DOCUMENT VERIFICATION

Prior to using this document, the user is responsible for verifying that the revision and effective date are current.

REVISION HISTORY

| Rev. | Effective Date | Changes Made to Document |
|---|---|---|
| 1 | 25-Feb-2022 | First Issue |
| | | |
| | | |

## 1. Content

## 2. Introduction

The LFD kit is an IVD medical device intended by DHSC to be used *in vitro* for the examination of combined throat and nasal specimens derived from the human body solely for the purpose of providing information concerning Covid-19 infection. The device is classified as a **IVD Device for self-testing.**

The PSR report outlines, analyses and reports on the activities that were undertaken by DHSC to ensure the performance and safety of the DHSC LFD during its life cycle in line with the PMS Procedure and PMS Plan.

This was performed thorough the continuous data generation and assessment of the DHSC LFD performance post market and aims to discuss (through presentation of data) the questions below:

a) Were there any new hazard or hazardous situation(s) identified for the DHSC LFD's or has the risk acceptability changed?
b) Has any misuse of the DHSC LFDs occurred?
c) Do the DHSC LFD's still meet the user's needs after medium/long term clinical use?
d) Do users experience any usability issues?
e) Are there any recurring quality issues DHSC LFD's and can significant increasing/decreasing trends be identified for DHSC LFD' inadequate performance?

## 3. Reference documents

| Doc ID | Doc name | Revision |
|---|---|---|
| QM-01 | Quality manual | 1 |
| QOP-25 | Post- Market Surveillance (PMS) Procedure | 3 |
| PMS-0001 | PMS Plan for the DHSC COVID-19 LFD device (3 and 7 kit) | 2 |
| RMF-001 | Risk Management File | 5 |
| QP08-F02 | LFD Hazard Traceability Matrix | 1 |

*Table 1: Reference to internal documentation*

## 4. Standards and guidelines

- ISO 9001:2000 Quality management systems – Requirements.
- ISO 13485:2016 Medical devices - Quality management systems - Requirements for regulatory purposes.
- ISO 14971:2019 Medical devices -- Application of risk management to medical devices.

## 5. Methodology

- Data is gathered as per the PMS Plan referenced in Table 1.
- All inputs are stored in a centralised LFD PSR location on SharePoint
- All inputs are submitted via the relevant departments as per the PMS plan.

## 6. Findings /Results

### 6.1 In-House manufacturing inspection at Biotime

There was a total of 202,004,000 tests of SKU2193 produced during the reporting period of 15/01/2022-11/02/2022. A total of 213,000,000 tests underwent inspection (213 lots). Of these lots, 0 failed inspection. All lots were accepted into the supply chain.

***(Refer to Attachment 07.1)***

### 6.2 Receiving inspection - Intertek Testing in the UK

A total of **10,289 samples** underwent validation from the **15/01/2022 – 11/02/2022**, from **100 lots**. From these samples, there were 4 red flags recorded, which included 1 instance of the liquid failing to track, 2 instances of test strip bleed, and 1 test strip not inserted properly into the cassette. Due to these issues falling within the AQL limits of acceptance, all lots passed validation and were accepted into the supply chain. For these red flags, the quality alert procedure was followed with quality alert forms being raised and sent to Supplier quality lead.

***(Refer to Attachment 07.2)***

### 6.3 Product complaints & Qualtrics Survey Reports

- The number of kits distributed in this reporting period is **~ 109.38 Million** which is an increase of **~68.88 Million** over the previous reporting month.

- A total of 15 complaints were received in this reporting period from MHRA Yellow Card and were discussed at the weekly incident review meetings and weekly Patient safety panel meetings.

- Fourteen of those complaints were defined as non-reportable as per Med Dev 12.1 Rev 8.

- One of the 15 complaints was defined as a reportable complaint when discussed at the weekly patient safety panel (*MHRA Reference: 2022/002/004/601/500*).

- A total of 617 user reports were received from the Qualtrics survey in relation to the DHSC LFD during this reporting window.

- No Lot specific trend was identified in this reporting window.

- Further information on the trending categories, number of complaints, reportability/non-reportability, investigations and further actions is documented in Table 2.

***(Refer to attachment 02.1)***

| Qualtrics and Yellow card complaints investigation | | | | |
|---|---|---|---|---|
| **Trending category** | **Number of complaints** | **Reportability** | **Investigation** | **Further actions** |
| Missing components | 196 | Not reportable | There was no trend observed for any batch. | SCAR was raised with the kitting site due to increased missing item complaints |
| Damaged Item | 17 | Not reportable | There was no trend observed for any batch. | No further action. Complaints will be monitored for trending purposes |
| Faulty test results | 47 | Not reportable | Since there is no trend observed for a particular batch, this might be a user error. However, we do not have the contact details to confirm this. The false negative complaints might be due to the LFD not having 100% sensitivity. | There is a monthly meeting with the supplier management team to discuss on the similar issues reported through the month. Once the trend is analysed supplier is informed. A SCAR or CAPA is raised if immediate action is required |
| Faulty items | 86 | Not reportable | There was no trend observed for any batch. | There is a monthly meeting with the supplier management team to discuss on the similar issues reported through the month. Once the trend is analysed supplier is informed. A SCAR or CAPA is raised if immediate action is required |
| Patient injury | 1 | Reportable | This was reported to MHRA - 2022/002/004/601/500 | Monitor for similar complaints |
| Allergic reactions | 8 | Not reportable | This was decided to be not reportable by the clinical team in the incident review meeting | Monitor for similar complaints |
| Empty extraction buffer | 55 | Not reportable | There was no trend observed for any batch. | There is a monthly meeting with the supplier management team to discuss on the similar issues reported through the month. Once the trend is analysed supplier is informed. A SCAR or CAPA is raised if immediate action is required |
| Wrong media volume | 71 | Not reportable | There was no trend observed for any batch. | There is a monthly meeting with the supplier management team to discuss on the similar issues reported through the month. Once the trend is analysed supplier is informed. A SCAR or CAPA is raised if immediate action is required |

