Rhode Island UHIP

STATE OF RHODE ISLAND

IV&V FOR THE RHODE ISLAND UNIFIED HEALTH INFRASTRUCTURE PROJECT

UAT SUMMARY REPORT
PHASE 1 RELEASE 6.5
OCTOBER 2015

VERSION 1.0
STATUS: FINAL

OCTOBER 14, 2015

CSG Government Solutions

Document Information

Document Title	UAT Summary Report - Phase 1 Release 6.4
Version	1.0
Document Approval Date	
Author	Gloria Darby
Approved By	

The master copy of this document is available online. Hard copies are for information purposes only and are not subject to document control.

Amendment History

Document Version	Date	Modification
0.1	October 12, 2015	Draft for internal review
1.0	October 14, 2015	Submission to the State

Table of Contents

1. INTRODUCTION

The Rhode Island Unified Health Infrastructure Project (RI UHIP) provided an online marketplace named HealthSource RI for individuals, families, and small businesses to compare and enroll in health insurance coverage and gain access to tax credits, reduced cost sharing, and public programs. HealthSource RI began enrolling consumers on October 1, 2013 for health insurance coverage beginning on January 1, 2014.

Throughout 2015, releases were planned for targeted system updates to support the build out of HealthSource RI. In addition to requirements mandated by Centers for Medicare and Medicaid Services (CMS) and defects identified during previous iterations of UAT, many of these items were identified through change requests submitted by the business unit(s) to enhance the application.

Release 6.5 included enhancements that were implemented to decrease the administrative burden by allowing automatic population of the RI UHIP template and reducing the amount of time necessary to validate benefits; improve the look and feel of the screens; allow administrative personnel the ability to adjust a customer's coverage effective date to a prior date in the same policy year; correct the age-based rating issue for new applicants as well as change reporting/SEP applicants. It also allows for an additional claiming opportunity for children ages 6 and up in the MAGI income range of 109-142% to be placed in more appropriate CHIP aid categories. In addition, APTC calculation fixes were required to determine correct APTC eligibility for customers as well as updates to the existing renewal process flow and screens.

End-to-End testing was executed to test the functionality below; results of testing are detailed within this document.

➢ Age Based Rating

➢ Advance Premium Tax Credit (APTC)

➢ Auto Renewal

➢ CHIP

➢ Plan Display

➢ Plan Management

➢ Retro Enrollment

➢ SHOP

1.1 Purpose of the Report

The purpose of this document is to provide the project and executive management team with a summary of the User Acceptance Test (UAT) results for Release 6.5. This report provides detailed information related to the progress, issues, and risks encountered during the UAT cycles. In addition, Lessons Learned are derived from the observations in Section 5.

1.2 Scope of the Report

This report includes summary and detailed information on the results of UAT testing activities for Release 6.5 for each functional track identified below.

➢ Age Based Rating

➢ Advance Premium Tax Credit (APTC)

➢ Auto Renewal

➢ CHIP

➢ Plan Display

➢ Plan Management

➢ Retro Enrollment

➢ SHOP

1.3 Testing Tools

JAMA Contour is the requirements management tool used to execute, record, and store test cases. It also serves as the RTM software tool to document requirements and associated elements such as designs, source code modules, and bi-directional traceability.

JIRA is the defect management tool where all defects are logged, triaged, and managed to closure.

1.4 Internet Browsers

To ensure functionality works across the various internet browsers, testing was performed in the following browsers:

➢ Google Chrome

➢ Internet Explorer 8

➢ Internet Explorer 9

➢ Internet Explorer 10

➢ Internet Explorer 11

➢ Mozilla Firefox

Due to testers' lack of experience with Macintosh, testing was unable to be executed using the Safari browser.

2. EXECUTIVE SUMMARY

User Acceptance Testing (UAT) for the Release 6.5 was scheduled to run August 31, 2015 thru September 18, 2015 with an implementation date of September 28, 2015. However, the start of UAT was delayed due to delays within System Integration Testing (SIT) and Carrier Integration Testing (CIT). UAT officially began on September 2, 2015 and was extended through September 30, 2015 into the week of stabilization.

In total, 155 test cases were executed to test the functionality, user experience, and allow stakeholders to gain confidence in the quality of the system; 90% of the test cases were successfully executed and passed, included in this are defects that were fixed that allowed for the re-execution of failed test cases to be passed. In total, 84 defects were logged; seven (7) were placed on hold to monitor for recurrence in Production; 39 (46%) of the 84 were rejected at least one time. The breakdown of rejected defects follows:

➢ 17 required additional fixes to correct

  ✓ 3 defects were identified as 'not reproducible' prior to being changed to coding incorrect, functional specification, etc.

