"Helping us optimise our systems"

User Guide

For the ePrescribing Risk and Safety Evaluation Tool

PLEASE NOTE: This is an annual assessment that can only be completed once each year by an individual Trust. It is not possible to access the tool multiple times and overwrite previous attempts.

Introduction

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

The tool provides a set of 15 'fictional' patients which users set up in their live or test prescribing environments and then provides a set of 45 prescribing test scenarios to challenge their system responses to risk. There is also some additional direct configuration questions randomly spread through the scenarios to assess basic safety features in the build of the users ePrescribing system. The performance of the prescribing system to both the risk scenarios and configuration questions is provided in real time with a text-based report and accompanying visuals. The report is intended to guide and assist ePrescribing system users and new implementers on where their system is performing well or less well in mitigating prescribing risks. With the aim of supporting ongoing optimisation of their systems.

Version 2024 is suitable for all sites actively using electronic prescribing systems for adult patients.

Only one system can be tested at this time. We recommend users select their most used EP system. This is only the third iteration of the ePRaSE tool, and we have not yet developed the capability to accommodate organisations that may have more than one ep system in use. These are being considered for future versions.

Version 2024 creates a Trust report, against which up to four users from the same Trust can register.

Accessing ePRaSE and registering for the first time

Access ePRaSE and register for the first time via **https://eprase.nhs.uk**

ePRaSE Tool version 2024 is accessible to registered users with nhs.uk or nhs.net emails accounts.

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

The tool can only be accessed from within an NHS network (HSCN), there is no 'public' access from anywhere (unless users are remotely connected to the NHS network). This means that unless users have remote access set up from a device they cannot use at home, access will be limited to inside work locations. If users are at a work location and still unable to get access, they will need to log a ticket with their IT support team and get them to check if there is a firewall blocking the domain.
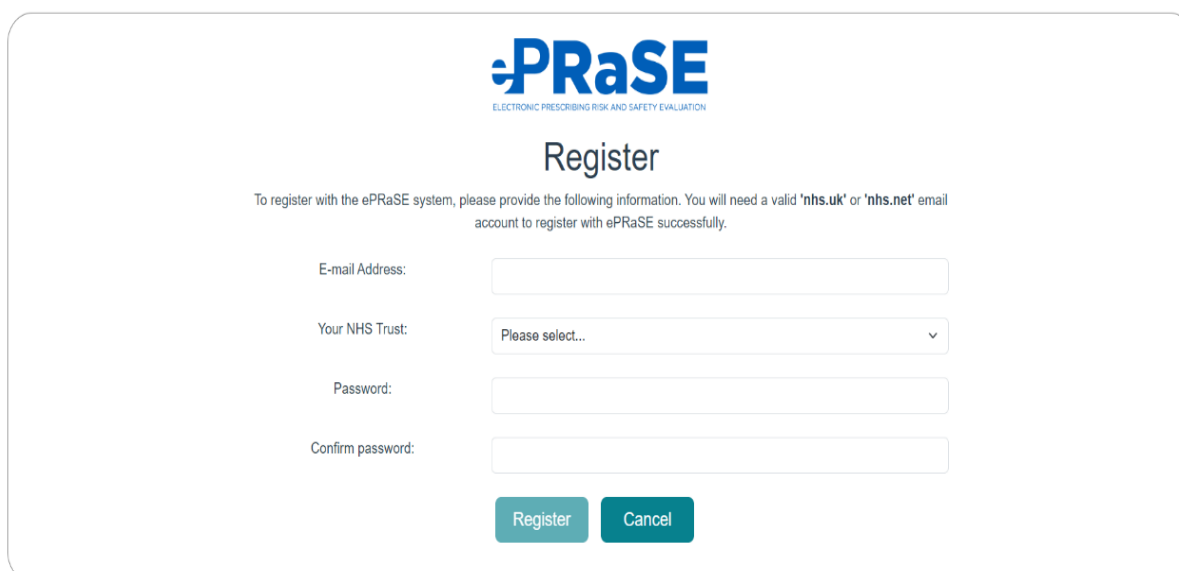
If users are registering for the first time for the **2024** version of the tool, click the **Register** button, otherwise they enter the login details which will take them directly to the home page. Up to four users with individual email accounts may register with one Trust. All Trust users will then work with the same patient set.

