Long-term cardiovascular safety of COVID-19 vaccination according to brand, dose and combinations: Cohort study of 46 million adults in England

**Contents – Supplementary Tables**

[Supplementary Table 28: Hazard ratios and 95% CIs for individual arterial and venous thrombotic events, and other cardiovascular events, by time since booster vaccination with BNT-162b2 for those on a primary course of BNT-162b2. 2](#_Toc163162361)

[Supplementary Table 29: Hazard ratios and 95% CIs for individual arterial and venous thrombotic events, and other cardiovascular events, by time since booster vaccination with mRNA-1273 for those on a primary course of BNT-162b2. 3](#_Toc163162362)

[Supplementary Table 30: Hazard ratios and 95% CIs for individual arterial and venous thrombotic events, and other cardiovascular events, by time since booster vaccination with mRNA-1273 or BNT-162b2 for those on a primary course of BNT-162b2. 4](#_Toc163162363)

[Supplementary Table 31: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster vaccination with BNT-162b2/mRNA-1273 for those on a primary course of ChAdOx1. 5](#_Toc163162364)

[Supplementary Table 32: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2/ mRNA-1273 for those on a primary course of BNT-162b2. 6](#_Toc163162365)

[Supplementary Table 33: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2/ mRNA-1273 for those on a primary course of BNT-162b2/mRNA-1273. 7](#_Toc163162366)

[Supplementary Table 34: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with mRNA-1273 for those on a primary course of BNT-162b2/mRNA-1273. 8](#_Toc163162367)

[Supplementary Table 35: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2 for those on a primary course of BNT-162b2/mRNA-1273. 9](#_Toc163162368)

[Supplementary Table 36: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2 for those on a primary course of ChAdOx1 or mRNA-1273 or BNT-162b2. 10](#_Toc163162369)

[Supplementary Table 37: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with mRNA-1273 for those on a primary course of ChAdOx1 or mRNA-1273 or BNT-162b2. 11](#_Toc163162370)

[Supplementary Table 38: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2/mRNA-1273 for those on a primary course of ChAdOx1 or mRNA-1273 or BNT-162b2. 12](#_Toc163162371)

**Supplementary Tables**

Supplementary Table 28: Hazard ratios and 95% CIs for individual arterial and venous thrombotic events, and other cardiovascular events, by time since booster vaccination with BNT-162b2 for those on a primary course of BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcome** | | **Age and Sex adjusted HR (95% CI)** | | | | | | | | | | **Fully Adjusted HR (95% CI)** | | | | | | | | | |
| Week 1 | | Week 2 | | Weeks 3-4 | | | Weeks 5-12 | Weeks 13-24 | | Week 1 | | Week 2 | | Weeks 3-4 | | Weeks 5-12 | | Weeks 13-24 | |
| **Arterial** | Composite arterial | | 0.66 (0.63, 0.70) | | 0.74 (0.71, 0.78) | | 0.75 (0.72, 0.78) | 0.70 (0.68, 0.73) | | | 0.63 (0.60, 0.67) | | 0.69 (0.65, 0.73) | | 0.78 (0.74, 0.83) | | 0.80 (0.77, 0.83) | | 0.78 (0.75, 0.81) | | 0.73 (0.69, 0.77) | |
| AMI[[1]](#footnote-2) | | 0.66 (0.61, 0.71) | | 0.76 (0.70, 0.81) | | 0.79 (0.75, 0.84) | 0.72 (0.68, 0.75) | | | 0.63 (0.58, 0.68) | | 0.68 (0.63, 0.74) | | 0.79 (0.73, 0.85) | | 0.84 (0.79, 0.89) | | 0.78 (0.75, 0.83) | | 0.71 (0.66, 0.77) | |
| Ischaemic stroke | | 0.67 (0.62, 0.72) | | 0.74 (0.69, 0.79) | | 0.71 (0.67, 0.75) | 0.70 (0.66, 0.73) | | | 0.65 (0.60, 0.70) | | 0.71 (0.65, 0.76) | | 0.79 (0.73, 0.85) | | 0.78 (0.73, 0.82) | | 0.80 (0.76, 0.84) | | 0.78 (0.72, 0.85) | |
| **Venous** | Composite venous | | 0.63 (0.56, 0.71) | | 0.66 (0.59, 0.74) | | 0.64 (0.59, 0.70) | 0.61 (0.56, 0.65) | | | 0.54 (0.48, 0.61) | | 0.63 (0.56, 0.71) | | 0.66 (0.59, 0.74) | | 0.65 (0.59, 0.71) | | 0.62 (0.57, 0.66) | | 0.56 (0.49, 0.63) | |
| Lower limb DVT[[2]](#footnote-3) | | 0.71 (0.59, 0.86) | | 0.77 (0.64, 0.91) | | 0.68 (0.59, 0.78) | 0.63 (0.56, 0.71) | | | 0.54 (0.44, 0.66) | | 0.71 (0.59, 0.86) | | 0.76 (0.64, 0.91) | | 0.68 (0.59, 0.78) | | 0.63 (0.56, 0.71) | | 0.55 (0.45, 0.67) | |
| Pulmonary embolism | | 0.56 (0.48, 0.66) | | 0.59 (0.51, 0.69) | | 0.62 (0.55, 0.70) | 0.58 (0.53, 0.64) | | | 0.54 (0.46, 0.63) | | 0.56 (0.48, 0.66) | | 0.59 (0.51, 0.69) | | 0.62 (0.55, 0.70) | | 0.59 (0.53, 0.65) | | 0.55 (0.47, 0.65) | |
| ICVT[[3]](#footnote-4) | | 0.50 (0.12, 2.11) | | 0.56 (0.13, 2.34) | | 0.74 (0.31, 1.78) | 0.76 (0.41, 1.40) | | | 0.83 (0.32, 2.13) | | 0.45 (0.11, 1.89) | | 0.54 (0.13, 2.30) | | 0.68 (0.28, 1.66) | | 0.70 (0.37, 1.31) | | 0.76 (0.29, 1.99) | |
| Mesenteric thrombus | | 0.48 (0.33, 0.71) | | 0.45 (0.30, 0.67) | | 0.66 (0.51, 0.85) | 0.54 (0.43, 0.68) | | | 0.41 (0.28, 0.60) | | 0.49 (0.33, 0.73) | | 0.46 (0.31, 0.68) | | 0.68 (0.53, 0.88) | | 0.56 (0.45, 0.71) | | 0.43 (0.29, 0.64) | |
| Portal vein thrombosis\* | | 0.25 (0.09, 0.72) | | | | | 0.51 (0.23, 1.14) | | | | | 0.27 (0.09, 0.80) | | | | | | 0.48 (0.19, 1.20) | | | |
| **Other** | Any thrombocytopenia | | 0.84 (0.57, 1.24) | | 0.56 (0.34, 0.91) | | 1.12 (0.84, 1.49) | 0.86 (0.67, 1.11) | | | 1.20 (0.80, 1.81) | | 0.80 (0.54, 1.18) | | 0.52 (0.32, 0.85) | | 1.04 (0.78, 1.37) | | 0.77 (0.60, 0.99) | | 1.06 (0.71, 1.60) | |
| SAH and HS[[4]](#footnote-5) | | 0.71 (0.58, 0.88) | | 0.83 (0.68, 1.02) | | 0.85 (0.73, 0.99) | 0.73 (0.63, 0.84) | | | 0.63 (0.49, 0.79) | | 0.74 (0.60, 0.91) | | 0.87 (0.72, 1.07) | | 0.90 (0.77, 1.05) | | 0.80 (0.69, 0.92) | | 0.71 (0.56, 0.91) | |
| Myocarditis | | 1.83 (1.01, 3.32) | | 1.05 (0.49, 2.25) | | 1.24 (0.69, 2.23) | 0.88 (0.53, 1.48) | | | 0.34 (0.08, 1.50) | | 1.79 (0.98, 3.25) | | 1.03 (0.48, 2.22) | | 1.23 (0.68, 2.21) | | 0.86 (0.51, 1.44) | | 0.34 (0.08, 1.51) | |
| Pericarditis | | 0.98 (0.39, 2.47) | | 1.99 (0.97, 4.10) | | 1.17 (0.59, 2.31) | 1.32 (0.78, 2.24) | | | 1.33 (0.42, 4.23) | | 0.97 (0.38, 2.44) | | 1.99 (0.96, 4.09) | | 1.16 (0.58, 2.31) | | 1.30 (0.76, 2.21) | | 1.30 (0.41, 4.18) | |
| \*Time periods collapsed into weeks 0-4 and weeks 5-24. | | | |  | |  | | |  |  | |  | |  | |  | |  | |  | |