➢ 11 not fixed

  ✓ 4 placed 'on hold'; not able to reproduce

  ✓ 3 accepted by State as 'no fix' and approved to close

  ✓ 3 currently rejected

  ✓ 1 reopened

➢ 6 deferred (5 deferred only after being rejected)

➢ 5 deemed invalid

Sixteen percent (16%) of defects logged were deferred to future Maintenance and Operations (M&O) releases, implementations, and/or change requests. This may prove to be problematic as tickets are deferred without an impact analysis and clear understanding of the downstream effect.

A recurring theme across all deferred defects indicates a deficiency in the functional/technical design, a lack of understanding of the functionality to be implemented, and the downstream effect. The design documents lack details and steps to write appropriate and sufficient test cases. The limited number of use cases documented within the design document is the sole limiting source for SIT case development.

A number of defects have been noted as existing production issues. Although they may exist in Production, it is unclear whether the State was made aware of existing issues or why they were not discovered as part of SIT. These defects are indicative of the quality of SIT and impacts UAT negatively, as well as impacts the amount of work for M&O.

While no formal test cases were written, Carrier participation was crucial in validating plan display and plan rates for the 2016 calendar year. All Carriers participated in testing either remotely or onsite.

The decision to move forward with the implementation of Release 6.5 was made during the UAT Exit Meeting held on October 1, 2015.

The remainder of this report provide details related to the execution of UAT for Release 6.5.

3. OVERVIEW

3.1   Description of UAT

UAT for Release 6.5 covered the following:

➢ Functional Testing – This testing ensured that all business functions performed as defined within the business requirements and design documentation. It comprised the majority of the UAT effort and was based on use cases using two levels of business definition: test scenarios and test scripts.

➢ End-to-End Testing – This included testing the end-to-end business flow with real world scenarios that test interactions with various interfaces too (i.e. DOH, DLT, SWICA, NFP, FDSH etc.).

➢ Regression Testing – This included the re-execution of a select set of functional test cases to ensure that additional changes made to the application, after initial functional testing was executed, did not introduce any new issues.

➢ Ad hoc Testing – This testing ensured that the testing performed is complete. It is useful in determining the effectiveness of the test cases and requires knowledge, skills, and familiarity with the system.

3.2 Summary of Results

This section contains summaries of UAT execution results for Release 6.5 as of October 1, 2015.

➢ UAT Execution Results by Execution Status

➢ UAT Execution Results by Function

Table 1 - Execution Results by Status

	Count	Percentage
Total Cases	155	N/A
Cases Executed	155	100%
Cases Passed	139	90%
Cases Failed	16	10%
Cases Blocked	0	0%
Cases In Progress	0	0%
Cases Not Run	0	0%

Table 2 - Execution Results by Function

Test Cases	Total Cases	Passed	Failed	In Progress	Blocked	Not Run	Total Executed
Segment 1: CHIP	7	7	0	0	0	0	7
Segment 1: ABR	11	11	0	0	0	0	11
Segment 1: Auto Renewal	20	20	0	0	0	0	20
Segment 1: Retro Enrollment	7	7	0	0	0	0	7
Segment 1: APTC	14	14	0	0	0	0	14
Segment 2: CHIP	4	4	0	0	0	0	4
Segment 2: ABR	5	5	0	0	0	0	5
Segment 2: Auto Renewal	17	17	0	0	0	0	17
Segment 2: Retro Enrollment	4	0	4	0	0	0	4
Segment 2: APTC	21	15	6	0	0	0	21
SHOP	4	4	0	0	0	0	4
APTC/ABR	39	33	6	0	0	0	39
Plan Display	2	2	0	0	0	0	2
Total	**155**	**139**	**16**	**0**	**0**	**0**	**155**

4. DETAILED RESULTS

4.1 UAT Defect Reporting

A total of 39 fixes (defect resolutions) were rejected by the UAT team; 12 deferred to future releases and M&O; 4 closed as existing production behavior; 5 identified as change requests.

4.1.1 UAT Deferred Dashboard as of October 1, 2015

This section contains summaries of deferred defects sorted by severity. The severity of the defect determines its weight and impact on the application/organization.

