Supplement

Table S1: Summary of participant characteristics

|                        | Staff (Adults) | Children | Total |
|------------------------|---------------|----------|-------|
| Number of participants | 1253          | 746      | 1999  |
| Period of collection   | 28th May – 10th July |
| Male (%)               | 242 (19.31%)  | 377 (50.54%) | 619 (30.97%) |
| Sex unknown            | 30 (2.39%)    | 21 (2.82%)  | 51 (2.55%) |
| Age at sampling median (min - max) | 43 (22–71yrs) | 8 (0–19yrs) | 11 (0–71yrs) |
| 0 to 3 years           | 8 (1.07%)     | 4 (0.40%)  |
| 4 years                | 4 (1.55%)     | 4 (1.21%)  |
| 5 years                | 99 (13.27%)   | 99 (4.95%) |
| 6 years                | 119 (15.95%)  | 119 (5.95%)|
| 7 years                | 60 (8.04%)    | 60 (3.00%) |
| 8 years                | 69 (9.25%)    | 69 (3.45%) |
| 9 years                | 76 (10.05%)   | 75 (3.75%) |
| 10 years               | 77 (10.32%)   | 77 (3.85%) |
| 11 years               | 150 (20.11%)  | 150 (7.50%)|
| 12 to 19 years         | 10 (1.34%)    | 10 (0.50%) |
| Age unknown            | 750 (59.86%)  | 38 (5.09%) | 787 (39.42%) |
| Oral fluids with paired serum analysed in Abbott | 1253 (100.00%) | 746 (100.00%) | 1999 (100.00%) |
| Paired OF with result in N capture | 1251 (99.84%) | 741 (99.33%) | 1992 (99.65%) |
| Paired OF with result in S capture | 1251 (99.84%) | 741 (99.33%) | 1992 (99.65%) |
| Paired OF with result in RBD indirect | 1253 (100.00%) | 746 (100.00%) | 1999 (100.00%) |
| OF with results for all three OF EIA’s and data on total IgG | 1251 (99.84%) | 741 (99.33%) | 1992 (99.65%) |

Table S2: Sensitivity and Specificity at a range of cut-offs based on serostatus determined by Abbot Architect (cut-off at 0.8)

| RBD cut | Sens (n/N) | Spec (n/N) | RBD cut | Sens (n/N) | Spec (n/N) |
|---------|------------|------------|---------|------------|------------|
| 0.2 | 66/92 | 0.72 (0.61-0.81) | 633/654 | 0.97 (0.95-0.99) | 0.7 | 79/91 | 0.87 (0.78-0.93) |
| 0.3 | 58/92 | 0.67 (0.57-0.75) | 633/654 | 0.98 (0.96-0.99) | 0.8 | 71/91 | 0.85 (0.76-0.91) |
| 0.4 | 58/92 | 0.63 (0.52-0.73) | 643/654 | 0.98 (0.97-0.99) | 0.9 | 76/91 | 0.84 (0.74-0.91) |
| 0.5 | 53/92 | 0.58 (0.47-0.68) | 647/654 | 0.99 (0.98-1) | 1 | 73/91 | 0.80 (0.71-0.88) |
| 0.6 | 49/92 | 0.55 (0.45-0.66) | 648/654 | 0.99 (0.98-1) | 1.1 | 71/91 | 0.78 (0.68-0.86) |
| 0.7 | 49/92 | 0.53 (0.43-0.64) | 649/654 | 0.99 (0.98-1) | 1.2 | 69/91 | 0.76 (0.66-0.84) |
| 0.8 | 47/92 | 0.51 (0.40-0.62) | 650/654 | 0.99 (0.98-1) | 1.3 | 65/91 | 0.71 (0.61-0.80) |
| 0.9 | 39/92 | 0.40 (0.29-0.54) | 656/654 | 0.99 (0.98-1) | 1.4 | 57/91 | 0.57 (0.46-0.68) |
| 1.0 | 29/92 | 0.29 (0.18-0.42) | 658/654 | 0.99 (0.98-1) | 1.5 | 45/91 | 0.29 (0.18-0.42) |
| 1.1 | 17/92 | 0.19 (0.08-0.33) | 661/654 | 0.99 (0.98-1) | 1.6 | 21/91 | 0.19 (0.08-0.33) |
| 1.2 | 6/92 | 0.09 (0.01-0.36) | 662/654 | 0.99 (0.98-1) | 1.7 | 6/91 | 0.09 (0.01-0.36) |

[n = number (in a category); N = total number (of individuals); cut = cut-off level; Sens = sensitivity, Spec = Specificity]
**Table S3: Pre-pandemic samples for OF validation:**

| Assay     | Sample number | Age range (years) | Surveillance purpose                      | Description                                                                 | Positives (%) |
|-----------|---------------|-------------------|-------------------------------------------|----------------------------------------------------------------------------|----------------|
| RBD       | 164           | 0-25              | Mumps, Measles, Rubella (MMR)             | Rash like illness (negative for MMR), collected 2019                      | 3 / 164 (1.8%) |
|           | 325           | 2-16              | Live attenuated influenza vaccine (LAIV) responses | Samples from vaccinated individuals (paired) for vaccine surveillance, collected 2014-2018 | 0 / 325 (0%)   |
|           | 179           | Adults (>= 18 years) | Influenza-like illness                  | Pilot for national telephone survey with serological surveillance (pre- and post 2013/14 season) | 1 / 179 (0.6%) |
| **total** | **668**       |                   |                                           |                                                                           | **4 / 668 (0.6%)** |

| NP GICAP  | 40            | 12-18             | HAV transmission                        | Outbreak investigation in schools, collected 2018                          | 1 / 40 (2.5%)  |
| Spike GICAP | 40          | 12-18             | HAV transmission                        | Outbreak investigation in schools collected 2018                          | 0 / 40 (0%)    |

Legend: The RBD and GICAP assays were developed and validated by separate research teams within the virology department, which determined access to separate pre-pandemic samples archived by these groups, which are detailed in the table.

Supplementary Figure S1: ROC analysis of the oral fluid assays. Receiver operating characteristic curves showing relationship of sensitivity and specificity when using the RBD EIA, NP GICAP and S-GICAP, respectively with OF samples collected from children (top row) and adults (bottom row), together with the area under the curve for each assay.

Supplementary Figure S2: Distribution of total IgG in OF by age group (i.e. children versus adults).
Figure S1: ROC Analysis

**AUC Under the Curve results (95% confidence intervals)**

| Assay               | RDO  | Spike | NP  |
|---------------------|------|-------|-----|
| shiDS (child)       | 0.997 (0.973-0.994) | 0.942 (0.933-0.956) | 0.903 (0.892-0.906) |
| shiDS (adult)       | 0.874 (0.854-0.892)  | 0.874 (0.856-0.892)  | 0.874 (0.856-0.892)  |

ROC = receiver operating characteristic curve (vs. cutoff at 0.8)
Figure S2: Distribution of total IgG in OF by study group