| | | | | |
|---|---|---|---|---|
| Bar code/QR code issues | 73 | Not reportable | QR code number is not captured in order to comply with the DPIA and hence further investigations cannot be done to trace back the route cause. | Qualtrics will be updated to capture QR code to investigate further |

*Table 2: Summary of reportability/non-reportability for all complaints*

*Not reportable: these complaints did not meet the reportability criteria set out in MED DEV 2.12 rev 8 vigilance standard and hence were decided to be non-reportable.

*MED DEV 2.12 rev 8 vigilance Guidance to support discussions at Incident Review Meetings & Patient Safety Panel:*

- *Question A "Has an event occurred etc."*
- *Question B "Is DHSC device cause of incident"*
- *Question C "Has the event led to death or serious deterioration in health"*

### 6.4 Complaints Trending

Actions for the implementation of a new trending methodology were defined in the CAPA-21-06-0039 which has now been approved for use. CAPA-21-06-0039 will remain in a **Verification of Effectiveness (VOE)** stage for a **minimum of three months** to ensure the effectiveness of the new methodology through continuous monitoring of complaints.

The new approach is designed to take a more granular approach to the monitoring of complaints on a weekly basis. Complaints received were retrospectively analysed and it was found that complaints data received from Qualtrics is most meaningful looking back to **15th October 2021**.

This is due to several updates to the Qualtrics survey which allowed DHSC to segregate user reports by brand and included several additional questions to citizens to provide representative information. This does present a minor limitation in that the dataset for which the mean and standard deviations are calculated is relatively small.

However, the dataset will increase over time and the mean and standard deviations will be re-calculated periodically (once per quarter).

Current trending categories analysed through the Qualtrics data, were then grouped into three main categories:

1) **Material:** this includes trending categories; Missing item, Damaged Item, Faulty item, Contaminated Item, QR code issues, Empty Buffer Solution Sachet, Insufficient Buffer Solution.
2) **Faulty Test Results:** No sub-categories exist within this category of complaints.
3) **Harm & Allergy:** this includes complaints from Patient Injury and Allergic reactions as sub-categories.

The mean was calculated for 12 weeks' worth of data, individually, for each of the categories above. Standard deviation was calculated, and a 2 Sigma calculation was subsequently applied to achieve the **Alert level (Refer to Attachment 2.1, Tab 1)**.

Customer complaints/reports received via Yellow Card, Control tower and Qualtrics are analysed daily by the Quality Investigations team and added to the weekly report for trending. Any issues which exceed Alert levels are preliminarily investigated and subsequent actions are taken based on the findings from the preliminary investigation. This could be in the form of SCAR or CAPA depending on the issue type and risk-factor i.e., Harm-Allergy complaints exceeding the Alert level would trigger a CAPA for investigation due to the nature of the incident.

Refer to **Attachment 2.2** for a summary of complaints trending activities to date.

***(Refer to Attachment 2.2)***

### 6.5 Qualtrics Survey (User Experience)

As part of ongoing development of the Qualtrics customer feedback, complaints and incidents reporting portal, several significant enhancements have been developed to enable the platform to provide useful insight from citizens regarding the use of DHSC LFD products. **Attachment 2.3** highlights statistics collected from the Qualtrics Survey with regards to the user experience of the LFD products.

A total of 2646 user responses were received during this reporting window of 15th January – 11th February 2022 for all LFD products for which the DHSC is either the legal manufacturer or distributor.

44.51% of these reports were related to the DHSC LFD Products (**highlighted in green in Attachment 2.3**). 1229 users completed 100% of the survey in an average time of 7.9 minutes.

A series of questions relating to the user's overall experience can be seen in **Attachment 2.3**. Satisfaction rates were predominantly above 80% for most queries relating to the useability of the LFD products, except for:

1) ***Reporting of results (Understanding of IFU):*** 69.36% Satisfaction Rate
2) ***Reporting of results (Difficulty of process):*** 61.95% Satisfaction Rate
3) ***Taking the Swab (Difficulty of process):*** 76.63% Satisfaction Rate
4) ***Taking the Swab from a child (Difficulty of Process):*** 70.09% Satisfaction Rate
5) ***Processing the swab sample (Difficulty of Process):*** 73.71% Satisfaction Rate

On-going product improvements are supported at the procurement stage by the LFD Product Management team and information on user experience from the Qualtrics survey is to be shared with the team for continual improvement. Actions have already been instigated at the next round of invitation to tender (ITT). Further information is referenced in **Section 6.6.**

**(Refer to Attachment 2.3)**

### 6.6 Product Management (Useability Studies)

The LFD Product Team are involved in a Three-Stage process aimed at continuously improving the useability of LFD products sourced by DHSC and supplied to the end users (see Figure 1).