Supplementary Table 29: Hazard ratios and 95% CIs for individual arterial and venous thrombotic events, and other cardiovascular events, by time since booster vaccination with mRNA-1273 for those on a primary course of BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcome** | | **Age and Sex adjusted HR (95% CI)** | | | | | | | | | | **Fully Adjusted HR (95% CI)** | | | | | | | | | |
| Week 1 | | Week 2 | | Weeks 3-4 | | Weeks 5-12 | | Weeks 13-24 | | Week 1 | | Week 2 | | Weeks 3-4 | | Weeks 5-12 | | Weeks 13-24 | |
| **Arterial** | Composite arterial | | 0.63 (0.52, 0.78) | | 0.91 (0.77, 1.09) | | 0.82 (0.71, 0.94) | | 0.77 (0.69, 0.87) | | 0.88 (0.28, 2.79) | | 0.67 (0.55, 0.82) | | 0.97 (0.81, 1.15) | | 0.88 (0.77, 1.01) | | 0.85 (0.75, 0.96) | | 1.21 (0.38, 3.86) | |
| AMI | | 0.86 (0.75, 0.98) | | | | | | 0.80 (0.68, 0.94) | | | | 0.90 (0.79, 1.04) | | | | | | 0.86 (0.73, 1.02) | | | |
| Ischaemic stroke | | 0.46 (0.33, 0.65) | | 0.90 (0.70, 1.16) | | 0.75 (0.61, 0.93) | | 0.70 (0.59, 0.84) | | NA (NA, NA) | | 0.48 (0.34, 0.68) | | 0.95 (0.74, 1.22) | | 0.80 (0.65, 0.98) | | 0.77 (0.64, 0.93) | | 2.29 (0.67, 7.82) | |
| **Venous** | Composite venous\* | | 0.60 (0.49, 0.74) | | | | | | 0.56 (0.44, 0.72) | | | | 0.62 (0.50, 0.76) | | | | | | 0.58 (0.45, 0.74) | | | |
| Lower limb DVT\* | | 0.53 (0.39, 0.74) | | | | | | 0.48 (0.31, 0.72) | | | | 0.52 (0.38, 0.73) | | | | | | 0.46 (0.30, 0.69) | | | |
| Pulmonary embolism\* | | 0.66 (0.50, 0.87) | | | | | | 0.67 (0.49, 0.92) | | | | 0.66 (0.50, 0.87) | | | | | | 0.67 (0.49, 0.92) | | | |
| ICVT7\* | | 0.28 (0.04, 1.86) | | | | | | 0.40 (0.05, 3.22) | | | | 0.28 (0.04, 1.87) | | | | | | 0.40 (0.05, 3.20) | | | |
| Mesenteric thrombus\* | | 0.69 (0.36, 1.33) | | | | | | 0.68 (0.31, 1.45) | | | | 0.69 (0.35, 1.33) | | | | | | 0.66 (0.30, 1.44) | | | |
| Portal vein thrombosis\* | | 0.65 (0.08, 5.17) | | | | | | 0.81 (0.08, 8.10) | | | | 0.66 (0.08, 5.19) | | | | | | 0.82 (0.08, 7.94) | | | |
| **Other** | Any thrombocytopenia\* | | 1.04 (0.59, 1.84) | | | | | | 0.13 (0.02, 0.98) | | | | 0.98 (0.56, 1.72) | | | | | | 0.11 (0.01, 0.80) | | | |
| SAH and HS\* | | 0.71 (0.46, 1.09) | | | | | | 0.64 (0.36, 1.14) | | | | 0.76 (0.49, 1.18) | | | | | | 0.70 (0.40, 1.25) | | | |
| Myocarditis\* | | 0.92 (0.36, 2.34) | | | | | | 0.55 (0.08, 4.00) | | | | 0.87 (0.34, 2.21) | | | | | | 0.52 (0.07, 3.77) | | | |
| Pericarditis\* | | 2.23 (0.71, 7.00) | | | | | | 1.06 (0.09, 12.46) | | | | 2.33 (0.74, 7.35) | | | | | | 1.08 (0.09, 12.70) | | | |
| \*Time periods collapsed into weeks 0-4 and weeks 5-24.  NA (NA-NA) Could not obtain estimate for this time interval | | | | | | | |  | | | |  | | | | | |  | | | |

