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April 17, 2020

The Honorable Ronald D. Kouchi,
President, and
Members of The Senate
Twenty-Ninth State Legislature
Hawaii State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,
Speaker, and
Members of The House of Representatives
Twenty-Ninth State Legislature
Hawaii State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the report the Office of Enterprise Technology Services received for the State of Hawaii Department of Health Hawaii BHA Integrated Case Management System Project.

In accordance with HRS section 93-16, this report may be viewed electronically at <http://ets.hawaii.gov> (see "Reports").

Sincerely,


Douglas Murdock (Apr 17, 2020)

DOUGLAS MURDOCK
Chief Information Officer
State of Hawai'i

Attachment (2)



Hawaii BHA Integrated Case Management System Project – *Phase 3*

*FINAL IV&V Report for the period of
March 1 – March 31, 2020*

Final submitted: April 15, 2020

Agenda

Executive Summary

IV&V Findings & Recommendations

Appendices

- A – Rating Scales
- B – Inputs
- C – Project Trends









Executive Summary

The project successfully pushed Release 3.6 into production in March and continues to employ function-based testing in lieu of regression testing, as automated regression testing is not yet available for the project. The project plans to employ different pre-deployment testing approaches for CAMHD and DDD and continues to pursue automated regression testing.

The RSM Team provided additional support during March alleviating some of the bandwidth concerns expressed by DOH.

The current COVID-19 pandemic is showing early impacts on project stakeholders and their ability to keep on track with scheduled tasks/activities and milestones.

Jan	Feb	Mar	Category	IV&V Observations
			Sprint Planning	The sprint planning category remains Green (low) for the March reporting period, maintaining one active finding in the category. The RSM Team assisted the DOH Team with tasks and activities during March, alleviating some of the bandwidth concerns for the DOH staff. Staff support of backlog grooming and release planning efforts for future feature sets remain a concern.
			User Story (US) Validation	IV&V continues to rate the User Story (US) Validation category at a Green (low) for the March reporting period and has no active findings in this category. IV&V continues to work with the project to understand the US development and validation process and will continue to monitor RSM's increased involvement in this category in the future.



Executive Summary

Jan	Feb	Mar	Category	IV&V Observations
Y	Y	Y	Test Practice Validation	IV&V continues to rate the Test Practice Validation category at Yellow (medium) for the March reporting period, maintaining one active finding. CAMHD and DDD continued their existing practice of function-based testing in lieu of formal regression testing for Release 3.6. IV&V will continue to monitor.
G	Y	Y	Release / Deployment Planning	IV&V continues to rate the Release / Deployment Planning category at Yellow (medium) for the March reporting period. IV&V is unaware of any deployment issues that negatively affected the Release 3.6 production deployment. IV&V will continue to monitor progress on proposed recommendations for this finding.
G	G	G	OJT and KT Sessions	IV&V continues to rate the OJT and KT Sessions category at Green (low) for the March reporting period and has no active findings in this category. RSM is working on putting together a skills matrix for BHA to help identify strengths, gaps, and training needs specific to long-term maintenance and support of the solution.
G	G	G	Targeted KT	IV&V continues to rate the Targeted KT category at Green (low) for the March reporting period and maintains one active concern in this category. The project is targeting April to schedule the next Knowledge Transfer session(s) which IV&V will plan to attend.