Note: The ePRaSE tool has been completely refreshed and all users will have to newly register even if they have signed up to the previous version.

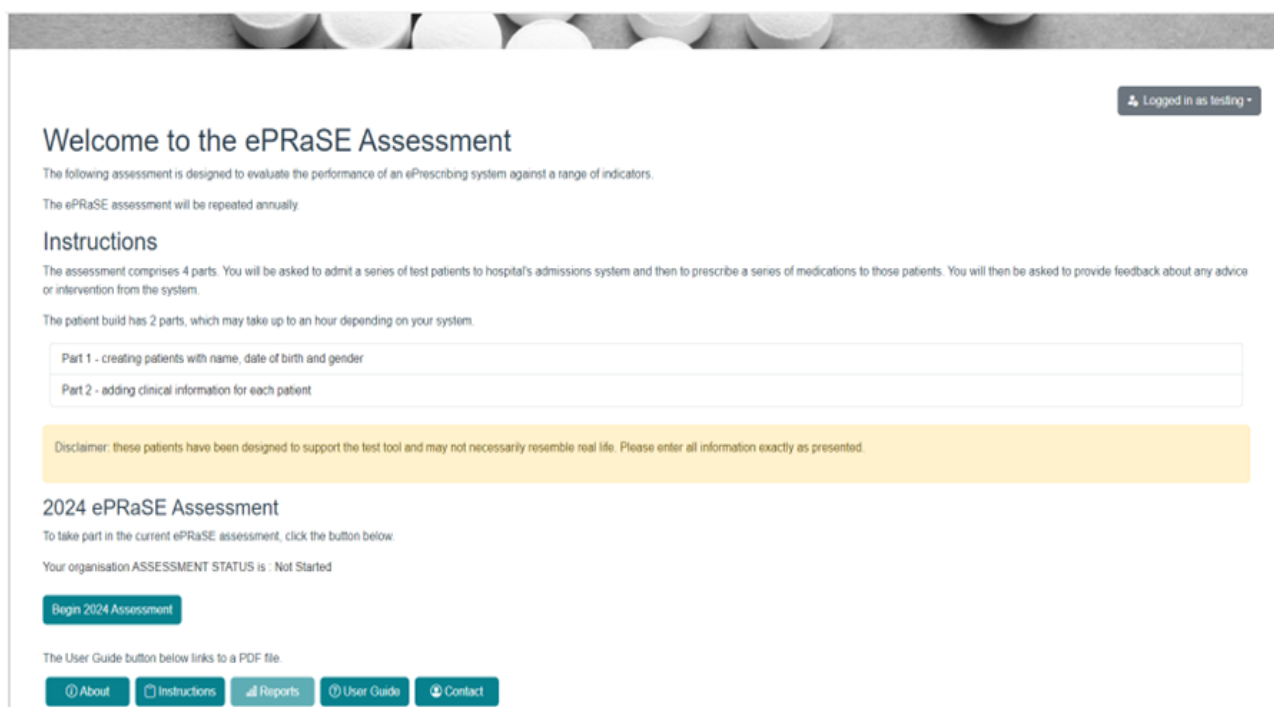Clicking **Register** opens the full user registration page.

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

Note: Page load times – some pages in the application require data to be pulled from the underlying database. Please be patient and give pages a little time to load fully.
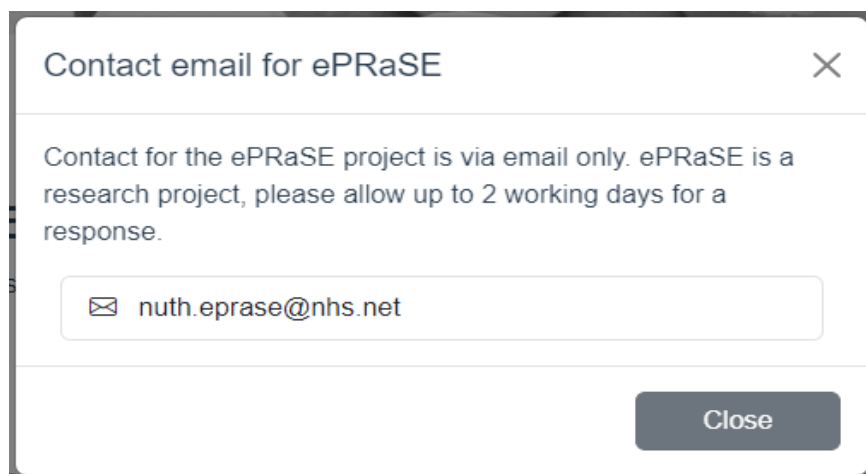
EPRaSE homepage

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 Trust reports.

