RP2 Limitations:
Copied from the BioFire RP2 Package Insert. RFIT-ASY-0522-01 June 2017

Include in all sections:

The FilmArray RP2 is a qualitative test and does not provide a quantitative value for the organism(s) in the specimen.

Results from this test must be correlated with the clinical history, epidemiological data, and other data available to the clinician evaluating the patient.

The performance of FilmArray RP2 has not been established for specimens collected from individuals without signs or symptoms of respiratory infection.

The FilmArray RP2 has not been validated for testing of specimens other than nasopharyngeal swab (NPS) specimens in transport medium.

The effect of antibiotic treatment on test performance has not been evaluated.

The performance of the FilmArray RP2 has not been established for monitoring treatment of infection with any of the panel organisms.

A negative FilmArray RP2 result does not exclude the possibility of viral or bacterial infection. Negative test results may occur from the presence of sequence variants in the region targeted by the assay, the presence of inhibitors, technical error, sample mix-up or an infection caused by an organism not detected by the panel. Test results may also be affected by concurrent antiviral/antibacterial therapy or levels of organism in the specimen that are below the limit of detection for the test. Negative results should not be used as the sole basis for diagnosis, treatment, or other patient management decisions. Negative results in the setting of a respiratory illness may be due to infection with pathogens that are not detected by this test or lower respiratory tract infection that is not detected by a nasopharyngeal swab specimen.

Viral and bacterial nucleic acids may persist in vivo independent of organism viability. Detection of organism target(s) does not imply that the corresponding organisms are infectious or are the causative agents for clinical symptoms.

Adenovirus

The FilmArray RP2 pouch contains five different assays (Adeno2, Adeno3, Adeno6, Adeno7.1, and Adeno8) for the detection of Adenovirus. The FilmArray Software interprets each of these assays independently (as described above) and the results are combined as a final test result for the virus. If one or any combination of assays is positive, the test report result will be Adenovirus Detected. If all assays are negative, the test report result will be Adenovirus Not Detected.

Influenza A

The assays in the FilmArray RP2 are designed to both detect Influenza A and to differentiate commonly occurring hemagglutinin subtypes. To accomplish this, the FilmArray RP2 uses two Influenza A assays, (FluA-pan-1 and FluA-pan2) and three subtyping assays directed at the hemagglutinin gene (FluA-H1-2, FluA-H1-2009, and FluA-H3).

The performance of the FilmArray RP2 has not been established with potentially interfering medications for the treatment of influenza or cold viruses. The effect of interfering substances has only been evaluated for those listed in the Interference section. Interference from substances that were not evaluated could lead to erroneous results.

The FilmArray RP2 influenza A subtyping assays target the influenza A hemagglutinin (H) gene only. The FilmArray RP2 does not detect or differentiate the influenza A neuraminidase (N) subtypes.

Clinical performance was established when Influenza A H1-2009 (H1N1pdm09) was the predominant Influenza A virus in circulation. When other Influenza A viruses are emerging, performance may vary.

Influenza A (no subtype detected)

If both of the FluA-pan assays are positive, but none of the hemagglutinin subtyping assays are positive, then the interpretation is Influenza A (no subtype detected). This result could occur when the titer of the virus in the specimen is low and not detected by the subtyping assays. This result could also indicate the presence of a novel Influenza A strain. In both cases, the sample in question should be retested. If the retest provides a different result, test the sample a third time to ensure the accuracy of the result. If the retest provides the same result, then the function of the RP2 pouches should be verified by testing with appropriate external control materials (known positive samples for Influenza A H1, Influenza A H3 and Influenza A H1-2009), and a negative control should also be run to test for PCR-product contamination. If the FilmArray RP2 accurately identifies the external and negative controls, contact the appropriate public health authorities for confirmatory testing.

The performance of the FilmArray RP2 has not been established with potentially interfering medications for the treatment of influenza or cold viruses. The effect of interfering substances has only been evaluated for those listed in the Interference section. Interference from substances that were not evaluated could lead to erroneous results.

The FilmArray RP2 may not be able to distinguish between existing viral strains and new variants as they emerge. For example, the FilmArray RP2 can detect Influenza A H3N2v (first recognized in August, 2011), but will not be able to distinguish this variant from Influenza A H3N2 seasonal. If variant virus infection is suspected, clinicians should contact their state or local health department to arrange specimen transport and request a timely diagnosis at a state public health laboratory.

Clinical performance was established when Influenza A H1-2009 (H1N1pdm09) was the predominant Influenza A virus in circulation. When other Influenza A viruses are emerging, performance may vary.

Due to the small number of positive specimens collected for certain organisms during the prospective clinical study, performance characteristics for Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Coronavirus 229E, Influenza A H1, Influenza A H3, Influenza B, Parainfluenza Virus 1, and Parainfluenza Virus 4 were established primarily with retrospective clinical specimens. Performance characteristics for Influenza A H1 was established primarily using contrived clinical specimens.

