

e_Dialysis Clinical Systems

QA Test Plan

Version: <3.1>

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Test Plan

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1 DOCUMENT ACCEPTANCE AND SIGN-OFF

By signing below, I acknowledge that I have read the entire contents of this document and accept the document in this form as reasonably fulfilling the goals described in the section titled Document Purpose. I further agree that this will constitute the document of record and cannot be changed without review and acknowledgement of the groups shown below:

Group / Role	Approver Name	Approver Signature	Date Approved
Quality Assurance	Vaishnavi	Vaishnavi	12/02/2024
Quality Assurance	Shrushti	Shrushti	12/02/2024

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2 REVISION HISTORY

Document/Department Editor: Shrushti and Vaishnavi			
Date	Revision #	Editor	Description of Change
06/02/2024	1.2	Shrushti	Revised test plan post Design and Functional Requirements Review.
06/19/2024	1.3	Shrushti	Update following User Story Reviews.
06/30/2024	1.4	Shrushti	Incorporation of feedback from Test Plan and Test Cases Review.
07/15/2024	1.5	Vaishnavi	Pre-Sprint test cases review and updates.
09/11/2024	2.0	Vaishnavi	Post-Performance & Load Testing revisions.
10/02/2024	2.1	Shrushti	Adjustments after Pilot Release.
11/01/2024	3.0	Vaishnavi	Final QA Test Plan post full deployment.
12/01/2024	3.1	Vaishnavi	Additions from Project Retrospective feedback.

3 Introduction

3.1 PURPOSE

The purpose of this Test Plan is to describe the overall strategy, approach, and execution plans for testing the e-Dialysis Clinical Systems project. It outlines the scope of testing, the types of testing to be performed, the testing schedule, resource requirements, and the criteria for determining successful test completion. This document serves as a comprehensive guide for the testing team, stakeholders, and other project personnel involved in the quality assurance process, ensuring a structured and consistent approach to validating the system's functionality, performance, and adherence to specified requirements.

3.2 PROJECT OVERVIEW

The e_Dialysis Clinical System project focuses on improving patient care management through a new software solution that handles admissions, treatments, lab results, and billing for dialysis patients, replacing an older system.

4 Scope

4.1 IN-SCOPE

Testing will cover all patient admission processes, treatment protocols, lab order processing, financial transactions, and system reconciliation functions.

Specify interfaces, process, workflow, vendor integration.

4.2 OUT-OF-SCOPE

Features and conditions not supported by the current system version, such as integrations with external systems not listed in the requirements.

5. Testing Strategy

4.3 TEST OBJECTIVES

Objectives: The system accurately manages patient data during admission, treatment, and discharge.

The integration of laboratory results into patient records is seamless and error-free.

Billing and claims processing are handled efficiently, with correct data flow to financial systems.

The system's performance is robust under various load conditions.

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User interfaces are intuitive and meet end-user requirements.

Tasks and Responsibilities: Vaishnavi and Shrushti will develop detailed test cases based on the system's functional requirements.

Execute Tests: Both team members will execute test cases, record results, and document any deviations from expected outcomes.

Defect Reporting and Retesting: Any issues found will be reported and tracked. Retesting will be done post-fix to ensure resolution.

Performance Testing: The team will assess the system's behavior under load to ensure it meets performance benchmarks.

Test Summary Reporting: Upon completion of testing activities, a summary report will be provided outlining the outcomes and any risks associated with release.

4.4 RISKS & ASSUMPTIONS

Risks/Assumptions	Mitigation
Delays in development affecting the testing schedule.	Increase communication with the development team and adjust the testing schedule to account for slippage. Implement agile testing methods to test features as they become available.
Inadequate test coverage due to complex system interactions.	Utilize risk-based testing to prioritize features and functions based on their importance and likelihood of failure. Expand test cases based on these priorities.

4.5 DATA APPROACH

In QA environments, we use anonymized, representative data for functional testing and scenario-specific data for user acceptance testing to ensure comprehensive coverage and relevance. Data is regularly updated to mirror production changes.

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4.6 TYPES OF TESTING

Test Type	Description	Responsible Parties
Unit Testing	To be conducted by developers pre-QA handoff.	Development team
Functional Testing	To ensure all features work as intended.	Both Development and QA
User Acceptance Testing	Conducted with stakeholders to validate the system meets business needs.	QA team
Performance Testing	To assess system behavior under load.	QA team

4.7 UNIT TESTING

Basic functionality of each module (Patient Admission, Patient Treatments, Lab Orders and Results, etc.)

Participants:

Tester's Name	Department/ Area	Role
Developers	Development Team	To perform initial testing on their code to ensure each unit functions correctly before integration.

4.8 FUNCTIONAL TESTING

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Complete functionality of the e_Dialysis Clinical System, including all patient interactions, data processing, and reporting features.