Example of the Contact pop-up below. This provides the email address to be used for any queries related to the tool or ePRaSE Programme.
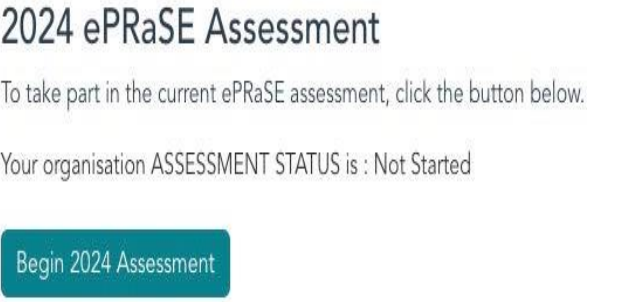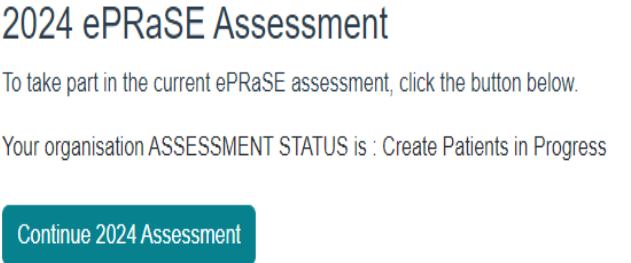
Begin the 2024 ePRaSE Assessment

Click on the **'Begin 2024 Assessment'** button to start. Any progress users (or another user registered with the Trust) may have made on the assessment so far, will show in the ASSESSMENT STATUS line, highlighted above the button. See examples below.

Description	Screen shot
User is the first user for that Trust and the assessment set up has not started.	**2024 ePRaSE Assessment** To take part in the current ePRaSE assessment, click the button below. Your organisation ASSESSMENT STATUS is : Not Started [Begin 2024 Assessment]
Some progress has already been made on the 2024 assessment and the patient data has been partially or fully entered. Clicking 'Continue 2024 Assessment' will take the user back to the patient creation stage or if that is complete to the scenarios stage of the assessment.	**2024 ePRaSE Assessment** To take part in the current ePRaSE assessment, click the button below. Your organisation ASSESSMENT STATUS is : Create Patients in Progress [Continue 2024 Assessment]

Going forward users will see a progress bar at the top of the screen which will be marked with a tick when each section is completed, as illustrated below.

⊘System	Patients	Scenarios	Report

Progress bar

Getting started with recording your system information

At the start of the assessment the first stage is to enter some details about the user's ePrescribing system. Some of the questions are mandatory denoted by an Asterix and some appear conditionally based on the response to the previous question being selected as 'Yes.' Examples of some of the questions are shown below.

EP System Information
Please answer the following questions about your ePrescribing system:

Which electronic prescribing (eP) system are you using? *	Select system...
Local name for the e-Prescribing system, if different from the official name?	
When (month/year) was current eP system implemented? *	Select month/year
When (month/year) was current eP system last updated? *	Select month/year
How many WTE maintain the drug catalogue and prescribing decision support for this system? *	
Approximately what percentage of inpatient prescription orders are prescribed through the eP system across your organisation? *	Select percentage...
Are there other e-prescribing systems in use in the organisation? if so, please provide their names.	Other...

There are also some general checkbox questions that ask about the types of medicines prescribed in the users ePrescribing system and where the system is used across the Trust. Some examples are shown below. Please tick all that apply.