The team have carried out useability research activities with 2000 users (to date) through a mixture of surveys and one to one interview. The purpose of this research is to understand (from the user's perspective) what improvements can be made to the LFD product supplied.

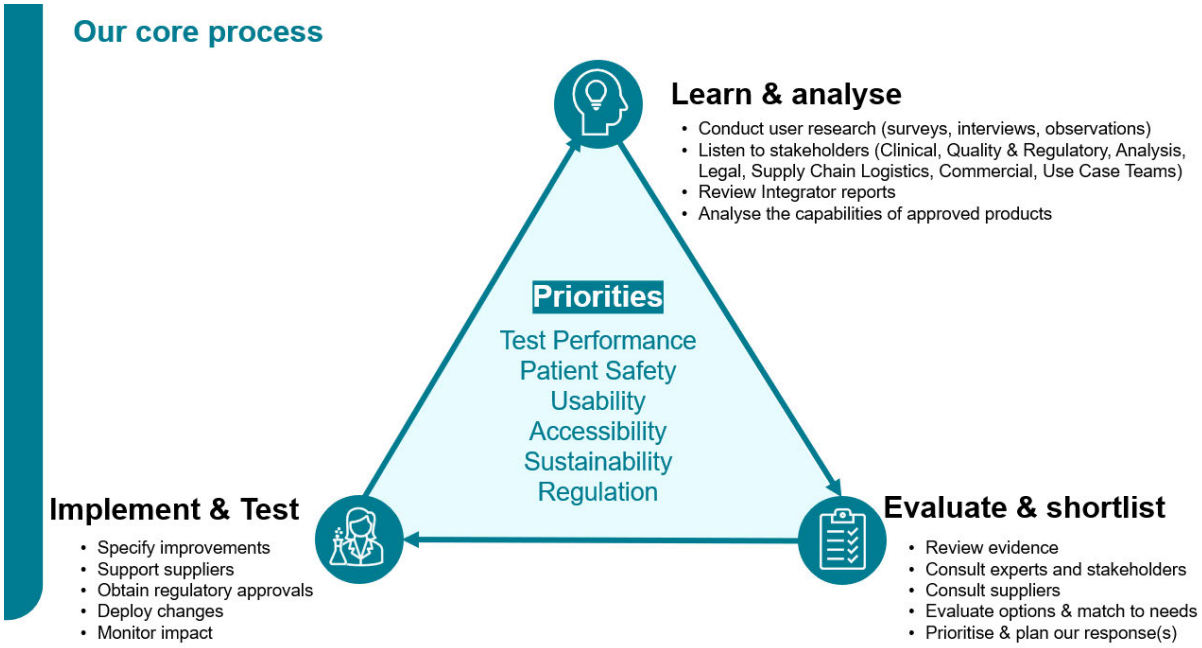



*Figure 1: LFD Product Management Teams Core Process*

Findings from these useability studies feed into improvements in the procurement exercises (Invitation to Tender ITT).

Further information on some of the findings and actions can be seen in **Attachment 08** and include:

**1) Improvements to the IFU:**

*a) Simple colour coding to distinguish between brands easily*
*b) More prominent messaging to prevent component mixing*
*c) Many content improvements to improve usability and clarity throughout the document*
*d) A new Visual Guide on the front cover to highlight the key steps of the test*
*e) A reminder to report all test results to the NHS on every page.*

**2) Improvements to the LFD Products:**

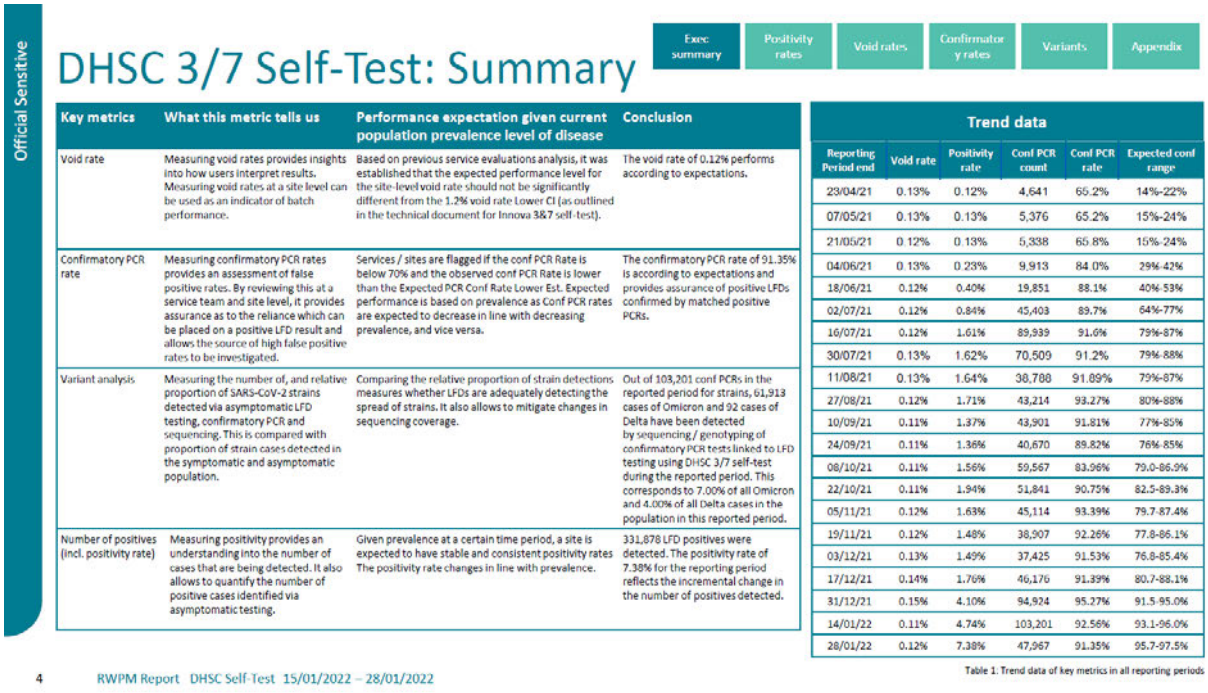
*a) New visual guide template*
*b) Fewer separate components such as pre-filled vials with attached dropper caps*
*c) "Kit Bag" prototype with visual guide*
*d) "Pizza-Style" outer box prototype with built in vial holder and visual guide*
*e) Packaging prototype with separate "kit bags".*

