## 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 | -0.051 (-0.32, 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 | -0.028 (-0.66, 0.56) | 0.084 (-0.95, 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 | -0.24 (-1.3, 0.75) | 0.24 (-0.76, 1.3) | 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 | -0.00035 (-0.0071, 0.0065) | 0.00041 (-0.0064, 0.0066) | 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 | -0.00037 (-0.0093, 0.0082) | 9.5e-06 (-0.0092, 0.0091) | 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 | -0.1 (-0.63, 0.41) | 0.098 (-0.43, 0.71) | 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\*\*\* | -2.1 (-3.1, -1.1) | 1.6 (1, 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· | -0.67 (-1.4, -0.0097) | 0.51 (0.00013, 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 (-0.0095, 0.0087) | 0.00034 (-0.009, 0.0094) | 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 | -0.031 (-0.26, 0.18) | 0.024 (-0.15, 0.22) | 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 | -0.0049 (-0.13, 0.12) | 0.0028 (-0.089, 0.09) | 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 (-3.9, 0.29) | 2.2 (-0.33, 4.7) | 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 | -0.00053 (-0.016, 0.014) | 6.1e-05 (-0.016, 0.016) | 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 | -6.2e-05 (-0.0095, 0.0097) | 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, -0.49) | 0.68 (0.27, 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 | -0.57 (-1.2, 0.096) | 0.61 (-0.51, 1.6) | 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 | -0.00014 (-0.0047, 0.0042) | 0.00023 (-0.0045, 0.0045) | 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 | -0.00011 (-0.0057, 0.0061) | 0.00016 (-0.0066, 0.0057) | 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\* | -0.31 (-1.3, 0.68) | 0.42 (-0.38, 1.2) | 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 (-2.1, -0.93) | 1.5 (0.96, 2) | 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\*\* | -0.54 (-1.4, 0.21) | 0.61 (-0.052, 1.3) | 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 | -0.00048 (-0.0074, 0.0059) | 5e-04 (-0.0076, 0.0077) | 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 | -0.00034 (-0.0079, 0.008) | 0.00049 (-0.0066, 0.0079) | 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· | -0.29 (-1, 0.42) | 0.37 (-0.18, 0.89) | 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 | -0.82 (-2, 0.4) | 0.99 (-0.46, 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 (-2.3, -0.031) | 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 | -1.4e-05 (-0.01, 0.0091) | 0 (0, 0) | Yes | Yes |
| s.2(day):sample\_typeFecal | Thin Plate Spline | Long-term nonlinear trend of prevalence in fecal samples | 5 | 1.00 | 0.9164 | -0.057 (-1.4, 1.6) | 0.037 (-1.1, 0.93) | 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, 1.5) | 1.2 (-1.5, 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 (2.6, 6.1) | 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 (-3.1, -0.35) | 2.2 (0.51, 4) | Yes | Yes |