Supplementary Table 30: Hazard ratios and 95% CIs for individual arterial and venous thrombotic events, and other cardiovascular events, by time since booster vaccination with mRNA-1273 or BNT-162b2 for those on a primary course of BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Age and Sex adjusted HR (95% CI)** | | | | | | | | | | **Fully Adjusted HR (95% CI)** | | | | | | | | | |
| **Outcome** | | Week 1 | | Week 2 | | Weeks 3-4 | | Weeks 5-12 | | Weeks 13-24 | | Week 1 | | Week 2 | | Weeks 3-4 | | Weeks 5-12 | | Weeks 13-24 | |
| **Arterial** | Composite arterial | | 0.66 (0.62, 0.69) | | 0.75 (0.71, 0.79) | | 0.75 (0.72, 0.78) | | 0.70 (0.68, 0.73) | | 0.63 (0.59, 0.66) | | 0.69 (0.65, 0.73) | | 0.79 (0.75, 0.83) | | 0.80 (0.77, 0.84) | | 0.78 (0.75, 0.81) | | 0.73 (0.68, 0.77) | |
| AMI | | 0.66 (0.62, 0.72) | | 0.76 (0.71, 0.82) | | 0.79 (0.75, 0.84) | | 0.71 (0.68, 0.75) | | 0.62 (0.58, 0.68) | | 0.69 (0.64, 0.74) | | 0.79 (0.74, 0.85) | | 0.83 (0.79, 0.88) | | 0.77 (0.73, 0.81) | | 0.70 (0.64, 0.76) | |
| Ischaemic stroke | | 0.65 (0.61, 0.70) | | 0.75 (0.69, 0.80) | | 0.71 (0.67, 0.75) | | 0.69 (0.66, 0.73) | | 0.65 (0.60, 0.70) | | 0.69 (0.64, 0.74) | | 0.80 (0.74, 0.85) | | 0.77 (0.73, 0.82) | | 0.79 (0.75, 0.83) | | 0.77 (0.71, 0.84) | |
| **Venous** | Composite venous | | 0.62 (0.56, 0.70) | | 0.65 (0.58, 0.73) | | 0.64 (0.58, 0.69) | | 0.61 (0.56, 0.65) | | 0.54 (0.48, 0.61) | | 0.63 (0.56, 0.70) | | 0.66 (0.59, 0.73) | | 0.64 (0.59, 0.70) | | 0.61 (0.57, 0.66) | | 0.56 (0.49, 0.63) | |
| Lower limb DVT | | 0.72 (0.60, 0.86) | | 0.75 (0.63, 0.89) | | 0.66 (0.58, 0.76) | | 0.64 (0.57, 0.72) | | 0.57 (0.47, 0.69) | | 0.72 (0.61, 0.86) | | 0.75 (0.63, 0.89) | | 0.66 (0.58, 0.76) | | 0.64 (0.57, 0.72) | | 0.59 (0.48, 0.72) | |
| Pulmonary embolism | | 0.56 (0.48, 0.65) | | 0.59 (0.51, 0.69) | | 0.63 (0.56, 0.70) | | 0.59 (0.53, 0.65) | | 0.53 (0.46, 0.62) | | 0.56 (0.48, 0.65) | | 0.60 (0.51, 0.69) | | 0.63 (0.56, 0.71) | | 0.59 (0.54, 0.65) | | 0.54 (0.46, 0.64) | |
| ICVT | | 0.43 (0.10, 1.81) | | 0.65 (0.20, 2.14) | | 0.63 (0.26, 1.55) | | 0.78 (0.42, 1.47) | | 0.93 (0.35, 2.47) | | 0.39 (0.09, 1.63) | | 0.61 (0.19, 1.98) | | 0.61 (0.25, 1.48) | | 0.69 (0.37, 1.29) | | 0.81 (0.30, 2.20) | |
| Mesenteric thrombus | | 0.46 (0.32, 0.68) | | 0.51 (0.36, 0.73) | | 0.64 (0.50, 0.82) | | 0.54 (0.43, 0.68) | | 0.42 (0.29, 0.61) | | 0.47 (0.32, 0.70) | | 0.53 (0.37, 0.76) | | 0.66 (0.51, 0.85) | | 0.57 (0.45, 0.72) | | 0.45 (0.31, 0.66) | |
| Portal vein thrombosis\* | | 0.28 (0.11, 0.74) | | | | | | 0.51 (0.23, 1.12) | | | | 0.24 (0.08, 0.68) | | | | | | 0.40 (0.17, 0.94) | | | |
| **Other** | Any thrombocytopenia | | 0.90 (0.63, 1.29) | | 0.65 (0.42, 1.01) | | 1.08 (0.82, 1.43) | | 0.85 (0.66, 1.09) | | 1.28 (0.85, 1.92) | | 0.84 (0.58, 1.20) | | 0.59 (0.38, 0.92) | | 0.97 (0.73, 1.27) | | 0.71 (0.55, 0.91) | | 1.02 (0.68, 1.54) | |
| SAH and HS | | 0.73 (0.59, 0.89) | | 0.82 (0.67, 1.00) | | 0.87 (0.75, 1.01) | | 0.75 (0.65, 0.86) | | 0.66 (0.52, 0.84) | | 0.75 (0.61, 0.92) | | 0.85 (0.70, 1.04) | | 0.91 (0.78, 1.07) | | 0.81 (0.70, 0.93) | | 0.73 (0.58, 0.92) | |
| Myocarditis | | 1.87 (1.10, 3.18) | | 0.99 (0.48, 2.04) | | 1.07 (0.59, 1.94) | | 0.88 (0.53, 1.48) | | 0.37 (0.08, 1.64) | | 1.83 (1.07, 3.11) | | 0.96 (0.46, 1.98) | | 1.05 (0.58, 1.91) | | 0.85 (0.51, 1.43) | | 0.36 (0.08, 1.59) | |
| Pericarditis | | 0.88 (0.35, 2.18) | | 2.13 (1.09, 4.16) | | 1.29 (0.68, 2.43) | | 1.31 (0.78, 2.21) | | 1.45 (0.47, 4.51) | | 0.87 (0.35, 2.17) | | 2.14 (1.10, 4.17) | | 1.29 (0.68, 2.43) | | 1.33 (0.79, 2.24) | | 1.50 (0.48, 4.69) | |
| \*Time periods collapsed into weeks 0-4 and weeks 5-24. | | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |

