Electronic Health Record (EHR) System Testing Plan

Template

Provided By:

The National Learning Consortium (NLC)

Developed By:

Health Information Technology Research Center (HITRC)
Iowa Foundation for Medical Care (IFMC)

NATIONAL LEARNING CONSORTIUM

The National Learning Consortium (NLC) is a virtual and evolving body of knowledge and tools designed to support healthcare providers and health IT professionals working towards the implementation, adoption and meaningful use of certified EHR systems.

The NLC represents the collective EHR implementation experiences and knowledge gained directly from the field of ONC's outreach programs (*REC*, *Beacon*, *State HIE*) and through the *Health Information Technology Research Center (HITRC)* Communities of Practice (CoPs).

The following resource is an example of a tool used in the field today that is recommended by "boots-on-the-ground" professionals for use by others who have made the commitment to implement or upgrade to certified EHR systems.

DESCRIPTION & INSTRUCTIONS

This test plan template is intended to aid providers and health IT implementers in planning for EHR and other health information technology (HIT) system testing activities. This template describes the types of tests typically performed on EHRs and HIT.

Although vendor products vary in the complexity of the testing needed, every system must be put through its paces to ensure that data tables and files have been loaded properly, data collected are processed and stored correctly, interfaces work, workflows have been adjusted appropriately, alerts fire correctly, and reports are able to be generated accurately and completely.

These tests should be conducted in a test environment, or separate section of the database that is not in production use. In addition to these tests specific to the application, security testing should also be performed.

Use this template to identify who within the organization will be responsible for performing the tests and tracking the dates the test results were accepted. Although the vendor should be engaged in performing these tests, someone from your organization should be an active participant. Depending on the application, an IT staff member and a clinician may need to be involved. Many groups require a clinician representative to sign off on all clinical information system applications prior to go-live. If a test is performed and results are not accepted the first time, issues should be posted to an Issues Log and resolved before indicating acceptance prior to go-live.

1. Review the types of tests and their purpose.
2. Review with the vendor the tests planned to be performed. Determine if any changes are needed. Modify your testing plan accordingly.
3. Record the date, responsible party and acceptability of results.

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LIST OF EXHIBITS

1   Components to Test

Use this plan template to identify who within your organization will be responsible for performing the tests and tracking the dates the test results were accepted. You may add additional items as necessary for your organization. Consult with your vendor as needed.

Exhibit 1: Table of Components to be Tested

Test	Components	Date	Responsibility	Accepted
Unit & Functional Testing	Each major function performs as specified in user manual.			
	Design changes/customizations are present & work as requested. Document all changes for reference.			
	Screens appear as expected (content and placement of fields, codes, drop down menus, and messages).			
	No spelling errors or color changes. Readable icons.			
	Appropriate representation of content can be printed if necessary for legal purposes.			
	Entries that have been corrected and their corrections are both displayed accurately.			
	Fields edits (e.g., valid values, options, defaults) function as expected.			
	Alerts and clinical decision support provides appropriate reminders and prompts. Use scripts to test various scenarios.			
System Testing	Workflows send and/or receive data properly between systems (e.g., between EHR and pharmacy or billing, PMS messages and EHR). Use scripts to test various scenarios.			
	Interfaces between applications move data correctly and completely. Test both sending and receiving when interfaces are bi-directional.			
	Connectivity with external organizations is accurate and complete as authorized (e.g., portal access to/from hospital/clinic, continuity of care record to referrals, personal health records for patients, disease management to/from health plan).			
	System access is appropriate per assigned privileges. Test attempts to gain access when not authorized.			

Test	Components	Date	Responsibility	Accepted
	Data are processed accurately, in graphs, tables, claims, client summaries, reports, etc.			
	Data correctly populate registries, reporting warehouses, etc.			
Integrated Testing (simulates live environment)	Ensure all system components that share data or depend on other components work together properly.			
	Ensure that workflows reflect actual new processes and workflows.			
	Ensure that usage is defined in and follows policies and procedures. Reinforce training as applicable.			
	Ensure that help desk, support personnel, and other aids function properly.			
	Ensure that EHR works with all forms of human-computer interface devices and modalities being used (e.g., tablets, PDAs, voice recognition, and speech commands as applicable).			
	Attempt to break the system by testing mission critical and high risk functions, such as situations requiring exception logic (e.g., overrides to clinical decision support), handoffs from one process to another, and when you may have a series of events over a period of time (e.g., assessments performed at designated intervals).			
Performance & Stress Testing	Measure response times for key transactions or interactions with the system, and assure they are within acceptable limits, which may be defined in the contract.			
	Simulate an extremely high volume of activity on the system such as would exceed anticipated peak loads of system usage.			
	Measure the time it takes to generate reports and data dumps, and the impact on system performance.			