Coronaviruses

Due to the small number of positive specimens collected for certain organisms during the prospective clinical study, performance characteristics for Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Coronavirus 229E, Influenza A H1, Influenza A H3, Influenza B, Parainfluenza Virus 1, and Parainfluenza Virus 4 were established primarily with retrospective clinical specimens. Performance characteristics for Influenza A H1 was established primarily using contrived clinical specimens.

Human Metapneumovirus

Influenza A and B (Flu A/B)

Due to the small number of positive specimens collected for certain organisms during the prospective clinical study, performance characteristics for Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Coronavirus 229E, Influenza A H1, Influenza A H3, Influenza B, Parainfluenza Virus 1, and Parainfluenza Virus 4 were established primarily with retrospective clinical specimens. Performance characteristics for Influenza A H1 was established primarily using contrived clinical specimens.

The FilmArray RP2 influenza A subtyping assays target the influenza A hemagglutinin (H) gene only. The FilmArray RP2 does not detect or differentiate the influenza A neuraminidase (N) subtypes.

Recent administration of nasal influenza vaccines (e.g. FluMist) prior to NPS specimen collection could lead to accurate virus detection by the FilmArray RP2 of the viruses contained in the vaccine, but would not represent infection by those agents.

Parainfluenza Viruses

Due to the small number of positive specimens collected for certain organisms during the prospective clinical study, performance characteristics for Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Coronavirus 229E, Influenza A H1, Influenza A H3, Influenza B, Parainfluenza Virus 1, and Parainfluenza Virus 4 were established primarily with retrospective clinical specimens. Performance characteristics for Influenza A H1 was established primarily using contrived clinical specimens.

Respiratory Syncytial Virus (RSV)

Rhinoviruses (HRV) and Enteroviruses

The performance of the FilmArray RP2 has not been established with potentially interfering medications for the treatment of influenza or cold viruses. The effect of interfering substances has only been evaluated for those listed in the Interference section. Interference from substances that were not evaluated could lead to erroneous results.

Due to the genetic similarity between Human Rhinovirus and Enterovirus, the FilmArray RP2 cannot reliably differentiate them. A FilmArray RP2 Rhinovirus/Enterovirus Detected result should be followed-up using an alternate method (e.g. cell culture or sequence analysis) if differentiation between the viruses is required.

Bordetella parapertussis

Some strains of B. bronchiseptica (rarely isolated from humans) do carry IS1001 insertion sequences identical to those carried by most strains of B. parapertussis. These sequences will be amplified by the IS1001 assay and reported by FilmArray RP2 as Bordetella parapertussis (IS1001).

Bordetella pertussis

Due to the small number of positive specimens collected for certain organisms during the prospective clinical study, performance characteristics for Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Coronavirus 229E, Influenza A H1, Influenza A H3, Influenza B, Parainfluenza Virus 1, and Parainfluenza Virus 4 were established primarily with retrospective clinical specimens. Performance characteristics for Influenza A H1 was established primarily using contrived clinical specimens.

FilmArray RP2 detects a single-copy Pertussis Toxin promoter target (ptxP, present at one copy per cell) in B. pertussis. Other PCR tests for B. pertussis target the multi-copy IS481 insertion sequence (present in both B. pertussis and B. holmesii) and are therefore capable of detecting lower levels of B. pertussis (i.e. more sensitive).

FilmArray RP2 should not be used if B. pertussis infection is specifically suspected; a B. pertussis molecular test that is FDA-cleared for use on patients suspected of having a respiratory tract infection attributable to B. pertussis only should be used instead.

Due to lower sensitivity, the FilmArray RP2 B. pertussis assay is less susceptible than IS481 assays to the detection of very low levels of contaminating B. pertussis vaccine material. However, care must always be taken to avoid contamination of specimens with vaccine material as higher levels may still lead to false positive results with the FilmArray RP2 test.

The IS481 sequence is also present in B. holmesii and to a lesser extent in B. bronchiseptica, whereas the FilmArray RP2 assay (ptxP) was designed to be specific for B. pertussis. However, the FilmArray RP2 Bordetella pertussis (ptxP) assay can also amplify pertussis toxin pseudogene sequences when present in B. bronchiseptica and B. parapertussis. Cross-reactivity was observed at high concentration (e.g., ≥1.2E+09 CFU/mL).

Chlamydia pneumoniae

Due to the small number of positive specimens collected for certain organisms during the prospective clinical study, performance characteristics for Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Coronavirus 229E, Influenza A H1, Influenza A H3, Influenza B, Parainfluenza Virus 1, and Parainfluenza Virus 4 were established primarily with retrospective clinical specimens. Performance characteristics for Influenza A H1 was established primarily using contrived clinical specimens.

Mycoplasma pneumoniae