Executive Summary

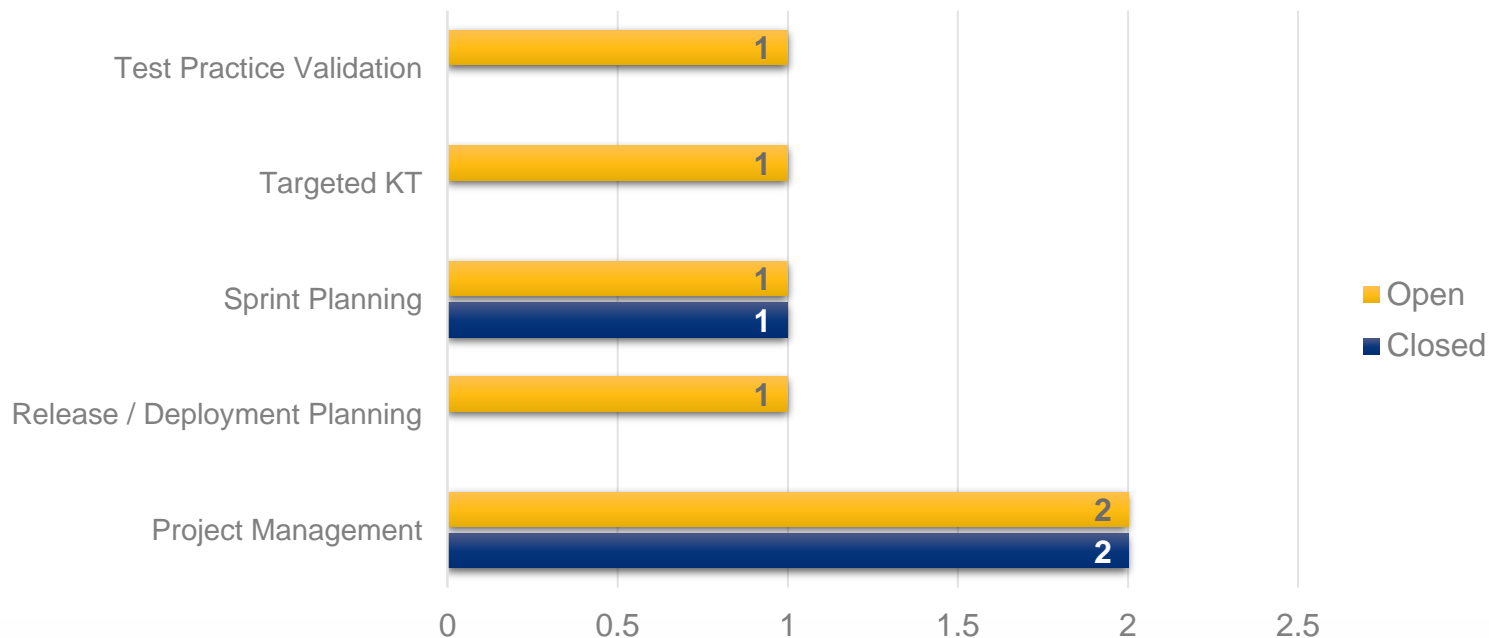
Jan	Feb	Mar	Category	IV&V Observations
G	G	G	Project Performance Metrics	IV&V continues to rate the Project Performance Metrics category Green (low) for the March reporting period. The project continues to meet velocity expectations and with a more defined Product Roadmap and Definition of Done, the project is more capable to understand and measure progress towards achieving the desired scope of Phase 3. IV&V will continue to explore the project's defect management process in April in order to better understand how defects are tied to a release or event.
G	G	G	Organizational Maturity Assessment	IV&V continues to rate the Organization Maturity Assessment (OMA) at Green (low) for the March reporting period. The planned bi-monthly OMA for March has been pushed-out to April but may be impacted by the COVID-19 crisis.
G	G	Y	Project Management	IV&V has changed the category rating for Project Management from green to yellow for the March reporting period due to a new high risk added to address the current COVID-19 crisis and its impact to the project. Key BHA staff members have been pulled to support the recent "stay at home, work from home order". Project stakeholders work activities are being hindered due to performing work remotely.



Executive Summary

As of the March 2020 reporting period, IV&V has one High Risk, two (2) Medium Risks, and three (3) Low Risks spread across the Sprint Planning, Release / Deployment Planning, Test Practice Validation, Targeted Knowledge Transfer, and Project Management assessment areas.

IV&V Findings by Status



The background is a solid blue color with several decorative elements. There are several light blue rounded rectangles of various sizes scattered across the page. Some of these rectangles have a thin white outline, while others are solid light blue. The rectangles are arranged in a way that suggests a grid or a series of overlapping shapes, with some appearing to be in the foreground and others behind them.

IV&V Findings & Recommendations

IV&V Findings & Recommendations

Assessment Categories

Throughout this project, IV&V will verify and validate activities performed in the following process areas:

- Sprint Planning
- User Story Validation
- Test Practice Validation
- Release / Deployment Planning
- On-the-Job Training (OJT) and Knowledge Transfer (KT) Sessions
- Targeted Knowledge Transfer (KT)
- Project Management
- Project Performance Metrics
- Organizational Maturity Assessment



IV&V Findings & Recommendations

Sprint Planning


#	Key Findings	Criticality Rating
8	Low Risk – The BHA Technical Team bandwidth may not be sufficient to meet the needs of the project, which could compromise project productivity. The RSM Team assisted the DOH Team in tasks and activities during March, alleviating some of the bandwidth concerns for the DOH staff. However, with backlog grooming and release planning for future feature sets in releases 3.9 and 3.10, DOH staff bandwidth continues to be a concern. IV&V will continue to monitor this finding during the April reporting period.	L

Recommendations	Status
<ul style="list-style-type: none"> The Project should investigate mechanisms of increasing the bandwidth of the BHA Technical Team, either by adding resources through new hires, or existing vendor contracts. 	In progress
<ul style="list-style-type: none"> The Project should assess, where possible, if there are responsibilities of the BHA Technical Team that can be reassigned to other project staff. 	In progress
<ul style="list-style-type: none"> The Project should evaluate where process inefficiencies can be addressed and streamlined to possibly free up the BHA Technical Team’s availability. 	In progress