Participants:

Tester's Name	Department/ Area	Role
Vaishnavi, Shrushti	QA	Testers

4.9 USER ACCEPTANCE TESTING

End-to-end business processes as experienced by end-users to ensure the system meets business requirements.

Participants:

Tester's Name	Department/ Area	Role
Business Analysts, End-User Representatives	Business Analysis, User Groups	Test Manager Review and sign off on functionality to ensure it meets user expectations and requirements.

4.10 REGRESSION TESTING

All system functionality after code changes, enhancements, or fixes to ensure new updates have not adversely affected existing functionality.

Participants:

Tester's Name	Department/ Area	Role
Vaishnavi, Shrushti	QA	To re-run existing test cases and verify that previously developed and tested software still performs after a change.

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4.11 PERFORMANCE TESTING







System performance under load, including response times, throughput rates, and stability under various load condition.

Participants:

Tester's Name	Department/ Area	Role
Performance Test Engineers	Performance Testing Team	To verify that the system meets performance criteria and can handle expected and peak loads.

5 Execution Strategy

5.1 QA ENTRANCE CRITERIA

QA Entrance Criteria	Test Team	Technical Team	Notes
Test environment(s) is available	 Verify accessibility and readiness of test environments.	 Ensure environments are correctly configured and deployed.	Note delays or issues in setup.
Test data is available	 Confirm availability and completeness of test data.	 Prepare and provide required data sets, ensuring data integrity.	Use synthetic data if necessary.
The code has been merged successfully	 Check for build stability and integration issues.	 Execute merge operations and resolve conflicts.	Monitor for continuous integration results.

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5.2 QA EXIT CRITERIA

Exit Criteria	Test Team	Technical Team	Notes
100% Test Scripts executed	✓ Ensure execution of all planned tests.		Check coverage reports and logs for completeness.
90% pass rate of Test Scripts	✓ Validate that at least 90% of tests pass successfully.		Consider the impact of failed tests on product quality.
No open Critical and High severity defects	✓ Confirm that no critical/high defects are outstanding.	✓ Address any remaining critical/high issues.	Prioritize defects for upcoming releases.
All remaining defects are either canceled or documented as Change Requests for a future release	✓ Triage remaining defects to determine disposition.	✓ Document agreed-upon change requests.	Ensure traceability of deferred defects.
Test environment cleanup completed and a new backup of the environment	✓ Perform cleanup tasks and validate environment state.	✓ Create backups and restore points for the environment.	Maintain backup logs for audit purposes.

5.3 DEFECT MANAGEMENT

Validation of Test Cases/Scenarios:

- Each test case or scenario must be validated against the requirements and design documents to ensure coverage.
- The test cases must include positive, negative, boundary, and edge cases.

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- Execution results should be documented with evidence, such as screenshots or logs.

Management of Defects:

- Defects discovered during testing should be immediately logged into a Defect Tracker or Spreadsheet.
- Each defect report should include steps to reproduce, expected results, actual results, severity, and priority information.
- Assigned developers must address the defects according to priority, and upon resolution, mark them for retesting.
- It is the tester's responsibility to retest defects promptly and either close them if resolved or reopen them if the issue persists.

Execution and Tracking:

- Testers are expected to execute all scripts in each cycle of testing.
- Defects will be tracked through their entire lifecycle from discovery to closure.
- Consistent communication between testers and developers is essential for efficient defect resolution.

Defects found during the Testing should be categorized as below:

Severity	Impact
1 (Critical)	<ul style="list-style-type: none">▪ Functionality is blocked and no testing can proceed.▪ Application/program/feature is unusable in the current state
2 (High)	<ul style="list-style-type: none">▪ Functionality is not usable and there is no workaround, but testing can proceed
3 (Medium)	<ul style="list-style-type: none">▪ Functionality issues but there is a workaround for achieving the desired functionality
4 (Low)	<ul style="list-style-type: none">▪ Unclear error message or cosmetic error which has minimum impact on product use.

6 Environment Requirements

6.1 TEST ENVIRONMENTS

- Hardware:
 - Servers with specifications equivalent to production servers.

- Software:
 - Operating systems as used in production.
 - Database servers with production-like data sets.
 - Specific versions of browsers and other client software.
 - Required third-party software and utilities.

- Access Control:
 - Permissions: Role-based access to systems.
 - Authentication: Secure protocols for user authentication.

- Security Protocols:
 - Data Protection: Encryption for data in transit and at rest.
 - Patch Management: Regular updates to mirror production security levels.
 - Isolation: Separation from production networks.

7 Dependencies

- Test Item Availability:
 - Availability of software builds or components to be tested.
 - Access to third-party services or APIs that the software integrates with.

- Testing Resource Availability:
 - Availability of qualified testing personnel.
 - Access to testing tools and environments.

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- Deadlines:
 - Project milestones that testing phases must align with.
 - External deadlines, such as regulatory dates or market launch dates.