Table 3 - Deferred Defects by Severity

Defect Status	Severity 1	Severity 2	Severity 3	Severity 4	Total
Deferred	0	9	2	1	12
Total	**0**	**9**	**2**	**1**	**12**

The embedded file below contains the list of deferred UAT defects as of October 1, 2015 sorted by severity within priority.

UAT Deferred
Defects 100115.xls

4.1.2 UAT Closed Defects as of October 1, 2015

This section contains summaries of closed defects sorted by severity. The tables below depict the root causes identified for all defects logged and the overall percentage for each.

Table 4 - Closed Defects by Reason by Severity

Root Cause	Severity 1-Critical	Severity 2-High	Severity 3-Medium	Severity 4-Low	Total	Percentage
Code Inefficient/Incorrect	2	11	12	1	26	34%
Functional Specification	0	7	3	0	10	13%
Invalid Defect	0	3	5	0	8	10%
Test Error	0	3	4	0	7	9%
Requirement Not Defined	0	1	5	0	6	8%
Not Reproducible	0	1	3	0	4	5%
Blank	0	1	3	0	4	5%
Environment Issue	0	3	1	0	4	5%
Change Request	0	2	1	0	3	4%
Duplicate	1	0	1	0	2	3%
Code Merge	0	0	1	0	1	1%
Data Migration	0	1	0	0	1	1%
User Issue	0	0	1	0	1	1%
Total	**3**	**33**	**40**	**1**	**77**	**100%**

5. OBSERVATIONS

Over the course of UAT, observations were tracked to facilitate process improvements and assist in creating repeatable processes to improve the delivery and overall outcome of our releases. The observations are categorized into the following groups:

➢ Productivity

➢ Quality

➢ Completeness

➢ Communication

5.1 Productivity Observations and Impact

Table 5 - Productivity Observations and Impact

Observation	Impact
Defect management process not followed	Defects not given the correct status; defects not assigned back accurately; delay in addressing triage defects
Defects currently in Production	Not provided with the list of known defects related to the release functionality; defects logged for an existing issue
Number of defects requiring code changes and/or changes in functional specification	Requirements not clearly defined; delay in functionality being implemented; functionality not as expected; delay in test execution
Requested payments were not processed when requested; wrong information provided to KPMG	Delay in testing and account validation
Accounts were not switched to confirmed after time traveling	Delay in testing
Plan Admin unable to access account - admins were created with current date and then the date was changed as per the request, so the admins were deactivated. offsite had to change the effective date for the admins	Plan admin could not access accounts
Server down	Delay in testing; Carriers onsite to test and have a limited testing window
Use cases documented in FDDs are not sufficient	Increased number of defects being deferred for future releases and/or change requests
Accounts were not switched to Confirmed after time traveling	Delay in testing
Defects placed in ready for test and/or rejected status without proper root cause analysis	Defects rejected multiple times prior to a fix being identified; time spent retesting unnecessarily

5.2   Quality Observations and Impact

Table 6 - Quality Observations and Impact

Observation	Impact
Defect management process not followed	Defects not given the correct status; defects not assigned back correctly; delay in addressing triaged defects
High number of defects deferred due to lack of clearly defined scenarios; ambiguity in the FDD	Delay in functionality being implemented; requirements not clearly defined; FDDs had to be updated during UAT
Functional and Technical designs lack scenarios/use cases; Scenarios not clearly identified	Defects deferred; approach to testing; defects are logged for existing production functionality; OPA rules in Production are not matching the expected result that is captured within the FDD
Inconsistency in reporting status of defects	Defects are marked ready for test when no code fix has been provided "working as expected" (UHIP-100410)
Defects are commented with 'Existing Production Behavior'; however, a code fix was provided (e.g. UHIP-100127)	Inconsistency in reporting; unclear if modifications are truly being documented and placed in both the Production and UAT environments; possible impact in Production; regression testing doesn't appear to be occurring; testing appears to be insufficient, as the issues are often identified during UAT and not readily identified until after triage
Root cause of defects not properly populated (e.g., root cause = change request)	Cause of issue unknown; root cause reporting not thorough
Lack of State participation in triage meetings	Delay in addressing defects appropriately; cause for additional meetings
APTC defects identified as deferred	Later became change requests despite being identified as an ongoing issue