IV&V Findings & Recommendations

Test Practice Validation

#	Key Findings	Criticality Rating
2	<p>Medium Issue – As a result of regression testing not being consistently performed, production releases are breaking and/or deprecating existing functionality in the production environment.</p> <p>Prior to deployment of Release 3.6 being promoted to production in March, DDD and CAMHD continued their existing practice of function-based testing in lieu of formal regression testing to help ensure the quality of the solution being deployed. This worked satisfactorily, as IV&V is unaware of any functionality that was deprecated or broken by the 3.6 release. No verifiable progress was made for future automated regression testing during the March reporting period. IV&V will continue to monitor the project's 'interim' regression testing processes during April, as well as the project's progress towards starting automated regression testing.</p>	

IV&V Findings & Recommendations


Test Practice Validation (cont'd)

Recommendations	Status
<p>To address regression testing, the Project should continue to pursue and/or consider:</p> <ol style="list-style-type: none">1. Updating the regression test scripts to ensure consistency with system configuration.2. Modifying release schedules to allow for regression testing timeframes3. Grouping releases by functionality type to avoid unnecessary repetitive work being performed in any given section of the solution.4. Performing regression testing after every release, or possibly every other release, or potentially tying regression tests to full solution upgrade releases. In addition, consider alternating the DDD and CAMHD scripts every other release.5. Modifying regression test scripts to start AFTER case creation, limiting the time it takes to execute.6. Potentially modifying the deployment scripts based on information gained from any or all of the steps listed above.7. Pursuing additional formal training in AzureDevOps for test automation at the earliest possible juncture and commence efforts to automate at least the 2 primary regression test scripts.8. Consult with RSM to determine how the 'interim testing processes' can be improved until such time that automated testing is available for repeatable and complete industry standard regression testing.	In Progress



IV&V Findings & Recommendations

Release / Deployment Planning

#	Key Findings	Criticality Rating
5	<p>Medium Risk - Due to the project not following a detailed deployment script, the project may continue to experience defects related to deployment activities.</p> <p>Release 3.6 was successfully promoted to production during the March reporting period. IV&V is unaware of any resultant deployment issues that affected production functionality.</p>	

Recommendations	Status
<ul style="list-style-type: none"> IVV recommends documenting deployment scripts for both the patch method and the full solution upgrade method. The script(s) should be in the form of a step-by-step procedure that walks through from start to finish of the deployment process and involve several technical staff to ensure staff availability to accomplish these tasks when primary deployment personnel are unavailable. 	Not started
<ul style="list-style-type: none"> Standardize the content of all developer deployment task notes, with a goal of eliminating any potential ambiguity to the Deployment Team, resulting in a cleaner and more repeatable set of deployment processes and instructions. 	In Progress
<ul style="list-style-type: none"> As appropriate, consult with RSM on best practices that BHA could employ to support deployment. 	In Progress



IV&V Findings & Recommendations

Targeted KT

#	Key Findings	Criticality Rating
3	<p><i>Escalated to Low Risk</i> – Usage of open source JavaScript framework for development and ongoing maintenance of Calculator 3.0 requires BHA to take a proactive approach to support and security.</p> <p>There were no substantive changes to this finding during the March reporting period, as the project focused its attention for the month to Calculator 3.0 User Stories and bug fixes, as opposed to Knowledge Transfer. The project is looking at setting up a playground test environment for the Calculator for practice purposes. The key Calculator resource will return to the project on 4/1/20 to continue the Knowledge Transfer sessions. The project is targeting to potentially schedule the next Knowledge Transfer session on this component during April.</p>	L

Recommendations	Status
<ul style="list-style-type: none">IV&V recommends BHA work to establish a reliable and repeatable process for keeping abreast of communal updates and support opportunities for the Vue.JS framework.	Open
<ul style="list-style-type: none">IV&V recommends BHA continue to hold targeted KT sessions with RSM on maintaining Calculator 3.0 via a suite of tools including Vue.JS, and determine what additional skillsets, training, and/or resources are needed to support BHA's long-term ownership of Calculator 3.0.	In progress



IV&V Findings & Recommendations

Project Management

#	Key Findings	Criticality Rating
7	<p><i>Escalated to Low Risk</i> - The lack of consistent backlog grooming could result in the project backlog having obsolete, non-estimated, and poorly defined user stories. IV&V validates that the backlog grooming effort has made great progress, however it is still in progress. The revised target date for completion was most recently 3/31/2020. The estimation effort has reached 94% completion at the end of March and this includes new requests that have come in over the last three weeks. IV&V notes that this effort also has competing priorities, as the project is also looking to review, develop requirements and develop user stories for releases 3.9 and 3.10 in parallel. IVV will continue to monitor this finding in April.</p>	<p>L</p>