***(Refer to Attachment 8)***

### 6.7 Real World Performance Monitoring

The Real-World Performance Monitoring Team carry out routine performance of device and service performance using real-world data generated within NHS Test & Trace covering all services and devices.

Below are summaries for the Void rates, confirmatory PCR rates, variant analysis, and the number of positives (i.e., positivity rates), for the reporting period 15th January 2022 – 11th February 2022.



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DHSC 3/7 Self-Test: Summary

Exec summary | Positivity rates | Void rates | Confirmatory rates | Variants | Appendix

| Key metrics | What this metric tells us | Performance expectation given current population prevalence level of disease | Conclusion |
|---|---|---|---|
| Void rate | Measuring void rates provides insights into how users interpret results. Measuring void rates at a site level can be used as an indicator of batch performance. | Based on previous service evaluations analysis, it was established that the expected performance level for the site-level void rate should not be significantly different from the 1.2% void rate Lower CI (as outlined in the technical document for Innova 3&7 self-test). | The void rate of 0.12% performs according to expectations. |
| Confirmatory PCR rate | Measuring confirmatory PCR rates provides an assessment of false positive rates. By reviewing this at a service team and site level, it provides assurance as to the reliance which can be placed on a positive LFD result and allows the source of high false positive rates to be investigated. | Services / sites are flagged if the conf PCR Rate is below 70% and the observed conf PCR Rate is lower than the Expected PCR Conf Rate Lower Est. Expected performance is based on prevalence as Conf PCR rates are expected to decrease in line with decreasing prevalence, and vice versa. | The confirmatory PCR rate of 91.35% is according to expectations and provides assurance of positive LFDs confirmed by matched positive PCRs. |
| Variant analysis | Measuring the number of, and relative proportion of SARS-CoV-2 strains detected via asymptomatic LFD testing, confirmatory PCR and sequencing. This is compared with proportion of strain cases detected in the symptomatic and asymptomatic population. | Comparing the relative proportion of strain detections measures whether LFDs are adequately detecting the spread of strains. It also allows to mitigate changes in sequencing coverage. | Out of 103,201 conf PCRs in the reported period for strains, 61,913 cases of Omicron and 92 cases of Delta have been detected by sequencing / genotyping of confirmatory PCR tests linked to LFD testing using DHSC 3/7 self-test during the reported period. This corresponds to 7.00% of all Omicron and 4.00% of all Delta cases in the population in this reported period. |
| Number of positives (incl. positivity rate) | Measuring positivity provides an understanding into the number of cases that are being detected. It also allows to quantify the number of positive cases identified via asymptomatic testing. | Given prevalence at a certain time period, a site is expected to have stable and consistent positivity rates The positivity rate changes in line with prevalence. | 331,878 LFD positives were detected. The positivity rate of 7.38% for the reporting period reflects the incremental change in the number of positives detected. |