Supplementary Table 31: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster vaccination with BNT-162b2/mRNA-1273 for those on a primary course of ChAdOx1.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | | **Week 1** | **Week 2** | **Weeks 3-4** | | **Weeks 5-12** | | **Weeks 13-24** | |
|  |  |  | | **Weeks 1-4** | | | | **Weeks 5-24** | | | |
| **Doses 1&2: ChAdOx1;**  **Booster: BNT-162b2/mRNA-1273** | Composite arterial | Age group: <40 | | 1.07 (0.67, 1.72) | 0.51 (0.27, 0.94) | 0.59 (0.38, 0.92) | | 0.51 (0.32, 0.80) | | 0.78 (0.21, 2.94) | |
| Age group: 40-59 | | 0.74 (0.66, 0.82) | 0.81 (0.73, 0.90) | 0.81 (0.75, 0.88) | | 0.78 (0.72, 0.85) | | 0.81 (0.61, 1.08) | |
| Age group: 60-79 | | 0.78 (0.73, 0.83) | 0.81 (0.76, 0.86) | 0.80 (0.76, 0.84) | | 0.73 (0.70, 0.77) | | 0.65 (0.59, 0.72) | |
| Age group: >=80 | | 0.79 (0.72, 0.87) | 0.78 (0.71, 0.87) | 0.79 (0.73, 0.86) | | 0.75 (0.70, 0.80) | | 0.70 (0.61, 0.79) | |
| Ethnicity: White | | 0.78 (0.75, 0.82) | 0.82 (0.78, 0.86) | 0.82 (0.79, 0.85) | | 0.78 (0.75, 0.81) | | 0.70 (0.65, 0.76) | |
| Ethnicity: Black or Black British | | 0.94 (0.66, 1.36) | 0.89 (0.61, 1.30) | 0.86 (0.64, 1.16) | | 0.81 (0.62, 1.05) | | 1.19 (0.65, 2.16) | |
| Ethnicity: Asian or Asian British | | 0.82 (0.67, 0.99) | 0.88 (0.72, 1.06) | 0.82 (0.70, 0.95) | | 0.74 (0.65, 0.85) | | 0.80 (0.58, 1.10) | |
| Ethnicity: Other Ethnic Groups | | 0.94 (0.62, 1.42) | 0.80 (0.51, 1.27) | 0.83 (0.59, 1.16) | | 0.69 (0.51, 0.94) | | 0.48 (0.20, 1.16) | |
| Ethnicity: Mixed | | 0.63 (0.31, 1.30) | 0.60 (0.27, 1.30) | 1.08 (0.68, 1.73) | | 0.74 (0.45, 1.22) | | 0.54 (0.15, 1.91) | |
| Ethnicity: Unknown | | 0.62 (0.40, 0.95) | 0.62 (0.40, 0.96) | 0.74 (0.54, 1.02) | | 0.67 (0.49, 0.90) | | 0.66 (0.31, 1.40) | |
| No prior history of COVID-19 | | 0.78 (0.74, 0.81) | 0.82 (0.78, 0.86) | 0.83 (0.80, 0.86) | | 0.78 (0.76, 0.81) | | 0.71 (0.66, 0.77) | |
| Prior history of COVID-19 | | 0.95 (0.81, 1.12) | 0.81 (0.67, 0.97) | 0.82 (0.71, 0.94) | | 0.75 (0.66, 0.85) | | 0.74 (0.56, 0.97) | |
| No prior history of event | | 0.70 (0.66, 0.74) | 0.78 (0.73, 0.83) | 0.76 (0.73, 0.80) | | 0.70 (0.67, 0.73) | | 0.62 (0.57, 0.68) | |
| Prior history of event | | 0.90 (0.84, 0.96) | 0.85 (0.79, 0.91) | 0.88 (0.84, 0.93) | | 0.84 (0.80, 0.88) | | 0.81 (0.72, 0.90) | |
| Sex: Female | | 0.82 (0.76, 0.88) | 0.80 (0.74, 0.86) | 0.83 (0.78, 0.88) | | 0.78 (0.74, 0.82) | | 0.69 (0.61, 0.77) | |
| Sex: Male | | 0.77 (0.73, 0.82) | 0.84 (0.80, 0.90) | 0.84 (0.80, 0.88) | | 0.80 (0.77, 0.84) | | 0.77 (0.70, 0.84) | |
| Composite venous | Age group: <40 | | 0.85 (0.53, 1.36) | 1.11 (0.72, 1.72) | 0.82 (0.57, 1.17) | | 0.68 (0.48, 0.95) | | 1.29 (0.53, 3.13) | |
| Age group: 40-59 | | 0.70 (0.58, 0.85) | 0.90 (0.75, 1.07) | 0.70 (0.60, 0.82) | | 0.78 (0.67, 0.90) | | 0.60 (0.35, 1.03) | |
| Age group: 60-79 | | 0.60 (0.52, 0.68) | 0.62 (0.55, 0.71) | 0.64 (0.57, 0.71) | | 0.53 (0.48, 0.59) | | 0.58 (0.47, 0.72) | |
| Age group: >=80 | | 0.55 (0.42, 0.72) | 0.61 (0.47, 0.78) | 0.55 (0.45, 0.68) | | 0.54 (0.46, 0.63) | | 0.48 (0.34, 0.67) | |
| Ethnicity: White | | 0.66 (0.60, 0.74) | 0.75 (0.68, 0.83) | 0.70 (0.65, 0.76) | | 0.65 (0.60, 0.70) | | 0.64 (0.54, 0.75) | |
| Ethnicity: Black or Black British | | 0.71 (0.47, 1.08) | | | | 0.49 (0.30, 0.80) | | | |
| Ethnicity: Asian or Asian British | | 0.39 (0.16, 0.94) | 0.99 (0.52, 1.86) | 0.73 (0.42, 1.27) | | 0.80 (0.50, 1.28) | | 0.59 (0.13, 2.79) | |
| Ethnicity: Other Ethnic Groups | | 0.75 (0.35, 1.60) | | | | 0.74 (0.32, 1.71) | | | |
| Ethnicity: Mixed | | 1.14 (0.28, 4.62) | 1.35 (0.35, 5.11) | 1.75 (0.80, 3.83) | | 0.32 (0.12, 0.85) | | 0.84 (0.14, 5.11) | |
| Ethnicity: Unknown  0.22 (0.05, 0.92) | 0.97 (0.26, 3.59) | | 1.27 (0.38, 4.31) | | 2.76 (1.27, 6.00) | | 0.56 (0.22, 1.39) | | 2.37 (0.4213.51) | |
| No prior history of COVID-19 | | 0.30 (0.11, 0.85) | 0.53 (0.24, 1.18) | 0.31 (0.15, 0.66) | | 0.38 (0.21, 0.69) | | 0.61 (0.19, 1.97) | |
| Prior history of COVID-19 | | 0.65 (0.58, 0.72) | 0.73 (0.67, 0.81) | 0.70 (0.64, 0.75) | | 0.65 (0.61, 0.70) | | 0.64 (0.54, 0.75) | |
| No prior history of event | | 0.85 (0.59, 1.22) | 1.03 (0.74, 1.44) | 0.86 (0.65, 1.14) | | 0.62 (0.48, 0.81) | | 0.64 (0.35, 1.20) | |
| Prior history of event | | 0.65 (0.58, 0.72) | 0.72 (0.65, 0.80) | 0.69 (0.63, 0.75) | | 0.61 (0.57, 0.66) | | 0.58 (0.49, 0.69) | |
| Sex: Female | | 0.67 (0.52, 0.88) | 0.86 (0.67, 1.10) | 0.72 (0.59, 0.88) | | 0.71 (0.60, 0.84) | | 0.74 (0.50, 1.10) | |
| Sex: Male | | 0.30 (0.11, 0.85) | 0.53 (0.24, 1.18) | 0.31 (0.15, 0.66) | | 0.38 (0.21, 0.69) | | 0.61 (0.19, 1.97) | |