Recommendations	Status
<ul style="list-style-type: none"> CAMHD and DDD should prioritize grooming the backlog to bring it as current and accurate as possible. This should include removing items no longer needed, and ensuring all items are fully defined, readying them for configuration or developer resources. To the extent feasible, BHA should involve RSM SMEs in this process, if only for the interim to get "caught up" on grooming efforts. 	<p>In Progress</p>



IV&V Findings & Recommendations

Project Management (cont'd)

#	Key Findings	Criticality Rating
10	New Risk - The COVID-19 pandemic and the related "stay at home" order could hinder project activities and negatively impact the project schedule and budget. On 3/23/2020, the Governor issued a "stay at home, work from home order." While RSM is accustomed to supporting this project remotely, DOH's ability to participate on the project may be impacted due to infrastructure limitations and/or the need to shift its attention to COVID-19 related efforts. IV&V will continue to monitor the impact of COVID-19 on this project in the coming months.	H

Recommendations	Status
<ul style="list-style-type: none"> IV&V recommends BHA to ramp up efforts to setup, train, and assist stakeholders on remote work devices and tools and make every effort to help them to become highly functional with remote access technology (e.g. MS Teams/Skype). 	In Progress
<ul style="list-style-type: none"> IV&V recommends the project and DOH create a detailed, documented risk mitigation strategy and plan that is reviewed regularly and revised to address the current state of the COVID-19 threat and related impacts over the next 6 to 12 months. 	In Progress
<ul style="list-style-type: none"> IV&V recommends updates to the OCM Plan to include any new activities or updates to planned activities to aid the organization through this COVID-19 situation in the short and long term. 	New



IV&V Findings & Recommendations

Project Performance Metrics

Metric	Description	IV&V Observations	IV&V Updates
Velocity	<ul style="list-style-type: none"> Review and validate the velocity data as reported by the project Verify the project is on pace to hit the total target number of US/USP for Phase 3 	<p>March - During Sprint Planning for Release 3.6, available velocity was calculated as 78 US Points (USP) with a total of 61 USP being released to production.</p>	<p>March – The project is in the process of estimating the User Stories in the Backlog.</p> <p>BHA resources are working in sequential order to estimate stories targeting those items tagged with 3.7, 3.8, 3.9, 3.10, etc.</p> <p>IV&V recommends that after completion of the estimation of Backlog stories, the project should look at the estimated User Stories and available resources to understand if the required resources/skillset are available to align development and releases as captured in the Roadmap.</p>



IV&V Findings & Recommendations

Project Performance Metrics (cont'd.)

Metric	Description	IV&V Observations	IV&V Updates
US Point Estimates vs Actuals	<ul style="list-style-type: none"> Verify the project is tracking US Point estimates and actual data Determine the delta between estimates and actuals Based on the delta (if any) investigate the potential root cause for the delta 	<p>March - The Project Scrum Master closely tracks the USP on a daily basis. IV&V has no concerns regarding this.</p>	<p>March – DDD and CAMHD has standardized a format for their resources to track hours and will implement on 4/1/20. Additional work to determine the process for collecting the correct level of USP time granularity for resources is pending.</p> <p>This will allow for a fair comparison of USP estimates versus actual hours. IV&V will monitor for April reporting period.</p>



IV&V Findings & Recommendations

Project Performance Metrics (cont'd.)

Metric	Description	IV&V Observations	IV&V Updates
Defect Metrics	<p>Understand and track the following:</p> <ul style="list-style-type: none"> Defects by category (bug fixes) Average number of defects per release US Points assigned to defects in a release vs US Points assigned to planned US in a release 	<p>March – Release 3.6 was comprised of 61 User Story Points released to production.</p> <ul style="list-style-type: none"> 55 User Story Points (90% of the total) were associated with planned user stories 6 User Story Points (10% of the total) were associated with defects. <p>IVV notes that some of the “planned” items were production Bugs that were identified through previous releases and prioritized as part of the 3.6 backlog along with Requests that became User Stories.</p>	<p>March – After Release 3.6 was pushed to production in March and a few new issues were identified after the release. It is not known at this time if these issues were attributed to the 3.6 release.</p>



IV&V Findings & Recommendations

Organizational Maturity Assessment

Measure	IV&V Observations
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The Organizational Maturity Assessment is updated on a bi-monthly basis and will next be reported on the April 2020 IV&V report.



Appendix A: IV&V Rating Scales

Appendix A

IV&V Rating Scales

This appendix provides the details of each finding and recommendation identified by IV&V. Project stakeholders are encouraged to review the findings and recommendations log details as needed.