5.3   Completeness Observations and Impact

Table 7 - Completeness Observations and Impact

Observation	Impact
Number of defects requiring code changes and/or changes in functional specification	Requirements not clearly defined; functionality not as expected; delay in test execution
Delay in completing test scripts due to defects related to incorrect APTC calculations	Delay in completing test cases; test cases failed; execution discontinued in some cases
Functional and Technical designs lack scenarios/use cases	Scenarios not clearly identified; approach to testing is not clearly defined; defects are logged for existing production functionality

Defects provided in builds were not correct; environments smoke tested but issues still exist (i.e., 102398 and 102399)	High number of defects rejected; testing time extended

5.4   Communication Observations and Impact

Table 8 - Communication Observations and Impact

Observation	Impact
UAT Team not informed of Deloitte's unavailability (i.e., lunch hour)	Delay in processing batch job requests
Server down; information not communicated by Deloitte	Delay in testing; Carriers had to test in UAT environment
Plan Admin unable to access account	Delay in testing, validating, and loading data
Side bar conversations and meetings	Confusion and miscommunication

6. UAT RESULTS MAPPED TO EXIT CRITERIA

The following table identifies the final status of the UAT exit criteria as having been either met or not met.

Table 9 - Results Mapped To Exit Criteria

#	Item/Objective	Status (Met or Not Met)	Comments	Criteria Met (Yes or No)
1	Test cases have been executed and passed (or deferred to a future release, if approved by State)	Met	All test cases were executed (16 cases failed)	Yes
2	Severity 1-Critical or Priority 1-Critical work requests have been resolved and tested	Met		Yes
3	Mutually-agreed Severity 2-High or Priority 2-High work requests which were not resolved during testing have been reviewed and deferred by the State (i.e., the State has agreed that it is acceptable to deploy with these work requests outstanding). In cases where the State does not agree to defer, these Severity 2-High or Priority 2-High work requests will be resolved prior to release. The State and Deloitte will collaborate to identify potential quality or schedule risks and implement appropriate mitigation strategies if necessary.	Met	Deloitte has provided interim workarounds for deferred defects	Yes
4	The State has validated and signed off on UHIP functionality delivered during this release	Met	There is no formal sign off; however, verbal agreement was obtained during the UAT Exit and subsequent Touch Point meeting	Yes

7. RECOMMENDATIONS

In order to improve the results of future UAT efforts, CSG makes the following recommendations:

7.1   Test Scenario Development

The State should be an active partner in developing and documenting real-life scenarios that will enable the creation of test cases that fully support end-to-end testing of the functionality. This input is vital to successful test case execution and provides assurance from the business and technical side of test coverage.

7.2   Test Case Review

Deloitte should be required to implement policies and procedures for writing effective test cases to the extent that anyone is able to determine exactly what was executed within SIT. The State should require Deloitte and KPMG to review and develop test scenarios and cases with the State in advance. The State should require Deloitte to develop and implement risk mitigation strategies to improve the quality of SIT and provide thorough regression testing as well as automated regression. In addition, the State needs to be more involved in the UAT test case creation process. This will ensure UAT efforts are comprehensive and meet the State's expectations.

7.3   Triage Meeting

In addition to the daily triage calls, conduct a weekly deep dive to ensure that all involved parties are on the same page, have a complete understanding, and in full agreement of the defect, status, and resolution.

7.4   Best Practices

CSG recommends the following best practices to ensure the success of UAT efforts:

➢ Allow SIT to exit before entering UAT (UAT and SIT should not run simultaneously)

➢ Adhere to a SIT entrance and exit checklist

➢ Joint review of SIT exit criteria and UAT entrance criteria

➢ The SIT exit process is always followed to ensure decisions are visible and understood

➢ Thoroughly discuss UAT timelines and plans early in the release scheduling process

➢ Clearly define the scope of the functionality to be tested within UAT

➢ Test end-to-end business flows and avoid fragmented system integration tests

➢ Test the system with real world scenarios and data

➢ Think as an unknown user to the system

➢ Perform usability and Section 508 compliance (Accessibility) testing

➢ Thoroughly discuss and review the total impact of moving a release into Production

➢ Known issues identified as 'existing production behavior' should be provided to the State and UAT Team prior to the start of UAT

7.5   Defect Resolution

➢ Develop a plan of action to ensure all medium and low defects are properly addressed

➢ An impact analysis should be conducted prior to any agreement to defer a defect

➢ Develop a written and agreed upon plan to document how and when all deferred defects will be addressed

➢ Ensure that all defects identified for change request are properly documented with a UHIP ID within JIRA