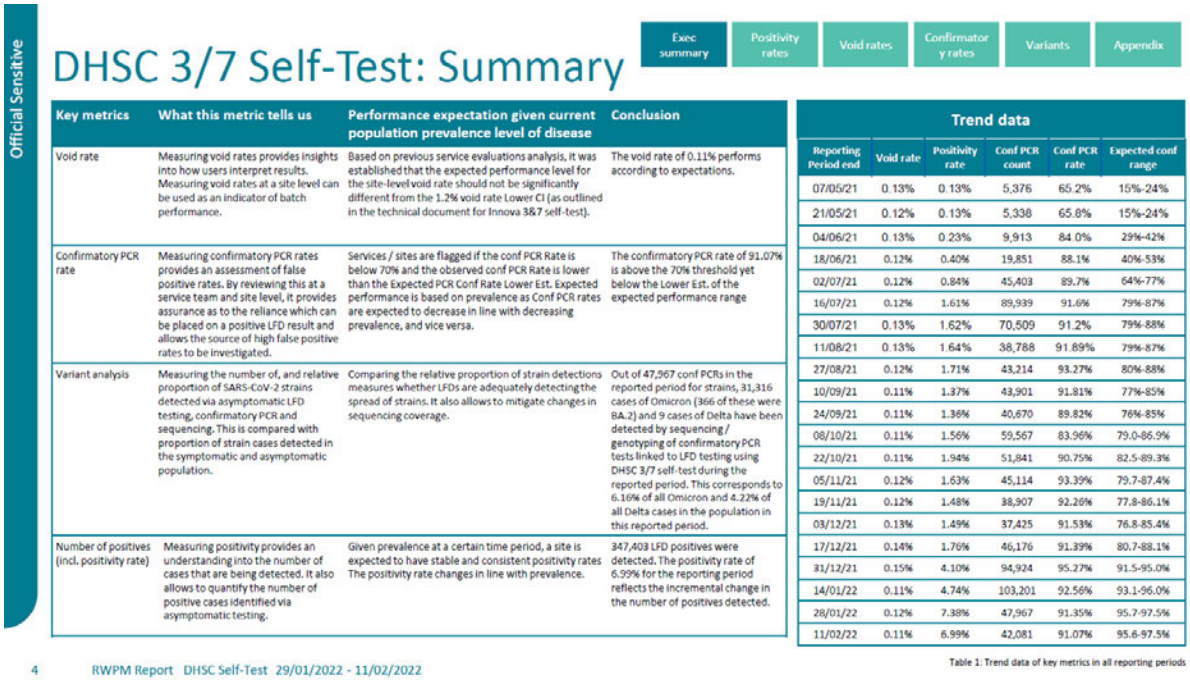
Trend data

| Reporting Period end | Void rate | Positivity rate | Conf PCR count | Conf PCR rate | Expected conf range |
|---|---|---|---|---|---|
| 23/04/21 | 0.13% | 0.12% | 4,641 | 65.2% | 14%-22% |
| 07/05/21 | 0.13% | 0.13% | 5,376 | 65.2% | 15%-24% |
| 21/05/21 | 0.12% | 0.13% | 5,338 | 65.8% | 15%-24% |
| 04/06/21 | 0.13% | 0.23% | 9,913 | 84.0% | 29%-42% |
| 18/06/21 | 0.12% | 0.40% | 19,851 | 88.1% | 40%-53% |
| 02/07/21 | 0.12% | 0.84% | 45,403 | 89.7% | 64%-77% |
| 16/07/21 | 0.12% | 1.61% | 89,939 | 91.6% | 79%-87% |
| 30/07/21 | 0.13% | 1.62% | 70,509 | 91.2% | 79%-88% |
| 11/08/21 | 0.13% | 1.64% | 38,788 | 91.89% | 79%-87% |
| 27/08/21 | 0.12% | 1.71% | 43,214 | 93.27% | 80%-88% |
| 10/09/21 | 0.11% | 1.37% | 43,901 | 91.81% | 77%-85% |
| 24/09/21 | 0.11% | 1.36% | 40,670 | 89.82% | 76%-85% |
| 08/10/21 | 0.11% | 1.56% | 59,567 | 83.96% | 79.0-86.9% |
| 22/10/21 | 0.11% | 1.94% | 51,841 | 90.75% | 82.5-89.3% |
| 05/11/21 | 0.12% | 1.63% | 45,114 | 93.39% | 79.7-87.4% |
| 19/11/21 | 0.12% | 1.48% | 38,907 | 92.26% | 77.8-86.1% |
| 03/12/21 | 0.13% | 1.49% | 37,425 | 91.53% | 76.8-85.4% |
| 17/12/21 | 0.14% | 1.76% | 46,176 | 91.39% | 80.7-88.1% |
| 31/12/21 | 0.15% | 4.10% | 94,924 | 95.27% | 91.5-95.0% |
| 14/01/22 | 0.11% | 4.74% | 103,201 | 92.56% | 93.1-96.0% |
| 28/01/22 | 0.12% | 7.38% | 47,967 | 91.35% | 95.7-97.5% |

Table 1: Trend data of key metrics in all reporting periods

4 RWPM Report DHSC Self-Test 15/01/2022 – 28/01/2022

*Figure 2: DHSC 3/7 self-test summary Period 15-Jan-2022 to 28-Jan-2022*



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DHSC 3/7 Self-Test: Summary

Exec summary | Positivity rates | Void rates | Confirmatory rates | Variants | Appendix