- See Findings and Recommendations Log (provided under separate cover)
- IV&V Assessment Category Rating Definitions




G The assessment category is under control and the current scope can be delivered within the current schedule.
The assessment category's risks and issues have been identified, and mitigation activities are effective. The overall impact of risk and issues is minimal.
The assessment category is proceeding according to plan (< 30 days late).

Y The assessment category is under control but also actively addressing resource, schedule or scope challenges that have arisen. There is a clear plan to get back on track.
The assessment category's risk and/or issues have been identified, and further mitigation is required to facilitate forward progress. The known impact of potential risks and known issues are likely to jeopardize the assessment category.
Schedule issues are emerging (> 30 days but < 60 days late).
Project Leadership attention is required to ensure the assessment category is under control.

R The assessment category is not under control as there are serious problems with resources, schedule, or scope. A plan to get back on track is needed.
The assessment category's risks and issues pose significant challenges and require immediate mitigation and/or escalation. The project's ability to complete critical tasks and/or meet the project's objectives is compromised and is preventing the project from progressing forward.
Significant schedule issues exist (> 60 days late). Milestone and task completion dates will need to be re-planned.
Executive management and/or project sponsorship attention is required to bring the assessment category under control.

Appendix A

Criticality Ratings

Criticality Rating	Definition
 H	A high rating is assigned if there is a possibility of substantial impact to product quality, scope, cost, or schedule. A major disruption is likely, and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
 M	A medium rating is assigned if there is a possibility of moderate impact to product quality, scope, cost, or schedule. Some disruption is likely, and a different approach may be required. Mitigation strategies should be implemented as soon as feasible.
 L	A low rating is assigned if there is a possibility of slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely, and some oversight is most likely needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.



Appendix B: Inputs

Appendix B

Inputs

This appendix identifies the artifacts and activities that serve as the basis for the IV&V observations.

Meetings attended during the March 2020 reporting period:

1. Daily Scrum Meetings (selected)
2. Twice Weekly RSM Issues Meeting
3. Release 3.6 Deployment Planning Meeting
4. Release 3.6 Retrospective Meeting
5. Sprint Planning for Release 3.7
6. Weekly CCB Meeting
7. Weekly BHA-ITS Project Status Meeting
8. Weekly Change Planning for Dev
9. Bi-Weekly Check-in: CAMHD
10. Bi-Weekly Check-in: DDD
11. BHA IAPDU Planning Meeting
12. BHA Extended Features Planning Meeting
13. Scanned Document Migration - Weekly Touchpoint Meeting

Artifacts reviewed during the March 2020 reporting period:

1. Daily Scrum Notes (selected)
2. Twice Weekly Issues Meeting Notes (selected)
3. IV&V Statement of Work and Schedule of Deliverables v1.5
4. Release Notes – R3.6

Eclipse IV&V® Base Standards and Checklists



Document





Appendix C: Project Trends

Appendix C

Project Trends

Trend: Overall Project Health										
Process Area	2019		2020							
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Sep
User Story Validation	N/A	Green	Yellow	Green	Green					
Test Practice Validation	N/A	Green	Green	Green	Yellow					
Sprint Planning	N/A	Green	Yellow	Green	Green					
Release / Deployment Planning	N/A	Green	Green	Yellow	Yellow					
OJT and KT Sessions	N/A	Green	Green	Green	Green					
Targeted KT	N/A	Green	Green	Green	Green					
Project Performance Metrics	N/A	Green	Green	Green	Green					
Organizational Maturity Metrics	N/A	Green	Green	Green	Green					
General Project Management	N/A	N/A	Green	Green	Yellow					
Total Open Findings	N/A	3	7	5	6					
Issue - high	N/A	0	1	1	0					
Issue - medium	N/A	0	0	0	1					
Issue - low	N/A	0	0	0	0					
Risk - high	N/A	0	0	0	1					
Risk - medium	N/A	0	0	1	1					
Risk - low	N/A	0	1	1	3					
Preliminary Concern	N/A	3	5	2	0					