Supplementary Table 32: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2/ mRNA-1273 for those on a primary course of BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | | **Week 1** | **Week 2** | | | | **Weeks 3-4** | | | | **Weeks 5-12** | | **Weeks 13-24** | | |
|  |  |  | | **Weeks 1-4** | | | | | | **Weeks 5-24** | | | | | | | |
| **Doses 1&2: BNT-162b2;**  **Booster: BNT-162b2/mRNA-1273** | Composite arterial | Age group: <40 | | 0.72 (0.44,  1.20) | | 1.12 (0.72,  1.76) | | 0.67 (0.45,  1.00) | | | 0.89 (0.60,  1.31) | | | 0.68 (0.27,  1.74) | | |
| Age group: 40-59 | | 0.66 (0.56,  0.78) | | 0.81 (0.69,  0.94) | | 0.84 (0.74,  0.94) | | | 0.76 (0.69,  0.85) | | | 0.68 (0.54,  0.85) | | |
| Age group: 60-79 | | 0.66 (0.61,  0.72) | | 0.79 (0.73,  0.86) | | 0.77 (0.73,  0.83) | | | 0.73 (0.69,  0.77) | | | 0.67 (0.60,  0.74) | | |
| Age group: >=80 | | 0.65 (0.61,  0.71) | | 0.70 (0.65,  0.75) | | 0.71 (0.67,  0.75) | | | 0.68 (0.64,  0.71) | | | 0.62 (0.58,  0.68) | | |
| Ethnicity: White | | 0.68 (0.65,  0.72) | | 0.79 (0.75,  0.84) | | 0.80 (0.76,  0.83) | | | 0.77 (0.74,  0.80) | | | 0.72 (0.67,  0.76) | | |
| Ethnicity: Black or Black British | | 0.95 (0.63,  1.43) | | 0.85 (0.55,  1.31) | | 0.76 (0.54,  1.07) | | | 0.77 (0.59,  1.00) | | | 0.89 (0.54,  1.48) | | |
| Ethnicity: Asian or Asian British | | 0.73 (0.57,  0.93) | | 0.77 (0.61,  0.98) | | 0.83 (0.70,  1.00) | | | 0.90 (0.78,  1.04) | | | 0.78 (0.60,  1.02) | | |
| Ethnicity: Other Ethnic Groups | | 0.76 (0.44,  1.31) | | 0.67 (0.38,  1.20) | | 0.77 (0.50,  1.18) | | | 0.85 (0.61,  1.18) | | | 0.81 (0.43,  1.54) | | |
| Ethnicity: Mixed | | 0.60 (0.23,  1.53) | | 0.91 (0.41,  2.06) | | 1.28 (0.74,  2.22) | | | 0.88 (0.52,  1.48) | | | 1.27 (0.58,  2.78) | | |
| Ethnicity: Unknown | | 0.59 (0.33,  1.06) | | 0.63 (0.36,  1.12) | | 0.79 (0.53,  1.19) | | | 0.60 (0.41,  0.86) | | | 0.54 (0.29,  1.00) | | |
| No prior history of COVID-19 | | 0.68 (0.65,  0.72) | | 0.79 (0.75, 0.83) | | 0.80 (0.76, 0.83) | | | 0.78 (0.75, 0.80) | | | 0.73 (0.68, 0.77) | | |
| Prior history of COVID-19 | | 0.82 (0.64, 1.06) | | 0.86 (0.67, 1.11) | | 1.02 (0.85, 1.23) | | | 0.85 (0.72, 1.01) | | | 0.81 (0.61, 1.09) | | |
| No prior history of event | | 0.62 (0.58, 0.67) | | 0.73 (0.69, 0.79) | | 0.77 (0.73, 0.81) | | | 0.73 (0.70, 0.76) | | | 0.65 (0.60, 0.70) | | |
| Prior history of event | | 0.76 (0.71, 0.82) | 0.85 (0.79, 0.92) | | | | 0.83 (0.79, 0.89) | | | | 0.82 (0.78, 0.86) | | 0.83 (0.76, 0.90) | | |
| Sex: Female | | 0.67 (0.61, 0.72) | 0.74 (0.68, 0.80) | | | | 0.80 (0.75, 0.85) | | | | 0.74 (0.70, 0.78) | | 0.70 (0.64, 0.76) | | |
| Sex: Male | | 0.72 (0.67, 0.77) | 0.85 (0.80, 0.91) | | | | 0.83 (0.79, 0.87) | | | | 0.84 (0.80, 0.88) | | 0.79 (0.73, 0.85) | | |
| Composite venous | Age group: <40 | | 0.68 (0.42,  1.08) | 0.99 (0.66,  1.47) | | | | 0.87 (0.63,  1.20) | | | | 0.87 (0.63,  1.19) | | 0.59 (0.25,  1.41) | | |
| Age group: 40-59 | | 0.78 (0.59,  1.04) | 0.69 (0.50,  0.93) | | | | 0.73 (0.58,  0.91) | | | | 0.69 (0.57,  0.82) | | 0.65 (0.45,  0.92) | | |
| Age group: 60-79 | | 0.61 (0.51,  0.72) | 0.55 (0.46,  0.66) | | | | 0.53 (0.46,  0.61) | | | | 0.47 (0.41,  0.53) | | 0.48 (0.39,  0.60) | | |
| Age group: >=80 | | 0.45 (0.37,  0.56) | 0.52 (0.43,  0.63) | | | | 0.46 (0.40,  0.54) | | | | 0.42 (0.37,  0.48) | | 0.35 (0.29,  0.43) | | |
| Ethnicity: White | | 0.63 (0.56,  0.71) | 0.64 (0.57,  0.72) | | | | 0.64 (0.59,  0.70) | | | | 0.61 (0.56,  0.65) | | 0.56 (0.49,  0.63) | | |
| Ethnicity: Black or Black British | | 0.54 (0.20,  1.49) | 0.39 (0.12,  1.27) | | | | 0.49 (0.23,  1.03) | | | | 0.71 (0.42,  1.19) | | 0.30 (0.09,  1.06) | | |
| Ethnicity: Asian or Asian British | | 0.40 (0.15,  1.08) | 0.61 (0.26,  1.45) | | | | 0.61 (0.33,  1.14) | | | | 0.57 (0.36,  0.92) | | 0.54 (0.21,  1.41) | | |
| Ethnicity: Other Ethnic Groups | 0.75 (0.18,  3.14) | | 1.49 (0.52,  4.26) | | 0.34 (0.07,  1.55) | | | | | 0.67 (0.26,  1.69) | | | 0.84 (0.22,  3.25) |
| Ethnicity: Mixed | | 1.47 (0.24,  9.14) | 1.77 (0.38,  8.20) | | | | 0.96 (0.24,  3.93) | | | | 0.81 (0.25,  2.62) | | 0.91 (0.07, 12.68) | | |
| Ethnicity: Unknown | | 0.48 (0.14,  1.63) | 1.23 (0.54,  2.82) | | | | 0.22 (0.07,  0.74) | | | | 0.45 (0.22,  0.92) | | 0.22 (0.04, 1.26) | | |
| No prior history of COVID-19 | | 0.62 (0.55, 0.69) | 0.65 (0.58, 0.73) | | | | 0.64 (0.58, 0.69) | | | | 0.60 (0.56, 0.65) | | 0.54 (0.48, 0.61) | | |
| Prior history of COVID-19 | | 0.75 (0.45, 1.25) | 0.65 (0.37, 1.16) | | | | 0.62 (0.41, 0.96) | | | | 0.70 (0.51, 0.96) | | 0.62 (0.32, 1.18) | | |
| No prior history of event | | 0.60 (0.53, 0.68) | 0.64 (0.57, 0.73) | | | | 0.62 (0.56, 0.68) | | | | 0.59 (0.54, 0.64) | | 0.52 (0.46, 0.59) | | |
| Prior history of event | | 0.72 (0.54, 0.95) | 0.65 (0.48, 0.87) | | | | 0.70 (0.56, 0.87) | | | | 0.65 (0.53, 0.78) | | 0.66 (0.47, 0.93) | | |
| Sex: Female | | 0.61 (0.52,0.71) | 0.59 (0.51,0.69) | | | | 0.60 (0.53,0.67) | | | | 0.59 (0.53,0.65) | | 0.57 (0.49,0.68) | | |
| Sex: Male | | 0.66 (0.55,0.78) | 0.76 (0.64,0.89) | | | | 0.72 (0.63,0.81) | | | | 0.67 (0.60,0.75) | | 0.58 (0.48,0.71) | | |