| Key metrics | What this metric tells us | Performance expectation given current population prevalence level of disease | Conclusion |
|---|---|---|---|
| Void rate | Measuring void rates provides insights into how users interpret results. Measuring void rates at a site level can be used as an indicator of batch performance. | Based on previous service evaluations analysis, it was established that the expected performance level for the site-level void rate should not be significantly different from the 1.2% void rate Lower CI (as outlined in the technical document for Innova 3&7 self-test). | The void rate of 0.11% performs according to expectations. |
| Confirmatory PCR rate | Measuring confirmatory PCR rates provides an assessment of false positive rates. By reviewing this at a service team and site level, it provides assurance as to the reliance which can be placed on a positive LFD result and allows the source of high false positive rates to be investigated. | Services / sites are flagged if the conf PCR Rate is below 70% and the observed conf PCR Rate is lower than the Expected PCR Conf Rate Lower Est. Expected performance is based on prevalence as Conf PCR rates are expected to decrease in line with decreasing prevalence, and vice versa. | The confirmatory PCR rate of 91.07% is above the 70% threshold yet below the Lower Est. of the expected performance range |
| Variant analysis | Measuring the number of, and relative proportion of SARS-CoV-2 strains detected via asymptomatic LFD testing, confirmatory PCR and sequencing. This is compared with proportion of strain cases detected in the symptomatic and asymptomatic population. | Comparing the relative proportion of strain detections measures whether LFDs are adequately detecting the spread of strains. It also allows to mitigate changes in sequencing coverage. | Out of 47,967 conf PCRs in the reported period for strains, 31,316 cases of Omicron (366 of these were BA.2) and 9 cases of Delta have been detected by sequencing / genotyping of confirmatory PCR tests linked to LFD testing using DHSC 3/7 self-test during the reported period. This corresponds to 6.16% of all Omicron and 4.22% of all Delta cases in the population in this reported period. |
| Number of positives (incl. positivity rate) | Measuring positivity provides an understanding into the number of cases that are being detected. It also allows to quantify the number of positive cases identified via asymptomatic testing. | Given prevalence at a certain time period, a site is expected to have stable and consistent positivity rates The positivity rate changes in line with prevalence. | 347,403 LFD positives were detected. The positivity rate of 6.99% for the reporting period reflects the incremental change in the number of positives detected. |

Trend data

| Reporting Period end | Void rate | Positivity rate | Conf PCR count | Conf PCR rate | Expected conf range |
|---|---|---|---|---|---|
| 07/05/21 | 0.13% | 0.13% | 5,376 | 65.2% | 15%-24% |
| 21/05/21 | 0.12% | 0.13% | 5,338 | 65.8% | 15%-24% |
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| 22/10/21 | 0.11% | 1.94% | 51,841 | 90.75% | 82.5-89.3% |
| 05/11/21 | 0.12% | 1.63% | 45,114 | 93.39% | 79.7-87.4% |
| 19/11/21 | 0.12% | 1.48% | 38,907 | 92.26% | 77.8-86.1% |
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| 17/12/21 | 0.14% | 1.76% | 46,176 | 91.39% | 80.7-88.1% |
| 31/12/21 | 0.15% | 4.10% | 94,924 | 95.27% | 91.5-95.0% |
| 14/01/22 | 0.11% | 4.74% | 103,201 | 92.56% | 93.1-96.0% |
| 28/01/22 | 0.12% | 7.38% | 47,967 | 91.35% | 95.7-97.5% |
| 11/02/22 | 0.11% | 6.99% | 42,081 | 91.07% | 95.6-97.5% |

Table 1: Trend data of key metrics in all reporting periods

4 RWPM Report DHSC Self-Test 29/01/2022 - 11/02/2022

*Figure 3: DHSC 3/7 self-test summary Period 29-Jan-2022 to 11-Feb-2022*

***(Refer to Attachments 3 & 4)***

### 6.8 Post Market Performance Follow Up

DHSC has implemented a series of ongoing evaluations. The objective of these evaluations is to determine whether lateral flow device (LFD) performance seen in pre-deployment evaluations are achieved when deployed by the testing service and to ensure that these continue to be suitable for use in services offered by NHS Test and Trace.

The intention is that PMPF studies are carried out on a 6-month cadence to allow for recruitment of patients, compilation and analysis of results and completion of the final report. Conclusion from the last on-going evaluation is referenced below:

*"The performance of Biotime LFD as used as the DHSC 3&7 Self-test Kit and Innova 25 Professional Use Kit was assessed across several key performance metrics (voids, specificity, sensitivity, positive predictive value, negative predictive value) through a series of ongoing evaluations. The DHSC 3&7 Self-test Kit and the Innova 25 Professional Use Kit (assisted-testing) performance was comparable between that observed in a pre-deployment setting and the ongoing service evaluation setting. Whilst sensitivity (in some viral concentration categories) and the probability a PCR positive subject is also LFD positive was lower in the ongoing evaluation for the Innova 25 Professional Use Kit (self-testing), work has been commenced to explore the relationship of this to vaccination status, infectivity, and transmission. It can be concluded, at this time, based on the data presented, that the Biotime LFD's performance, in most instance, was comparable between that observed in a pre-deployment setting and the ongoing service evaluation setting".*

DHSC has experienced several challenges which have inevitably resulted in delays in the submission Report 2. The original team creating these reports was composed of [redacted] consultants who left at the end of 2021, and an entirely new study management, biostats and report writing team had to be recruited. The changeover of staff across the whole organisation due to replacing of [redacted] consultants and fusion of DHSC with PHE into UKHSA further led to numerous delays in the onboarding process and availability of work laptops for new recruits.