Solutions that Matter

ID No	Identified Date	Title	Observation	Significance	Recommendation	Updates	Process Area	Finding Type	Priority	Status	Closure Reason	Iteration	Risk Owner
2	12/31/19	As a result of regression testing not being consistently performed, production releases are both breaking and deprecating existing functionality in the production environment.	R3.3 introduced a defect that deprecated features in production specific to Integrated Support and Life Trajectory functionality. DDD has informed IV&V that there are other examples of functionality being deprecated after a release, some of which are still being investigated. As of this report, IV&V has not evaluated the project's root cause analysis (RCA) process used to determine why such functionality was deprecated but will discuss further with BHA in January 2020.	Thorough vetting and validation of regression test cases is necessary to prevent both defects and the deprecation of production functionality when a release is pushed live. When defects occur in production, the project should follow a defined and repeatable process for determining the root cause of the problem.	To address regression testing, the Project should continue to pursue and/or consider: 1. Updating the regression test scripts to ensure consistency with system configuration. 2. Modifying release schedules to allow for regression testing timeframes 3. Grouping releases by functionality type to avoid unnecessary repetitive work being performed in any given section of the solution. 4. Performing regression testing after every release, or possibly every other release, or potentially tying regression tests to full solution upgrade releases. In addition, consider alternating the DDD and CAMHD scripts every other release. 5. Modifying regression test scripts to start AFTER case creation, limiting the time it takes to execute. 6. Potentially modifying the deployment scripts based on information gained from any or all of the steps listed above. 7. Pursuing additional formal training in AzureDevOps for test automation at the earliest possible juncture and commence efforts to automate at least the 2 primary regression test scripts. 8. Consult with RSM to determine how the 'interim testing processes' can be improved until such time that automated testing is available for repeatable and complete industry standard regression testing.	03/31/2020 - Prior to deployment of Release 3.6 being promoted to production in March, DDD and CAMHD continued their existing practice of function-based testing in lieu of formal regression testing to help ensure the quality of the solution being deployed. This worked satisfactorily, as IV&V is unaware of any functionality that was deprecated or broken by the 3.6 release. No verifiable progress was made for future automated regression testing during the March reporting period. IV&V will continue to monitor the project's 'interim' regression testing processes during April, as well as the project's progress towards starting automated regression testing. 02/29/2020 - Release 3.5 was promoted to production during February. In lieu of full industry standard regression testing, the deployment team performed testing by major function in the SIT2 and UAT environments after the 3.5 patch was applied, prior to the Production promotion. With automated regression testing not yet being available to the team, IV&V notes that this is the same 'interim pre-deployment testing process' that the Deployment Team has been used since release 3.1. This approach proved successful for release 3.5. Going forward, DDD and CAMHD plan to take different approaches. DDD prefers regression testing to consist of a subset of the end to end processes, starting after Case Creation and continuing to the point where Service Authorizations are sent to Conduent. CAMHD prefers regression testing to consist of function-based testing, focusing on the highest risk functional areas affected by a particular release. The team will work to insert these interim processes into the Project's activities going forward. IVV is encouraged by the steps being taken by BHA and believes this is a good interim approach to addressing the current regression testing issues. IV&V will continue to monitor in the March reporting period to verify this approach is still effective with release 3.6. IV&V has reduced this issue to a Medium rating due to the success of this approach observed in February. IV&V will, however, continue to monitor the project's 'interim' regression testing process, as well as the project's progress towards starting automated regression testing.	Test Practice Validation	Issue	Med	Open		General	D Macdonald
3	12/31/19	Usage of open source JavaScript framework for development and ongoing maintenance of Calculator 3.0 requires BHA to take a proactive approach to support and security.	IV&V learned in December 2019 that the Calculator 3.0 functionality is built in Vue.JS, an open source JavaScript framework. As this framework is relatively new, the open source support community is small. IV&V's concerns include: - The availability of reliable support for Vue.JS - The project's understanding of any known vulnerabilities with Vue.JS, and development of a process to remain current on vulnerabilities discovered by the support community. - The RSM lead for Calculator 3.0 went on extended parental leave in December 2019 IV&V acknowledges that BHA has downloaded Vue.JS to start getting familiar with it.	Open source tools and frameworks offer organizations great opportunities to build and configure customized solutions at lower costs than through software purchase or licensing. However, open source tools and frameworks often do not come with support models, other than those offered through the tool's community. Because of this, the organization bears the weight of seeking out reliable help and support, as well as much take a proactive approach to security and identifying any vulnerabilities in the tools.	