## intercept\_table

| **Multinomial Outcome** | **Model Term** | **Effect Type** | **Description** | **Effect** | **p-value** |
| --- | --- | --- | --- | --- | --- |
| HKU9-related Beta-CoV | (Intercept) | Intercept | Prevalence at mean covariate values | -3.7 (-4.16, -3.24) | 0\*\*\* |
| Novel Alpha-CoV | (Intercept).1 | Intercept | Prevalence at mean covariate values | -2.4 (-2.7, -2.1) | 0\*\*\* |
| Novel Beta-CoV | (Intercept).2 | Intercept | Prevalence at mean covariate values | -6 (-7.34, -4.66) | 0\*\*\* |

## smooths\_table

| **Model Term** | **Effect Type** | **Description** | **Knots/Levels** | **Effective Degrees of Freedom** | **p-value** | **Minimum Effect Size** | **Maximum Effect Size** | **Evaluated for Rectal Samples Only** | **Evaluated on Dates with Bat Collection Only** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Multinomial Outcome: Novel Alpha-CoV** | | | | | | | | | |
| s(sample\_type):dummy\_rectal1 | Random Effect | Random effect fecal or rectal baseline prevalence differing from intercept | 2 | 0.10 | 0.2494 | -0.047 (-0.29, 0.23) | 0 (0, 0) | Yes | Yes |
| s(day):sample\_typeFecal | Thin Plate Spline | Long-term nonlinear trend of prevalence in fecal samples | 5 | 1.02 | 0.9337 | -0.031 (-0.67, 0.57) | 0.066 (-0.93, 1.1) | No | No |
| s(day):sample\_typeRectal | Thin Plate Spline | Long-term nonlinear trend of prevalence in rectal samples | 5 | 1.00 | 0.5973 | -0.25 (-1.2, 0.73) | 0.25 (-0.72, 1.2) | Yes | Yes |
| s(day,gender\_age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common long-term trend | 25 | 0.00 | 0.9160 | -0.00044 (-0.0096, 0.0094) | 0.00038 (-0.0088, 0.0096) | Yes | Yes |
| s(day,gender):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common long-term trend | 15 | 0.00 | 0.9112 | -5e-04 (-0.0066, 0.006) | 0.00017 (-0.0065, 0.0078) | Yes | Yes |
| s(day,age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common long-term trend | 15 | 0.23 | 0.2968 | -0.096 (-0.63, 0.45) | 0.089 (-0.4, 0.65) | Yes | Yes |
| s(day\_of\_year):sample\_typeFecal | Cyclic Cubic Spline | Annual nonlinear cyclic trend of prevalence in fecal samples | 5 | 2.11 | 0.0000\*\*\* | -2 (-3.1, -1) | 1.6 (0.88, 2.2) | No | No |
| s(day\_of\_year):sample\_typeRectal | Cyclic Cubic Spline | Annual nonlinear cyclic trend of prevalence in rectal samples | 5 | 1.26 | 0.0547· | -0.64 (-1.3, 0.053) | 0.5 (-0.037, 1.1) | Yes | Yes |
| s(day\_of\_year,gender\_age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common annual cyclic trend | 20 | 0.00 | 0.9304 | -0.00048 (-0.0096, 0.0092) | 0.00045 (-0.0091, 0.0096) | Yes | Yes |
| s(day\_of\_year,gender):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common annual cyclic trend | 12 | 0.09 | 0.4298 | -0.034 (-0.23, 0.17) | 0.026 (-0.13, 0.19) | Yes | Yes |
| s(day\_of\_year,age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common annual cyclic trend | 12 | 0.02 | 0.4755 | -0.0084 (-0.13, 0.12) | 0.0059 (-0.091, 0.093) | Yes | Yes |
| s(fmi\_normalized):dummy\_rectal1 | Thin Plate Spline | Nonlinear effect of bat FMI, normalized within age, sex, and reproductive calss, on prevalence | 5 | 1.00 | 0.0858· | -1.8 (-3.7, 0.61) | 2.1 (-0.74, 4.5) | Yes | Yes |
| s(reproductive\_condition):dummy\_repro1 | Random Effect | Random effect of prevalence in bats with reproductive conditions (Pregnant, Lactating, Scrotal) varying from intercept | 4 | 0.00 | 0.8767 | -4e-04 (-0.017, 0.015) | 0.00016 (-0.015, 0.015) | Yes | Yes |
| **Multinomial Outcome: HKU9-related Beta-CoV** | | | | | | | | | |