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

- ☑ All medicines (e.g. Licensed / Unlicensed / Formulary)
- ☑ IV Infusions (e.g. Continuous / Intermittent / Complex)
- ☑ Warfarin
- ☑ Heparin
- ☑ Insulin
- ☑ Insulin Sliding Scales
- ☐ Chemotherapy
- ☐ Scheduling system for Immunisations / Vaccinations
- ☐ Antimicrobials

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

- ☐ Accident and Emergency EPMA Accessible i.e. open to view medication records (A&E)
- ☑ Accident and Emergency EPMA being used for prescribing (A&E)
- ☐ Inpatient (e.g. Ambulatory unit, Care of the Elderly, Orthopaedics)
- ☑ Intensive Care Unit (ICU)
- ☐ Theatre
- ☑ Day Cases (e.g. procedures)
- ☐ Outpatients
- ☑ Special Clinics (e.g. Dialysis / Renal)
- ☐ Sexual and Reproductive Health (SRH) services or Genitourinary Medicine Clinics (GUM)
- ☐ Maternity
- ☐ Neonatal

Assessment Patient Preparation

The following section provides user with an auto-generated patient set. This will consist of 15 adults. The patient build has two parts which may take up to 1.5 hours depending on local systems and patient creation / admission process.

- Part 1 - creating patients with name, date of birth and gender

- Part 2 – adding clinical information for each patient

Part 1 patient build

Users are presented with a set of basic details to create patient profiles in their patient admission or ePrescribing system. Build each patient carefully. It is important to follow the normal local operating procedure. If patient information is drawn from PAS into the electronic prescribing system, it is recommended that this is done, even though it is more work.

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 Trust's 2024 assessment.

Part 2 - patient build

Users need to select each of the newly created patients in turn and add additional clinical information into their systems that is presented to them in by the ePRaSE Tool, for the scenarios/test to work correctly.

Please prescribe any current medication listed on the individual patient profiles using your normal prescribing processes.

If any clinical details or laboratory results presented cannot be entered or the user's system generates any alerts or other interruptions during this process, this should be recorded in the text box provided.

Users may need help from individuals or other teams who have the relevant permissions and capability to be able admit /edit patients and prescribe medicines.

Patient Information

Please enter the following 15 sets of patient details into your EP system

You have a further 15 sets of patient details to enter (0 have already been entered)

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 or Previous to view already entered items

Jonathon zzzCrusher
(Patient 1 of 15)

Demographics		Allergies		Current Medication				
Height (m)	1.62	ACE inhibitors (lisinopril) - angioedema		Name	Dose	Route	Form	Frequency
Weight (kg)	55			Senna	15 mg	Oral	Tablet	Once daily at night
				Fentanyl	50 micrograms	Topical	Patch	Every 72 hours

Clinical Data	Presenting Complaint	Comorbidities
None	None	Osteoarthritis

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

System interventions

Please note any interventions from the system...

If possible, users need to add clinical information for each patient onto your system – users may need from other individuals in your Trust.

Please read and enter carefully all information exactly as presented.

Check everything has been entered correctly.

Record any system alerts or difficulties users experience when completing this stage

If users need to break off from this part of the patient build, go to the 'logged in' box and select 'Save progress & log out.'

☑System	Patients	Scenarios	Report

👤 Logged in as stephtest2 ▾

Save progress & log out

Patient Information
You have a further 13 sets of patient details to enter (2 have already been entered)

When users log back in, select **continue 2024 Assessment**, and the tool will return to the point they broke off and provide an updated summary of the number of patients already entered and the number of patients to be completed.

Once users have worked through the two-part build of the 15 patients, the **Next** button will change to a **Done** button. Users must click this to save progress through the application.

Users can continue to the tests or take a break at this stage. If users leave and log back in later, they 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.

Another registered user for the Trust may log in and will be fast tracked to the assessment page, if required.

Prescribe test scenarios

In the final stage of the application, users 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 5 configuration questions. In each test users 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 exactly as detailed in the scenario presented.

Record the relevant advice or information that users receive while completing the test using the prompts provided. Once users have clicked Next, they will not be able to return to this page again.

Note: It is important to discontinue each prescription order in your system before proceeding to the next test scenario.

Assessment Scenarios

You have completed 3 scenarios of 50

Test 4 of 50

Patient: Janet zzzFraiser

Age: 58

Always check users have selected the correct patient

Prescribe the medicine 'exactly' as stated, following your normal processes

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

Drug	Dose	Route	Frequency	Duration	Indication
Daptomycin	1g	infusion, intravenous	every 24 hours	14 days	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** ⓘ

○ You were able to complete the prescription, **but had to override components of the order sentence** ⓘ

○ You were able to complete the prescription, **with system/user intervention** ⓘ

○ Prevented from prescribing

○ Medicine or formulary alternative not available in the system

Please discontinue the prescription order before proceeding to the next scenario

[× Clear] [⊕ Next]

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

Choose this option if medication is unavailable

Note: In some cases, the drug being prescribed may require an antibiotic rationale or indication. If this is the case, this information is also provided. See below.