IV&V recommends BHA research and determine the long-term sustainability of Vue.JS for Calculator 3.0 and work to establish a reliable and repeatable process for keeping abreast of communal updates and support opportunities. Additionally, IV&V recommends BHA continue to hold targeted KT sessions with RSM on maintaining Calculator 3.0 using Vue.JS, and determine what additional skillsets, training, and/or resources are needed to support BHA's long-term ownership of Calculator 3.0.	03/31/2020 - There were no substantive changes to this finding during the March reporting period, as the project focused its attention for the month to Calculator 3.0 User Stories and bug fixes, as opposed to Knowledge Transfer. The project is looking at setting up a playground test environment for the Calculator for practice purposes. The key Calculator resource will return to the project on 4/1/20 to continue the Knowledge Transfer sessions. The project is targeting to potentially schedule the next Knowledge Transfer session on this component during April. 02/29/2020 - There is no substantive change to this finding in the February reporting period, as the project focused its attention for the month to Calculator 3.0 User Stories and bug fixes, as opposed to Knowledge Transfer. IV&V is unaware if the next KT session for Calculator 3.0 having been scheduled. IV&V learned that the original RSM lead on Calculator 3.0 will be returning to work in April and is expected to resume her role in knowledge transfer to BHA. Additionally, IV&V learned that a key RSM resource will be made available to BHA on a 50% basis March - May, which could lend additional support to the project in key areas such as sprint planning, US validation, solution architecture, and release planning. 1/31/2020 - IVV attended a Knowledge Transfer session on the Calculator 3.0 application in late January. Discussion topics included code review, managing code branches, updating web resources, and known defects. The session was technical in nature and aimed specifically at a developer audience. DOH had three (3) developers in attendance and all in attendance appeared to grasp the concepts presented. The SI indicated that there will need to be 'several' more KT sessions on the Calculator 3.0 application in Vue.JS. It remains unclear at this juncture whether BHA has the capacity (resources, bandwidth, skillsets) to maintain the tool, which will be a determined through the execution of the KT sessions.	Targeted KT	Risk	Low	Open		General	D Macdonald
5	1/31/20	Due to the project not following a detailed deployment script, the project may continue to experience defects related to deployment activities.	There have been several defects pushed to production with Phase 3 releases. Some of the defects introduced to production have been narrowed down to environmental promotional activities. In these instances, the DEV and TEST environments were not in sync with the production environment (missing business rules, missing components, missing dependencies, etc.). IVV is aware that DOH staff shadowed RSM staff for all deployment releases during Phase 2 with RSM providing instruction and DOH staff physically executing the tasks and activities via keyboard. For Phase 3, it is unclear whether a complete, up to date, and documented deployment script, or deployment notes, are being utilized by BHA for deployment activities.	A complete, up to date, and documented deployment script is needed to ensure the repeatability and stability of DOH's production deployments. Since there are currently two deployment types (patches and full solution upgrades), two scripts may be warranted. An embedded process and documented script will help ensure that mistakes are minimized, and that functionality is not mistakenly deprecated when deployments take place.	IVV recommends documenting deployment scripts for both the patch method and the full solution upgrade method. The script(s) should be in the form of a step-by-step procedure that walks through from start to finish of the deployment process, and involve several technical staff to ensure staff availability to accomplish these tasks when primary deployment personnel are unavailable. Standardize the content of all developer deployment task notes, with a goal of eliminating any potential ambiguity to the Deployment Team, resulting in a cleaner and more repeatable set of deployment processes and instructions.	03/31/2020 - Release 3.6 was successfully promoted to production during the March reporting period, and IV&V is unaware of any resultant deployment issues that affected production functionality. 02/29/2020 - There have been several defects pushed to production with Phase 3 releases. Some of the defects introduced to production have been narrowed down to environmental promotional activities. In these instances, the DEV and TEST environments were not in sync with the production environment (missing business rules, missing components, missing dependencies, etc.). IVV is aware that DOH staff shadowed RSM staff for all deployment releases during Phase 2 with RSM providing instruction and DOH staff physically executing the tasks and activities via keyboard. For Phase 3, BHA uses a base deployment script, which is further modified by developer 'Deployment Task Notes' in AzureDevOps. These notes are not always consistently written and could potentially be the root cause of these anomalies when being compiled for a release. A complete, up to date, and documented deployment script inclusive of standardized developer deployment task notes is needed to ensure the repeatability and stability of DOH's production deployments. Since there are currently two deployment types (patches and full solution upgrades), use of two scripts and the respective developer deployment task notes may be warranted. An embedded process and documented script will help ensure that mistakes are minimized, and that functionality is not mistakenly deprecated when deployments take place.	Release / Deployment Planning	Risk	Med	Open		General	D Macdonald