Supplementary Table 33: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2/ mRNA-1273 for those on a primary course of BNT-162b2/mRNA-1273.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | | **Week 1** | | **Week 2** | | | | **Weeks 3-4** | | | | **Weeks 5-12** | | | **Weeks 13-24** | | |
|  |  |  | | **Weeks 1-4** | | | | | | | **Weeks 5-24** | | | | | | | | |
| **Doses 1&2: BNT-162b2/mRNA-1273;**  **Booster: BNT-162b2/mRNA-1273** | Composite arterial | Age group: <40 | | 0.77 (0.49, 1.22) | | | 1.16 (0.76, 1.78) | | 0.67 (0.45, 0.99) | | | | 0.79 (0.53, 1.17) | | | 0.97 (0.41, 2.28) | | |
| Age group: 40-59 | | 0.65 (0.55, 0.76) | | | 0.81 (0.70, 0.94) | | 0.83 (0.74, 0.93) | | | | 0.75 (0.68, 0.83) | | | 0.66 (0.53, 0.83) | | |
| Age group: 60-79 | | 0.66 (0.61, 0.72) | | | 0.79 (0.73, 0.86) | | 0.77 (0.73, 0.82) | | | | 0.73 (0.69, 0.78) | | | 0.67 (0.61, 0.75) | | |
| Age group: >=80 | | 0.66 (0.61, 0.71) | | | 0.70 (0.65, 0.76) | | 0.71 (0.67, 0.76) | | | | 0.68 (0.65, 0.72) | | | 0.63 (0.58, 0.69) | | |
| Ethnicity: White | | 0.68 (0.65, 0.72) | | | 0.80 (0.76, 0.84) | | 0.80 (0.77, 0.84) | | | | 0.78 (0.75, 0.81) | | | 0.72 (0.68, 0.77) | | |
| Ethnicity: Black or Black British | | 0.96 (0.63, 1.45) | | | 0.91 (0.60, 1.39) | | 0.71 (0.50, 1.00) | | | | 0.74 (0.57, 0.96) | | | 0.85 (0.53, 1.37) | | |
| Ethnicity: Asian or Asian British | | 0.72 (0.56, 0.91) | | | 0.74 (0.58, 0.94) | | 0.80 (0.67, 0.95) | | | | 0.86 (0.75, 0.99) | | | 0.72 (0.55, 0.93) | | |
| Ethnicity: Other Ethnic Groups | | 0.77 (0.45, 1.32) | | | 0.71 (0.40, 1.26) | | 0.77 (0.50, 1.19) | | | | 0.86 (0.62, 1.19) | | | 0.89 (0.47, 1.70) | | |
| Ethnicity: Mixed | | 0.49 (0.19, 1.28) | | | 0.79 (0.35, 1.77) | | 1.16 (0.67, 1.98) | | | | 0.80 (0.48, 1.32) | | | 1.13 (0.52, 2.48) | | |
| Ethnicity: Unknown | | 0.67 (0.39, 1.16) | | | 0.66 (0.38, 1.16) | | 0.80 (0.54, 1.20) | | | | 0.62 (0.44, 0.89) | | | 0.58 (0.31, 1.10) | | |
| No prior history of COVID-19 | | 0.69 (0.65, 0.72) | | | 0.79 (0.75, 0.84) | | 0.80 (0.77, 0.83) | | | | 0.78 (0.75, 0.81) | | | 0.72 (0.68, 0.77) | | |
| Prior history of COVID-19 | | 0.85 (0.66, 1.10) | | | 0.92 (0.71, 1.18) | | 1.08 (0.90, 1.30) | | | | 0.93 (0.79, 1.10) | | | 0.90 (0.67, 1.21) | | |
| No prior history of event | | 0.62 (0.58, 0.67) | | | 0.73 (0.69, 0.79) | | 0.76 (0.72, 0.80) | | | | 0.73 (0.69, 0.76) | | | 0.65 (0.60, 0.69) | | |
| Prior history of event | | 0.76 (0.71, 0.82) | | | 0.86 (0.79, 0.92) | | 0.84 (0.79, 0.89) | | | | 0.82 (0.78, 0.87) | | | 0.83 (0.76, 0.91) | | |