Duration	Indication
14 days	cellulitis

If a drug is unavailable in the system, please choose the last option.

Accessing tooltips

There are a number of tool tips ℹ️ throughout the tool that can be clicked on provide the user with more information.

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) w~~ithou~~

○ You were able to complete the prescription, **but had to override components o**~~f the o~~

○ You were able to complete the prescription, **with system/user intervention** ℹ️

○ Prevented from prescribing

○ Medicine or formulary alternative not available in the system

> 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 , 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

When recording what users observe to the tests, 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 allow the user to record which clinical decision support category the intervention made would fit into. It will be possible to select 'Alert' and 'Advisory' interventions in all relevant categories, as defined below, before proceeding.

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) s **without any additional user or system input** ℹ️

○ You were able to complete the prescription, **but had to override components of the order sentence** ℹ️

● You were able to complete the prescription, **with system/user intervention** ℹ️

○ Prevented from prescribing

○ Medicine or formulary alternative not available in the system

> If the system were to respond to the challenge, please indicate what category of intervention (e.g. dose, frequency dialogue) and the type of response i.e:
>
> **Alert** - information is provided which interrupts work flow and/or requires action e.g. pop-up boxes or requiring password entry
>
> **Advisory** - information is provided which does not interrupt workflow or require action e.g. a passive dialogue, maybe a banner message on the bottom of the screen

Intervention (clinical decision support category) options are provided to help describe the intervention observed. Please select no more than two CDS categories. It is important not to over think the selection. We expect it to differ between users, that is the nature of the tool.

There is a free text box under the multichoice clinical decision support categories where users can add any extra information regarding any interventions that have been presented to them.

There will be five general configuration questions appearing in the assessment sequence. These are yes, no, or not applicable 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

Once the assessment has been completed a report will be presented. This can also be available to access via the **Reports** button on the home page. The assessment is designed to be taken once on a yearly basis. Users will have access their Trust's test data only. The report is displayed in three different tabs as shown below.

Pie chart	Test summary	Bar chart

The assessment report consists of a table-based summary and accompanying charts that give a more detailed analysis of the questions and their results. Below is an example of a pie chart provided in the pie chart tab when completing the assessment.

Overall risk mitigation performance results

- Not mitigated
- Good mitigation
- Some mitigation
- Over mitigated
- Invalid tests
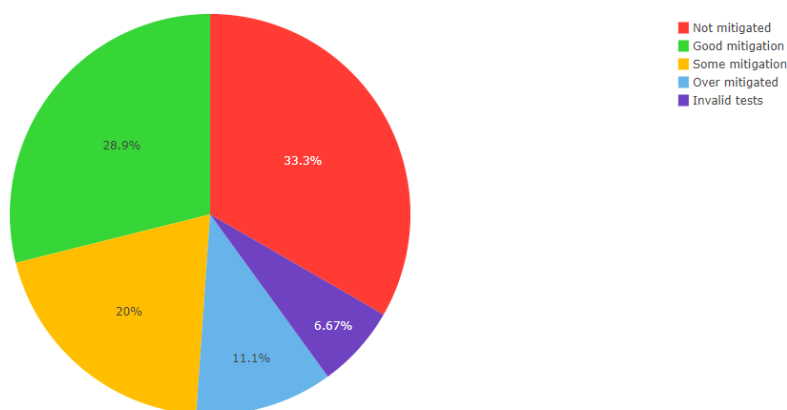
A reference mitigation scoring matrix is provided in the report to help users understand what the pie chart data shows.

Prescribing User scenarios recorded risk level system response	Prescribing scenarios risk level		
	Extreme risk	**High risk**	**Low / no risk (control)**
Prescription completed with no-intervention	No Mitigation	No Mitigation	Good Mitigation
Prescription order-prevented	Good Mitigation	Over Mitigation	Over Mitigation
Prescription completed, but user had to override 'order-set / order sentence'	Some Mitigation	Some Mitigation	Over Mitigation
Prescription completed, with system/ user intervention such as alerts or advisory pop-ups	Some Mitigation	Good Mitigation	Over Mitigation

Printable PDF Report

Within the test summary tab there will be a table summary that covers the numbers of high-risk prescribing scenarios and alert/advisory interventions completed. There are also sections that covers extreme risk scenarios and configuration questions both with supportive guidance based on test outcomes.