7	1/31/20	The lack of consistent backlog grooming could result in the project backlog having obsolete, non-estimated, and poorly defined user stories.	The backlog of defects, requests, and user stories continues to grow. Currently, there are approximately 429 defects and requests, of which almost 200 have a status of 'New'. IVV notes that a large percentage of the backlogged work items do not have user story points estimated. Many of the items listed in the backlog are old, and some may have had needs or requirements change over time or may now be obsolete. IV&V notes that DDD and CAMHD have initiated this effort and agreed to prioritize grooming the backlog by the end of February.	A comprehensive, up-to-date backlog is a primary tenet of agile software development. If a backlog is carrying work items that may not ever be completed for any reason, they should be removed from the backlog to ensure its viability.	IVV recommends that CAMHD and DDD groom the backlog to bring it as current and accurate as possible. This should include deprecating items no longer needed, and fully defining those items that are not yet fully defined, readying them for configuration or developer resources. To the extent feasible, BHA should involve RSM SMEs in this process, if only for the interim to get "caught up" on grooming efforts.	03/31/2020 - IV&V validates that the backlog grooming effort has made great progress, however it is still in progress. The revised target date for completion was most recently 3/31/2020. The estimation effort has reached 94% completion at the end of March and this includes new requests that have come in over the last three weeks. IV&V notes that this effort also has competing priorities, as the project is also looking to review, develop requirements and develop user stories for releases 3.9 and 3.10 in parallel. IVV will continue to monitor this finding in April. 02/28/2020 - IVV validates that the backlog grooming effort is still in progress. The project anticipates the grooming process should be completed by March 16. It is still anticipated that RSM resources could support BHA in this effort to some degree. IV&V will continue to track this concern in order to monitor progress made in March, including any changes that may be made to the current approach. 1/31/2020 - IVV is aware that the RSM Solution Architect is being made more available than typical in February and possibly March, and that BHA is looking to take advantage of his skills and experience to assist in user story point estimations and design criteria. This should help ensure that needed items in the backlog can actually be acted upon when developer resources are available to execute.	Project Management	Risk	Low	Open		General	D Macdonald
8	1/31/20	The BHA Technical Team bandwidth may not be sufficient to meet the needs of the project, which could compromise project productivity.	The BHA Technical Team plays a role that is critical to project success. Currently, the responsibilities associated with the BHA Technical Team have expanded beyond their collective available bandwidth. IV&V notes that BHA began addressing this bandwidth issue, which includes increased collaboration with key RSM resources, and are working to potentially change the structure of the Technical Team.	The BHA Technical Team leads the efforts of all technical DOH staff on the project. As such, the Team's time is both extremely valuable and scarce. If the Team's expected workload exceeds bandwidth, the project could experience bottlenecks. Optimization of the BHA Technical Team's time is to the benefit of the project and plays a critical role in the project's ability to hit performance targets and achieve the Phase 3 definition of done.	IVV recommends the Project investigate mechanisms of increasing the bandwidth of the Solution Architect, either by bringing in additional resources through new hires, or through existing vendor contracts. Additionally, the project should assess, where possible, if there are responsibilities of the Solution Architect that can be reassigned to other project staff. Further, the Project should evaluate where process inefficiencies can be addressed and streamlined to possibly free up the Solution Architect's availability.	03/31/2020 - The RSM Team assisted the DOH Team in tasks and activities during March, alleviating some of the bandwidth concerns for the DOH staff. However, with backlog grooming and release planning for future feature sets in releases 3.9 and 3.10, DOH staff bandwidth continues to be a concern. IV&V will continue to monitor this finding during the April reporting period. 02/28/2020 - IV&V observed the BHA Technical Team continues to experience a lack of bandwidth. Moving forward, the project has discussed ramping up additional RSM resources to assist the Technical Team with their tasks and activities, as well as continued knowledge transfer. IV&V will continue to monitor this finding as more details are made available.	Sprint Planning	Risk	Low	Open		General	D Macdonald
10	3/31/20	The COVID-19 pandemic and the related "stay at home" order could hinder project activities and negatively impact the project schedule and budget.	On 3/23/2020, the Governor issued a "stay at home, work from home order." While RSM is accustomed to supporting this project remotely, DOH's ability to participate on the project may be impacted due to infrastructure limitations and/or the need to shift its attention to COVID-19 related efforts. IV&V will continue to monitor the impact of COVID-19 on this project in the coming months.	DOH stakeholder participation in key activities could be significantly hindered, not only by required remote work by DOH and SI staff, but also by the flood of activities that could occur as the department could become overwhelmed processing and providing services due to the resulting economic impacts to citizens. Some stakeholders may be unable (due to stricter shutdown policies) or unwilling to perform these activities during this chaotic time. Planned SI on-site visits will also likely be changed to remote which could reduce the effectiveness of their project activities. Going forward most if not all project activities will more than likely be conducted remotely until this crisis passes.	1. Ramp up efforts to setup, train, and assist stakeholders on remote work devices and tools and make every effort to help them to become highly functional with remote access technology (e.g. MS Teams/Skype). 2. Suggest the project and DOH create a detailed, documented risk mitigation strategy and plan that is reviewed regularly and revised to address the current state of the COVID-19 threat and related impacts over the next 6 to 12 months. 3. Update the OCM Plan to include any new activities or updates to planned activities to aid the organization through this COVID-19 situation in the short and long term.		Project Management	Risk	High	Open		General	D Macdonald