| Sex: Female | | 0.68 (0.62, 0.73) | | | 0.75 (0.70, 0.81) | | 0.81 (0.76, 0.86) | | | | 0.76 (0.72, 0.81) | | | 0.72 (0.66, 0.79) | | |
| Sex: Male | | 0.72 (0.67, 0.77) | | | 0.86 (0.80, 0.92) | | 0.83 (0.79, 0.88) | | | | 0.85 (0.81, 0.89) | | | 0.79 (0.73, 0.86) | | |
| Composite venous | Age group: <40 | | 0.73 (0.47, 1.13) | | | 1.03 (0.70, 1.51) | | 0.90 (0.66, 1.24) | | | | 0.91 (0.67, 1.25) | | | 0.52 (0.21, 1.29) | | |
| Age group: 40-59 | | 0.79 (0.60, 1.05) | | | 0.72 (0.54, 0.97) | | 0.75 (0.60, 0.93) | | | | 0.72 (0.60, 0.86) | | | 0.70 (0.49, 0.99) | | |
| Age group: 60-79 | | 0.61 (0.51, 0.72) | | | 0.55 (0.46, 0.66) | | 0.53 (0.46, 0.61) | | | | 0.46 (0.41, 0.53) | | | 0.47 (0.38, 0.59) | | |
| Age group: >=80 | | 0.45 (0.37, 0.56) | | | 0.53 (0.44, 0.64) | | 0.46 (0.40, 0.54) | | | | 0.42 (0.37, 0.48) | | | 0.36 (0.29, 0.44) | | |
| Ethnicity: White | | 0.63 (0.56, 0.70) | | | 0.65 (0.58, 0.73) | | 0.64 (0.59, 0.70) | | | | 0.60 (0.56, 0.65) | | | 0.55 (0.49, 0.63) | | |
| Ethnicity: Black or Black British | | 0.56 (0.20, 1.53) | | | 0.39 (0.12, 1.26) | | 0.55 (0.26, 1.16) | | | | 0.86 (0.51, 1.46) | | | 0.43 (0.12, 1.53) | | |
| Ethnicity: Asian or Asian British | | 0.47 (0.19, 1.17) | | | 0.51 (0.22, 1.23) | | 0.55 (0.29, 1.04) | | | | 0.52 (0.32, 0.83) | | | 0.46 (0.17, 1.22) | | |
| Ethnicity: Other Ethnic Groups | 0.73 (0.16, 3.30) | | 1.23 (0.43, 3.50) | | | 0.40 (0.09, 1.83) | | | | 0.92 (0.40, 2.14) | | | 0.86 (0.19, 3.94) | | |
| Ethnicity: Mixed | | 1.06 (0.22, 5.14) | | | 1.19 (0.23, 6.10) | | 1.13 (0.29, 4.32) | | | | 0.90 (0.29, 2.82) | | | 0.84 (0.07, 9.55) | | |
| Ethnicity: Unknown | | 0.76 (0.26, 2.22) | | | 1.45 (0.62, 3.37) | | 0.25 (0.07, 0.86) | | | | 0.52 (0.25, 1.11) | | | 0.22 (0.04, 1.17) | | |
| No prior history of COVID-19 | | 0.63 (0.56, 0.70) | | | 0.66 (0.59, 0.74) | | 0.64 (0.59, 0.70) | | | | 0.61 (0.57, 0.66) | | | 0.55 (0.49, 0.63) | | |
| Prior history of COVID-19 | | 0.74 (0.44, 1.24) | | | 0.63 (0.36, 1.12) | | 0.64 (0.42, 0.99) | | | | 0.70 (0.51, 0.96) | | | 0.61 (0.33, 1.15) | | |
| No prior history of event | | 0.61 (0.54, 0.69) | | | 0.65 (0.58, 0.74) | | 0.62 (0.57, 0.68) | | | | 0.59 (0.55, 0.64) | | | 0.53 (0.47, 0.61) | | |
| Prior history of event | | 0.71 (0.53, 0.93) | | | 0.64 (0.48, 0.86) | | 0.69 (0.55, 0.86) | | | | 0.63 (0.52, 0.76) | | | 0.64 (0.46, 0.90) | | |
| Sex: Female | | 0.62 (0.53, 0.72) | | | 0.59 (0.51, 0.69) | | 0.60 (0.53, 0.67) | | | | 0.59 (0.53, 0.65) | | | 0.58 (0.49, 0.68) | | |
| Sex: Male | | 0.65 (0.55, 0.77) | | | 0.76 (0.65, 0.90) | | 0.71 (0.62, 0.81) | | | | 0.67 (0.60, 0.75) | | | 0.57 (0.47, 0.69) | | |

