from the system when you attempted to prescribe the specified drug?

- ☒ You were able to complete the prescription (includes followed order sentence) *without any additional user or system input*. i
- ☐ You were able to complete the prescription, *but had to override components of the order sentence*. i
- ☐ You were able to complete the prescription, *with system/user intervention*. i
- ☐ Prevented from prescribing
- ☐ Medicine or formulary alternative not available in the system

Please discontinue the prescription order before proceeding to the next scenario.

Next

Choose this option if medication is unavailable

Select a response from the options provided. Click on the icon to see further information on those options

The drug being prescribed may require an antibiotic rationale. If this is the case, this information is also given. If a drug is unavailable in the system, please choose the last option.

Patient: Thomas zzzWellbrooke

Drug	Dose	Route	Frequency	Duration
Cefuroxime	1.5g	injection, subcutaneously	Every 8 hours, three times a day	5 days

Antibiotic rationale

chest infection

Use this indicator

## Accessing tooltips

Questions

Which of the following best describes the response from the system when you attempt to prescribe a specified drug?

- ☐ You were able to complete the prescription (includes followed order sentence) *without system input.* i
- ☐ You were able to complete the prescription, *but had to override components of the system.* i
- ☐ You were able to complete the prescription, *with system/user intervention.* i
- ☐ Prevented from prescribing
- ☐ Medicine or formulary alternative not available in the system

Please discontinue the prescription order before proceeding to the next question.

Next

Tip: You placed the order and received some system advice or information in relation to allergies, abnormal lab results, dosing, route, age of patient, therapeutic duplication, monitoring, or contraindication or something other, that required you to take some action in order to continue. Please tell us more about what happened, using the tick box option descriptions provided and / or the freehand comments box that will appear when you select this response option.

If the system response option selected is 'You were able to complete the prescription, **with system/user intervention**', further form fields will appear on the page as shown below. This is to provide the option of giving intervention feedback. It will be necessary to select an intervention of type 'Alert', 'Advisory' or 'Both' before proceeding. The checkboxes and input box are optional.

**Advisory:** Information is provided which does not interrupt workflow or require action.

**Alert:** Information is provided which interrupts work flow and / or requires action (pop-up boxes or requiring password entry).

You have received advice or information concerning (check all that apply).

- ☐ Drug and patient age 
- ☐ Drug dose level 
- ☐ Drug formulary 
- ☐ Drug interaction 
- ☐ Drug allergies 
- ☐ Drug duplication 
- ☐ Drug disease 
- ☐ Drug omissions 
- ☐ Therapeutic duplication 
- ☐ Lab results/monitoring/TDM 
- ☐ Drug brand 
- ☐ Incorrect route 
- ☐ Missing field alert 

Please indicate whether intervention was an alert or advisory:

▼

☐ Alert  
☒ **Advisory**  
☐ Both

Advisory: Information provided which does not interrupt workflow or require action.

**Alert:** Information provided which interrupts work flow and/or requires action (pop-up boxes or requiring password entry).

Choose one of these options

There will be some **free format** questions appearing in the assessment sequence. These are simple yes or no answered questions. Please respond appropriately before moving onto the next patient scenario.

**NOTE:** the tool includes some '*deception analysis*' which checks for false positives. E.g. orders that should not have generated any warning or alerts in the hospital's EP system.

Continue to work through the scenarios until all the tests are completed, indicated by the **Done** button appearing.

Click **Done** to continue to the **Assessment Report** page

## Assessment Report

The assessment report consists of a table based summary and accompanying charts that give a more detailed analysis of the questions and their results.

Category	Outcome
Extreme risk scenarios	You have completed 1 extreme risk scenario(s). Out of these, 1 was(were) mitigated.
High risk scenarios	You have completed 36 high risk scenarios. Out of these, 31 were mitigated.
Alerts/Advisory interventions	You had a total of 1 alerts and 3 advisory out of 4 interventions, where a system/user intervention was selected. This would be considered a low level of alerts (25.0%). A high level of alerts can indicate an over-reliance on alerting within a system.
Config Errors	You were questioned about 2 configuration errors.