Report 2 is currently expected to be available by the end of March 2022. For this PSR report and future reports, a PMPF study tracker summary has been developed to highlight the status of future PMPF. This tracker can be seen in **Attachment 10.**

**(Refer to Attachment 10)**

### 6.9 Variants of Concern (VOC)

The Variant of Concern Assurance Group (VOC) within the UKHSA are responsible for continuous monitoring of SARS-COV-2 variants. A summary of their findings which was presented at the UKHSA and MHRA Steering committee meeting on 8th Feb 2022, can be seen below:

**Variant changes**

- 2 new signals in monitoring in the UK:
    - BA.3
    - Delta x BA.1 recombinant (Delta ORF1ab and BA.1 Spike, Membrane, ORF6 and ORF7B mutations)

**BA.3**

- Likely to be a recombinant of BA.1 and BA.2.
- More BA.2 like except for a proportion of Spike which is BA.1 like
- Contains SGTF deletion 69/70
- Due to shared mutations with either BA.1 or BA.2 it would be difficult to differentiate easily in a genotyping panel and may require more than one target to do this effectively
- Large increases seen internationally this week, particularly in US, Poland, South Africa, Germany, Turkey, Italy, Botswana, and Netherlands
- In the UK an increase from 14 sequences to 24 sequences were observed
- Currently under investigation due to increases observed

**Delta x BA.1 recombinant**

- Being monitored due to mutations observed in N-terminal Domain of Spike indicates it may have high transmissibility

**BA.2**

- Continues to increase, along with BA.1.1 – growth rate is still high
- Paper for proposal of new targets for REFLEX genotyping has been sent and VOC are awaiting a decision.

The Post Market Surveillance Team will continue to provide updates from the Variant of Concern assurance group in the PSR report. Any future reports available on new variants will feed into the monthly PSR report.

### 6.10 CAPA

- Since the last reporting period the DHSC Quality team have closed 1 CAPA.
- Refer to Table 3 for a CAPA Status Overview
- Table 4 for List of open CAPA's and current progress and due dates.

| CAPA Status | No |
|---|---|
| VOE | 01 |
| Open | 01 |

*Table 3: CAPA Status Overview*

| No | CAPA No | Start Date | Source | Problem statement | Status/ progress | Due date | Reason for extension if overdue |
|---|---|---|---|---|---|---|---|
| 06 | CAPA-21-06-0013 | 08-Jun-21 | MHRA Audit CAPA | CAPA raised to strengthen the PMS plan and appropriate PMS activities | Complete – pending VOE | VOE Due Mid-Feb-22 | N/A |
| 26 | CAPA-21-06-0039 | 26-Nov-21 | PMS Activities | CAPA raised due to a spike in LFD complaints taking them over the acceptable threshold | Open – Action plan approved. | 31-Mar-22 | N/A |

*Table 4: List of open CAPA's, Status & Due date*

### 6.11 SCAR – Supplier Corrective Action Report

One SCAR was raised by DHSC to Innova on 08 Feb 2022. Initial response is requested from suppliers 48 hours after the SCAR is received by the supplier. The Initial response was received by Innova on 10-Feb-2022 and no immediate containment action was deemed necessary as the listed issue will not result in safety issue to end user, since the test cannot be performed due to part missing/bottle empty and insufficient liquid, user can replace the good product to perform test.

| SCAR No. | Start Date | Description | Fault Detected | Initial Response Date | Formal Response Due Date |
|---|---|---|---|---|---|
| SCAR-2022-018 | 08-Feb-2022 | This SCAR has been raised as a summary of the complaints received from end-users/patients relating to missing items within LFD kits kitted by Innova, covering the period of Dec 2021 & and Jan 2022. | Missing Component | 10- Feb -2022 | 08-Mar-2022 |

*Table 5: SCAR Overview*

### 6.12 Risk Management

LFD Risk management File (RMF) was updated to RMF-0001 Revision 5 and HTM Hazard traceability Matrix Rev5 ***(Refer to Attachment 06)***. The RMF updated to new template for compliance with ISO 14971:2019

No new Hazards were identified during this reporting period as part of the continual monitoring through post-market surveillance activities.

Two new hazards were captured in the **previous** reporting window. An action in the previous report was to ensure that these hazards did not change the risk acceptability policy. These hazards were reported to the Risk Management team by the Quality Investigations team. Initial feedback indicated that these were hazards that were previously been identified (see Table 6). An action was raised in the previous report and an update is provided in the table below.

| DHSC Complaint Number | Brief Description of Event | Expected Hazard ID after initial assessment | Update |
|---|---|---|---|
| LFD-21-12-0025 | User experiences hypersensitivity to extraction buffer after accidental exposure. | AI01 & HI50 | Confirmation from Risk Management specialist that this risk is already captured in the HTM |
| LFD-22-01-0007 | Duplicate QR codes received within the same box. | HI73 | Duplicate QR codes received within the same box added to HTM – no change in risk acceptability policy. Refer to Tab C in HTM **(Attachment 6)** |

*Table 6: New risks identified in previous reporting period.*

**6.13 Literature Review & State of the Art (SOTA)**

In collaboration with an external consultancy, DHSC has developed a Literature Search Protocol. The intention of the literature search is to review the continued clinical safety and effectiveness of the Lateral Flow Device kit when used for the intended purpose. Furthermore, the MedBoard platform is utilized to obtain current data on incidents, Field Safety Corrective Actions (FSCAa), etc. reported to or by regulatory agencies internationally.

The literature search & SOTA search is carried out monthly in line with the PSR reporting schedule and utilizes multiple electronic search databases (e.g., PubMed, Embase & Medboard) as highlighted in the protocol. It is worth highlighting that due to the frequency and timing of the LFD PSR reports, it is not practical nor feasible to provide a detailed analysis and conclusions of findings from the literature search report. However, the literature searches will be continuously reviewed with the support of PHCO for on-going performance evaluation and separately, a high-level summary is provided in the monthly PSR report.