| s.1(sample\_type):dummy\_rectal1 | Random Effect | Random effect fecal or rectal baseline prevalence differing from intercept | 2 | 0.00 | 0.6027 | -0.00013 (-0.01, 0.01) | 0 (0, 0) | No | No |
| s.1(day):sample\_typeFecal | Thin Plate Spline | Long-term nonlinear trend of prevalence in fecal samples | 5 | 2.33 | 0.0014\*\* | -1.3 (-2.1, -0.38) | 0.69 (0.35, 1.1) | No | No |
| s.1(day):sample\_typeRectal | Thin Plate Spline | Long-term nonlinear trend of prevalence in rectal samples | 5 | 2.22 | 0.5026 | -0.58 (-1.3, 0.089) | 0.59 (-0.6, 1.7) | Yes | Yes |
| s.1(day,gender\_age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common long-term trend | 25 | 0.00 | 0.9572 | -0.00015 (-0.0029, 0.0028) | 0.00016 (-0.0033, 0.0035) | Yes | Yes |
| s.1(day,gender):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common long-term trend | 15 | 0.00 | 0.9935 | -0.00019 (-0.0057, 0.0055) | 2e-04 (-0.0036, 0.0039) | Yes | Yes |
| s.1(day,age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common long-term trend | 15 | 1.46 | 0.0417\* | -0.35 (-1.4, 0.7) | 0.44 (-0.37, 1.1) | Yes | Yes |
| s.1(day\_of\_year):sample\_typeFecal | Cyclic Cubic Spline | Annual nonlinear cyclic trend of prevalence in fecal samples | 5 | 2.41 | 0.0000\*\*\* | -1.6 (-2.3, -0.9) | 1.5 (0.97, 1.9) | No | No |
| s.1(day\_of\_year):sample\_typeRectal | Cyclic Cubic Spline | Annual nonlinear cyclic trend of prevalence in rectal samples | 5 | 1.56 | 0.0017\*\* | -0.58 (-1.3, 0.14) | 0.65 (-0.018, 1.4) | Yes | Yes |
| s.1(day\_of\_year,gender\_age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common annual cyclic trend | 20 | 0.00 | 0.7991 | -0.00047 (-0.0071, 0.0058) | 0.00036 (-0.0073, 0.0076) | Yes | Yes |
| s.1(day\_of\_year,gender):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common annual cyclic trend | 12 | 0.00 | 0.9476 | -0.00048 (-0.0072, 0.0062) | 0.00043 (-0.0072, 0.0083) | Yes | Yes |
| s.1(day\_of\_year,age):dummy\_rectal1 | Factor-Spline | Random nonlinear effects of trends in prevalence within gender/age groups varying from the common annual cyclic trend | 12 | 1.61 | 0.0687· | -0.28 (-1, 0.4) | 0.38 (-0.17, 0.97) | Yes | Yes |
| s.1(fmi\_normalized):dummy\_rectal1 | Thin Plate Spline | Nonlinear effect of bat FMI, normalized within age, sex, and reproductive calss, on prevalence | 5 | 1.00 | 0.1788 | -0.77 (-2, 0.45) | 0.93 (-0.52, 2.4) | Yes | Yes |
| s.1(reproductive\_condition):dummy\_repro1 | Random Effect | Random effect of prevalence in bats with reproductive conditions (Pregnant, Lactating, Scrotal) varying from intercept | 4 | 1.47 | 0.0681· | -1.1 (-2.4, -0.017) | 0 (0, 0) | Yes | Yes |
| **Multinomial Outcome: Novel Beta-CoV** | | | | | | | | | |
| s.2(sample\_type):dummy\_rectal1 | Random Effect | Random effect fecal or rectal baseline prevalence differing from intercept | 2 | 0.00 | 0.7668 | 0 (0, 0) | 0.00019 (-0.0083, 0.0091) | Yes | Yes |
| s.2(day):sample\_typeFecal | Thin Plate Spline | Long-term nonlinear trend of prevalence in fecal samples | 5 | 1.00 | 0.9164 | -0.084 (-1.6, 1.4) | 0.054 (-0.9, 1) | No | No |
| s.2(day):sample\_typeRectal | Thin Plate Spline | Long-term nonlinear trend of prevalence in rectal samples | 5 | 1.01 | 0.5577 | -1.2 (-4.3, 1.9) | 1.2 (-2, 4.3) | Yes | Yes |
| s.2(day\_of\_year):sample\_typeFecal | Cyclic Cubic Spline | Annual nonlinear cyclic trend of prevalence in fecal samples | 5 | 2.07 | 0.0000\*\*\* | -3.2 (-4.7, -1.9) | 4.3 (2.5, 6.3) | No | No |
| s.2(day\_of\_year):sample\_typeRectal | Cyclic Cubic Spline | Annual nonlinear cyclic trend of prevalence in rectal samples | 5 | 1.47 | 0.0363\* | -1.6 (-3.2, -0.32) | 2.2 (0.48, 4.2) | Yes | Yes |