Extreme risk summary

User/system Interventions summary

Linked from this page are various charts that give a breakdown of EP system responses to the scenarios.

- 1) Results by category and percentage
  - a) The number in brackets next to each category indicates the number of questions taken in that category
  - b) Mitigation percentages relate to the questions in each category
  - c) All category percentages relate to all of the valid tests in all categories
- 2) EPMA risk mitigation chart
- 3) Percentage response by error category

Mitigation groups

All category percentages

## Results by category and percentage

Category	Good mitigation/Pass	Some mitigation	Not mitigated	Over mitigated
Drug Age (1)	100.0% (1/1)	0.0% (0/1)	0.0% (0/1)	0.0% (0/1)
Drug Dose (11)	63.6% (7/11)	9.1% (1/11)	9.1% (1/11)	18.2% (2/11)
Drug Interaction (8)	100.0% (8/8)	0.0% (0/8)	0.0% (0/8)	0.0% (0/8)
Drug Allergy (4)	75.0% (3/4)	0.0% (0/4)	25.0% (1/4)	0.0% (0/4)
Drug Duplication (2)	100.0% (2/2)	0.0% (0/2)	0.0% (0/2)	0.0% (0/2)
Drug Disease (7)	85.7% (6/7)	0.0% (0/7)	14.3% (1/7)	0.0% (0/7)
Drug Omissions (3)	66.7% (2/3)	0.0% (0/3)	33.3% (1/3)	0.0% (0/3)
Therapeutic Duplication (4)	100.0% (4/4)	0.0% (0/4)	0.0% (0/4)	0.0% (0/4)
Drug Lab (3)	100.0% (3/3)	0.0% (0/3)	0.0% (0/3)	0.0% (0/3)
Drug Brand (2)	50.0% (1/2)	0.0% (0/2)	50.0% (1/2)	0.0% (0/2)
Drug Route (0)	n/a (0/0)	n/a (0/0)	n/a (0/0)	n/a (0/0)
Drug Overdose (0)	n/a (0/0)	n/a (0/0)	n/a (0/0)	n/a (0/0)
Drug Frequency (0)	n/a (0/0)	n/a (0/0)	n/a (0/0)	n/a (0/0)
<b>All Categories *</b>	<b>Total : 82.2%</b>	<b>Total : 2.2%</b>	<b>Total : 11.1%</b>	<b>Total : 4.4%</b>

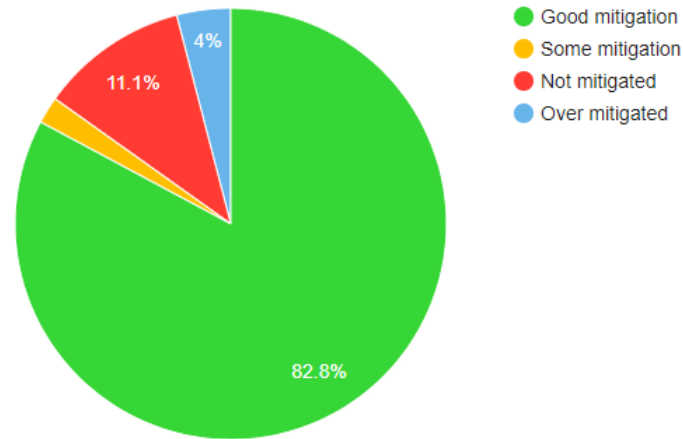
\* All categories (Good/Some/Not/Over) calculated as a percentage of the total valid tests, not an average of the previous columns