Any extreme risk scenarios not mitigated correctly by the user system will be reported in detail to allow remedial action to be taken.

Total valid tests (not including configuration tests): 44
Total of tests that were excluded due to medication not being available: 1

Category	Outcome
High risk scenarios	You have completed 33 high risk scenarios. Out of these, 19 were mitigated.
Alerts/Advisory interventions	You had a total of 8 alerts and 7 advisory out of 44 total valid tests, where a system/user intervention was selected. This would be considered a low level of alerts. A high level of alerts can indicate an over-reliance on alerting within a system.

Within the bar chart tab there will be a stacked bar chart showing the mitigation scores within each CDS category.

Overview of mitigation scores within clinical decision support (CDS) categories
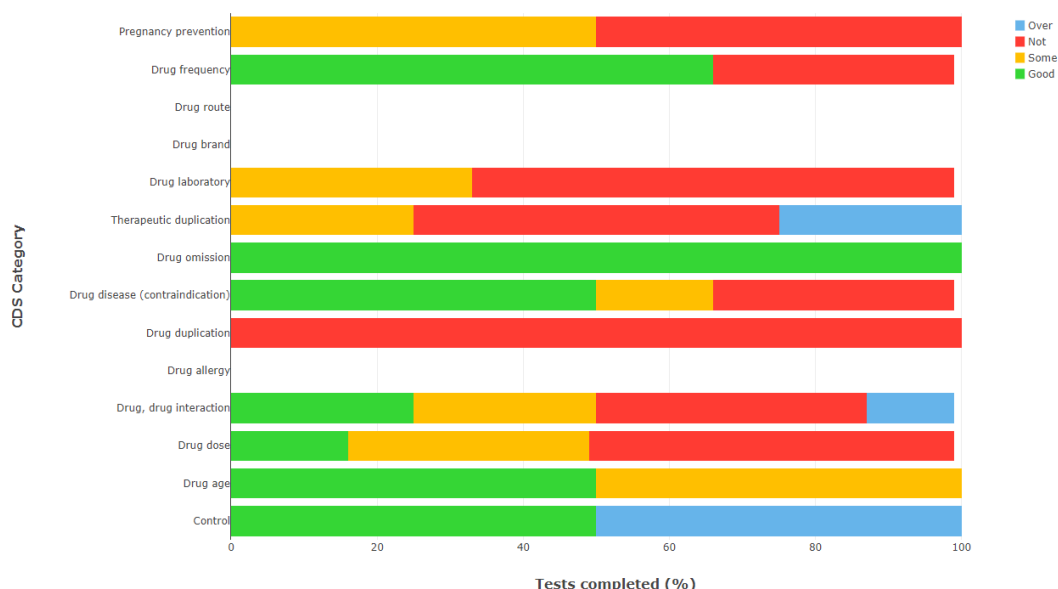
The user can hover over each coloured section of the stacked bar chart to see the mitigation result and number of questions completed within each CDS category, as illustrated below. Note: This data is only visible in the live tool and will not appear on print outs.

Overview of mitigation scores within clinical decision support (CDS) categories

The full report can be printed and saved as a PDF file.
To print out the report scroll to the bottom of the report and click the tab shown below.

📄 **Printable PDF Report**

Once selected it will open a new tab and present all the contents of the report on one screen. Scroll down again to the bottom of the report and select the preview button.

🖨 **Preview**

You will then be presented with a preview print of the report where you can select your printer. Please ensure that the appropriate format is selected i.e. landscape so that the report can be presented clearly and avoiding information being cut off the screen and press print.

If you are wanting to save the report as a PDF file, then follow the first two steps again for printing the report however in the printer selection find save as PDF then click save. Again, making sure that the layout is set to landscape.

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 Reference

Test	Reference range	Units
Platelets	150 - 400	x 10 ^{9}/L
INR	< 1.3	
Potassium	3.5 - 5.0	mmol/L
Urea	2.0 - 7.5	mmol/L
Creatinine	70 - 150	micromole /L
eGFR	> 90*	ml / min
* Stage of chronic kidney disease (CKD)		
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		