

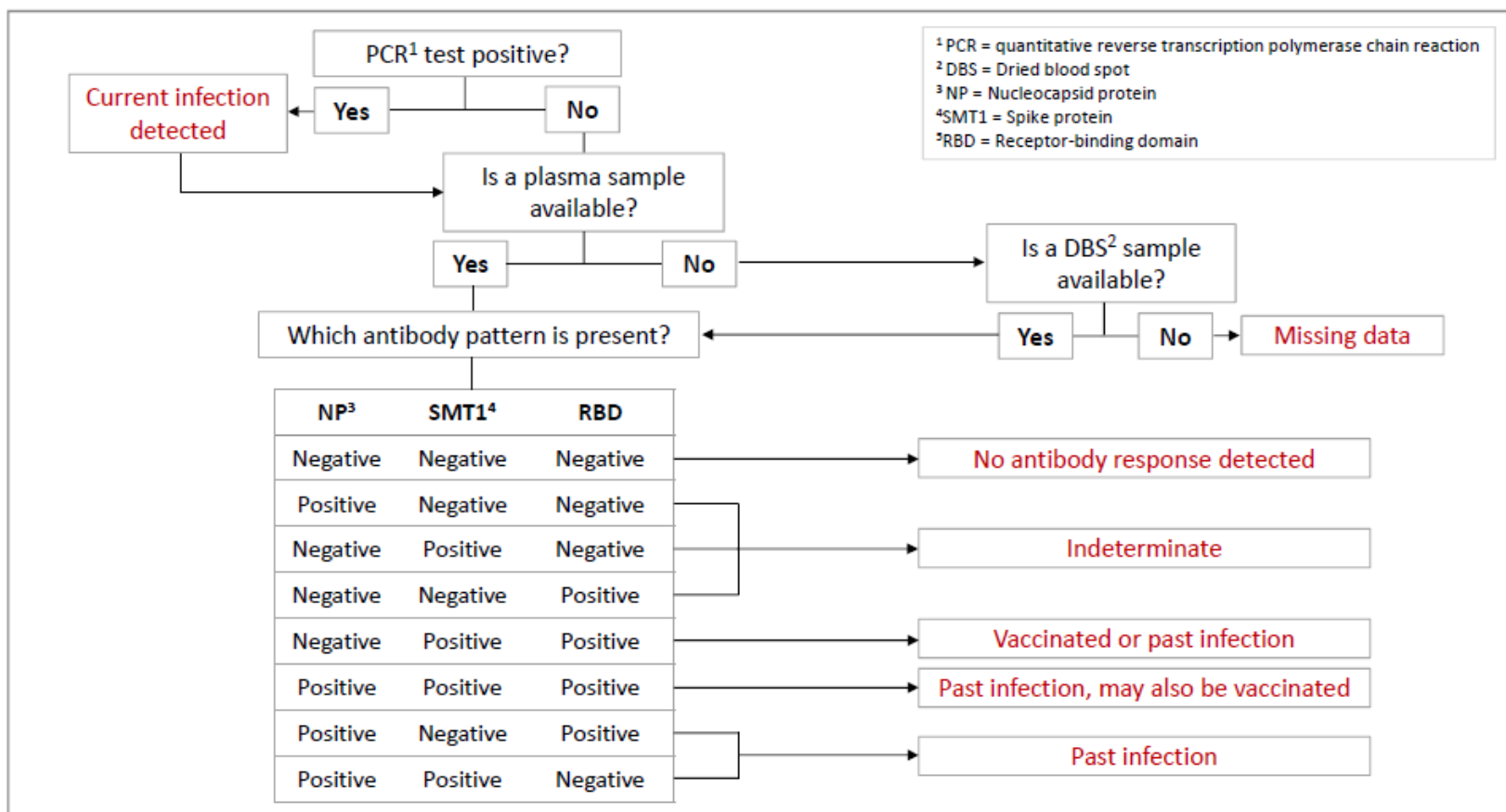
Supplement 4: Adjudication of serological and self-report data into past infection and vaccination status

Our serologic assays detect total IgG antibodies against three SARS-CoV-2 antigens: Nucleocapsid (NP), Spike protein (SMT1) and Receptor-binding domain (RBD). Antibodies against NP indicate past infection, whereas antibodies against SMT1 and RBD indicate immunization and/or past infection.

For each sample, raw values of IgG antibody levels were normalized to a reference point on a standard curve run on the same assay plate. The thresholds for positivity were set at 3 standard deviations below the mean of a log distribution of negative control samples. Sensitivity and specificity at these thresholds were determined by applying a confusion matrix to a set of 560 negative control samples (obtained prior to the advent of COVID-19) and 392 positive controls samples obtained from PCR-confirmed cases at least 2 weeks after symptom onset. Sensitivity and specificity were 0.99 and 0.79, respectively, for antibodies against NP; 0.99 and 0.97 for antibodies against SMT1; and 1.0 and 0.89 for antibodies against RBD.

Because our samples are collected during a period when both infections and vaccinations occur, we followed the decision tree in Step 1 to summarize serological results, and the decision matrix in Step 2 to combine serologic results and self-report data to assign infection status and vaccination status for each participant.

Step 1 - Decision tree to summarize serological data results



Step 2 – Decision matrix to combine serological results and self-report data to assign past infection and vaccination status

Serological results (See Step 1)	Self-reported Infection history ¹	Self-reported Vaccination History ²	Final infection status	Final vaccination status
No antibody response	No positive test ³	Zero doses	No past infection	No past vaccination
No antibody response	No positive test	1+ doses	No past infection	Past vaccination
No antibody response	Positive test	Zero doses	Past infection	No past vaccination
No antibody response	Positive test	1+ doses	Past infection	Past vaccination
Indeterminate	No positive test	Zero doses	No past infection	No past vaccination
Indeterminate	No positive test	1+ doses	No past infection	Past vaccination
Indeterminate	Positive test	Zero doses	Past infection	No past vaccination
Indeterminate	Positive test	1+ doses	Past infection	Past vaccination
Vaccinated or past infection	No positive test	Zero doses	Past infection	No past vaccination
Vaccinated or past infection	No positive test	1+ doses	No past infection	Past vaccination
Vaccinated or past infection	Positive test	Zero doses	Past infection	No past vaccination
Vaccinated or past infection	Positive test	1+ doses	Past infection	Past vaccination
Past infection, may also be vaccinated	No positive test	Zero doses	Past infection	No past vaccination
Past infection, may also be vaccinated	No positive test	1+ doses	Past infection	Past vaccination
Past infection, may also be vaccinated	Positive test	Zero doses	Past infection	No past vaccination
Past infection, may also be vaccinated	Positive test	1+ doses	Past infection	Past vaccination
Past infection	No positive test	Zero doses	Past infection	No past vaccination
Past infection	No positive test	1+ doses	Past infection	Past vaccination
Past infection	Positive test	Zero doses	Past infection	No past vaccination
Past infection	Positive test	1+ doses	Past infection	Past vaccination
Missing data	Any response	Any response	Missing	Missing

¹ All records linked at ICES will be cross-referenced against testing events in the OLIS database.

² All records linked at ICES will be cross-referenced against vaccination events recorded in the COVAXON database.

³ 'No positive test' includes those who: were never tested; do not recall whether they were tested; were tested and received only negative results; or were tested but did not know their test result