The February update was conducted 07 February 2022. Two articles were found from the safety and performance search. No new articles were retrieved from the SOTA search. During first pass review, both safety and performance articles were excluded due to lack of relevance to the target device. Therefore, no new articles were considered for further analysis.

***(Refer to Attachment 09, Page 17, Figure 4).***

## 7. Conclusion & Risk-Benefit Determination

The DHSC LFD test is intended to detect the presence of coronavirus (Covid-19) antigen in humans to enable the spread of the virus to be reduced in the community. The overall purpose of post-market surveillance activities is to ensure that the device continues to meet its intended purpose.

Questions posed in the Post Market Surveillance plan (PMS-001) and at the beginning of this report have been addressed in **Table 7** and summarised in this section.

It is noted that performance of the device demonstrated a Void Rate of **0.12%** for the period between 15th Jan 2022 to 28th Jan 2022 and 0.12% for the period between 29th Jan 2022 to 11th Feb 2022, which performs according to expectations and is below the threshold of **1.2%.**

The confirmatory PCR rate of **91.35%** between the period of 15th Jan – 28th Jan 2022 and **91.07%** between the period of 29th Jan 2022 and 11th Feb 2022 which are above expected performance and provides assurance of positive LFDs confirmed by matched positive PCRs.

No new Hazards were identified during this reporting period as part of the continual monitoring through post-market surveillance activities. Hazards identified in the previous reporting period were assessed and there was no change in the risk acceptability policy evident.

DHSC has not instigated a re-call nor issued any Field Safety Corrective Action Notices during this reporting period.

No new literature or SOTA information were identified in Section 6.3 for this reporting period, therefore no new evidence is apparent to challenge the evidence presented in previous reports. LFDs remain quick and cost-effective means of rapid mass testing during the on-going pandemic and that the device continues to meet its intended purpose.

Benefits of use of Lateral Flow Devices continue to outweigh the risks identified in the risk management plan, these include:

a) Early indication of possible infection with Covid-19 while still asymptomatic
b) Prevention of spread of Covid-19 virus
c) Prevention of the need for unnecessary self-isolation/travel restriction therefore improving patient/user quality of life.
d) Widespread PCR testing is operationally unfeasible

| Question | Answer | Comments | Evidence |
|---|---|---|---|
| a) Were there any new hazard or hazardous situation(s) identified for the DHSC LFD's or has the risk acceptability changed? | No | No new hazards identified in this reporting period. | **Section 6.12** |
| b) Has any misuse of the DHSC LFDs occurred? | No | No formal complaints or reports in Qualtrics received to indicate the DHSC LFD was misused. | **Section 6.3** |
| c) Do the DHSC LFD's still meet the user's needs after medium/long term clinical use? | Yes | On-going real-world performance monitoring indicates void rates below expected threshold and confirmatory PCR tests in line with expectations. PMPF ongoing evaluation report 2 is expected imminently and will be summarised in this report once approved. | **Section 6.7** **Section 6.8** |
| d) Do users experience any usability issues? | No | Satisfaction rates are above 70% with regards to useability of the devices. Any minor issues identified are feeding into continuous improvement activities at the procurement stage. | **Section 6.5** **Section 6.6** |
| e) Are there any recurring quality issues DHSC LFD's and can significant increasing/decreasing trends be identified for DHSC LFD' inadequate performance? | No | Issues relating to missing items were observed. A SCAR has been raised against Innova/Biotime. Immediate containment action not deemed necessary as the risk on patient safety is minimal. IFU redirects affected citizens to re-order a kit and this is shipped within 24 hours. Inadequate performance of the DHSC LFD is not observed. | **Section 6.4** **Section 6.11** |

***Table 7: Questions posed by PMS-001 Plan for DHSC LFD Products***

As a result of the PMS activities analysed/discussed in this report the PMS Team advice is to continue distributing the current EUA cleared product.

## 8. Recommended Actions

| No | Added | Action | Responsible Name | Due Date | Status |
|---|---|---|---|---|---|
| 1 | 21-Jan-2022 | Two new hazards identified during this reporting window to be assessed and added to the Hazard Traceability Matrix (if applicable). An update to be provided prior to the next reporting period. | [redacted] | 16-Feb-2022 | **Completed – 28 January 2022** |

## 9. Attachments

Attachment 01: PMS-0001, PMS Plan for the DHSC Covit-19 LFD Devices (3 and 7 kit) Rev2, 29-July-2021
Attachment 02: DHSC PSR – Complaints & Qualtrics data (Attachments 2.1 – 2.3)
Attachment 03: RWPM Innova 3s and 7s
Attachment 04: RWPM Innova 25s
Attachment 05: RWPM Innova Assisted
Attachment 06: QP08-F02 LFD Hazard Traceability Matrix v.01 Issued 22.12.2021
Attachment 07: 07.1 Inbound Freight Data for Reporting Period 15012022-11022022 (Attachments 7.1 & 7.2)
Attachment 08: 08. Product Management LFD Actioned Insights 160222 - Revisions
Attachment 09: 09. Literature Search Report - Lateral Flow Device 202202withoutpapers
Attachment 10: 10. PMCPF Tracker Report

## 10. Author

| | Job Title | Name | Email |
|---|---|---|---|
| Compiled by | Post Market Surveillance Manager | [redacted] | [redacted] |