Testing
CKD calculator
(Team 33)
NephroTrack

This document outlines the testing strategy and detailed results for the NephroTrack CKD Risk Calculator, developed by Team 33 under SDP Plc. Our testing was designed to verify functionality, usability, performance, security, and platform compatibility in line with client requirements and NHS data protection expectations. Each test case was derived from key features identified during user story analysis and validated against user roles (clinician and patient), expected workflows, and critical safety considerations. Particular emphasis was placed on verifying eGFR calculation accuracy, input validation, role-based access, and edge case handling. This table summarises outcomes across all core features and includes both current test coverage and if any proposed enhancements.

Test Number		Test Description	Expected Outcome	Type	Actual Outcome	Actions
		Validate correct eGFR calculation based on patient input	The system correctly calculates eGFR and displays the result	Functional	The system shows the risk (as a number) of CKD, as well as correctly calculating eGFR and displaying result	None
2		Ensure the system handles invalid input (e.g., negative age, missing values)	The system displays appropriate error messages	Functional	The system displays clear, context-specific error messages and prevents submission of invalid data	None
3		Check UI functionality (buttons, dropdowns, graphs)	UI elements work as expected	Functional	All buttons, dropdowns, and graphs respond correctly, with graphs updating instantly when interacted with	None
4		Test login authentication and role-based access	Only authorised users can access the system	Security	Authorised users can access the system without issue	None
5		Evaluate data encryption for patient records	Patient data is securely stored/encrypted	Security	All patient data are stored and transmitted meeting NHS security requirements	None
6		Check usability for clinicians (ease of use, accessibility)	Clinicians can easily navigate and use the system	Usability	Clinicians can navigate the interface intuitively and complete a full risk assessment in under one minute	None
7		Test system performance	The system remains	Performance	The system remains responsive and	None

		with high data load	responsive and does not crash		stable, with sub-second response times under a simulated peak load.	
8		Verify compatibility with different devices and NHS software	The system functions correctly across platforms	Compatibility	The system functions correctly across devices, with slightly smoother scrolling and graph rendering observed on Android	None
9		Assess handling of edge cases (extreme values, rare conditions)	The system processes all cases correctly	Functional	The system processes all extreme and rare cases correctly, returning clinically appropriate results without miscalculation	None
10		Check for brute-force login attempt blocking	System detects and blocks excessive failed login attempts	Security	Login interface locks after 5 failed attempts	None
11		Validate uploaded CSV structure (column order and data types)	System flags incorrect or malformed CSV	Functional	Upload is rejected with clear error message if headers or data types don't match expected format	None
12		Test paediatric user redirection	Users under 18 redirected to paediatric calculator notice	Functional	System detects underage input and redirects to a message explaining paediatric calculator is required	None