Individual categories with number of relevant questions taken within that group

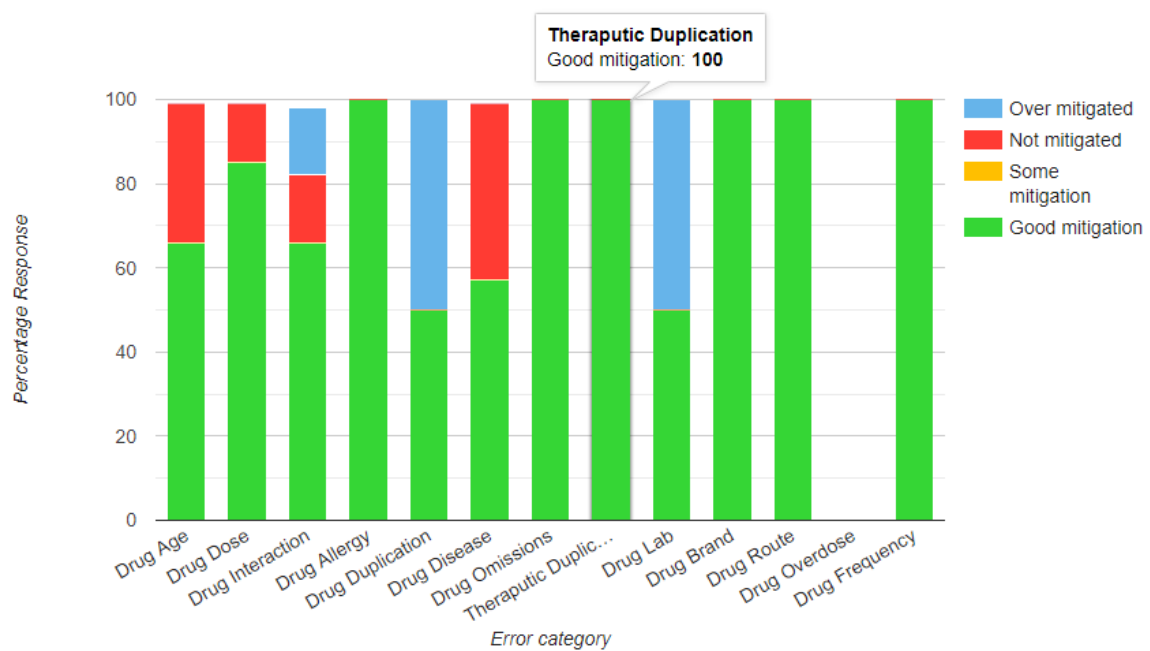
Overall mitigation results for all categories with valid tests

The **overall** mitigation results are shown as pie chart sections.

EPMA Risk Mitigation



A bar chart shows the mitigation percentage breakdown by category. Empty columns reflect where no questions were available in this category.



Once a report has been completed, it will be available via the **Reports** button on the home page. The assessment is designed to be taken once on a yearly basis. You will have access to your institution's test data only.

Future versions will provide summary charts to allow users to compare their system results with those of other anonymised organisations.

**Disclaimer:** The ePRaSE tool is not intended to provide users with guidance about its implementation of electronic prescribing systems. It is not intended nor should it be considered by hospitals, other NHS agencies, patients, or any other users of the test results as a comprehensive audit or verification of the prescribing system.

The tool is offered on an as-is basis and the Newcastle upon Tyne Hospitals NHS Foundation Trust and Newcastle University do not warrant or guarantee the accuracy or rigor of the protocols or implementation of the tool or its use by hospitals and testers.



## Appendix

## Laboratory tests

<b>Test</b>	<b>Reference range</b>	<b>Units</b>
Platelets	150 - 400	x 10 <sup>9</sup> /L
INR	< 1.3	
Potassium	3.5 - 5.0	mmol/L
Urea	2.0 - 7.5	mmol/L
Creatinine	70 - 150	micromol /L
eGFR	> 90*	ml / min
<b>* Stage of chronic kidney disease (CKD)</b>		
stage 1 (G1) – a normal eGFR above 90ml/min, but other tests have detected signs of kidney damage		
stage 2 (G2) – eGFR 60 to 89ml/min, with other signs of kidney damage		
stage 3a (G3a) – eGFR of 45 to 59ml/min		
stage 3b (G3b) – eGFR of 30 to 44ml/min		
stage 4 (G4) – eGFR of 15 to 29ml/min		
stage 5 (G5) - eGFR below 15ml/min		
<b>Potassium 5.3</b>		