Supplementary Table 34: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with mRNA-1273 for those on a primary course of BNT-162b2/mRNA-1273.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | **Week 1** | | **Week 2** | | **Weeks 3-4** | **Weeks 5-12** | **Weeks 13-24** | |
|  |  |  | **Weeks 1-4** | | | | | **Weeks 5-24** | |
| |  | | --- | | **Doses 1&2: BNT-162b2/mRNA-1273;** | | **Booster: mRNA-1274** | | Composite arterial | Age group: <40 | 0.77 (0.46, 1.30) | | | | | 0.88 (0.40, 1.93) | |
| Age group: 40-59 | 0.62 (0.42, 0.92) | 1.02(0.74, 1.40) | | 0.83(0.63, 1.08) | | 0.84 (0.65 1.07) | 13.81(1.73, 109.92) | | | | |
| Age group: 60-79 | 0.70 (0.61, 0.82) | | | | | 0.65 (0.55, 0.77) | |
| Age group: >=80 | 0.80 (0.54, 1.21) | 0.94(0.64, 1.39) | | 0.68(0.48, 0.95) | | 0.66 (0.51, 0.87) | 0.97(0.24, 4.00) | | |
| Ethnicity: White | 0.65 (0.53, 0.81) | 0.92 (0.76, 1.11) | | 0.85 (0.74, 0.99) | | 0.83 (0.73, 0.94) | 1.16 (0.36, 3.74) | | | |
| Ethnicity: Black or Black British | 1.05 (0.51, 2.17) | | | | | 1.45 (0.60, 3.51) | |
| Ethnicity: Asian or Asian British | 0.80 (0.51, 1.25) | | | | | 0.69 (0.37, 1.26) | |
| Ethnicity: Other Ethnic Groups | 1.33 (0.58, 3.07) | | | | | 1.19 (0.40, 3.57) | |
| Ethnicity: Mixed | 2.23 (0.87, 5.70) | | | | | 1.32 (0.34, 5.14) | |
| Ethnicity: Unknown | 0.52 (0.18, 1.48) | | | | | 0.13 (0.02, 1.11) | |
| No prior history of COVID-19 | 0.65 (0.53, 0.80) | 0.94 (0.79, 1.12) | | 0.85 (0.74, 0.98) | | 0.83 (0.74, 0.94) | 1.14 (0.36, 3.62) | | |
| Prior history of COVID-19 | 1.22 (0.81, 1.86) | | | | | 0.95 (0.52, 1.73) | |
| No prior history of event | 0.57 (0.43, 0.75) | 0.85 (0.67, 1.07) | | 0.79 (0.66, 0.94) | | 0.69 (0.59, 0.81) | 1.24 (0.38, 4.05) | | |
| Prior history of event | 0.83 (0.72, 0.96) | | | | | 0.82 (0.68, 0.98) | |
| Sex: Female | 0.63 (0.45, 0.88) | 0.59 (0.41, 0.84) | | 0.79 (0.63, 1.00) | | 0.66 (0.54, 0.80) | 1.66 (0.39, 7.13) | | |
| Sex: Male | 0.66 (0.51, 0.85) | 1.19 (0.97, 1.45) | | 0.90 (0.76, 1.07) | | 0.96 (0.82, 1.11) | 0.72 (0.10, 5.23) | | |
| Composite venous | Age group: <40 | 1.04 (0.70, 1.55) | | | | | 0.91 (0.40, 2.04) | |
| Age group: 40-59 | 0.54 (0.35, 0.83) | | | | | 0.59 (0.37, 0.95) | |
| Age group: 60-79 | 0.41 (0.28, 0.58) | | | | | 0.48 (0.33, 0.70) | |
| Age group: >=80 | 0.49 (0.28, 0.85) | | | | | 0.29 (0.14, 0.60) | |
| Ethnicity: White | 0.59 (0.48, 0.73) | | | | | 0.59 (0.46, 0.76) | |
| Ethnicity: Black or Black British | 0.34 (0.04, 2.64) | | | | | 1.17 (0.26, 5.21) | |
| Ethnicity: Asian or Asian British | 1.12 (0.39, 3.21) | | | | | 0.42 (0.06, 2.96) | |
| Ethnicity: Unknown | 0.83 (0.17, 4.16) | | | | | 0.63 (0.05, 7.29) | |
| No prior history of COVID-19 | 0.62 (0.50, 0.76) | | | | | 0.59 (0.46, 0.76) | |
| Prior history of COVID-19 | 0.38 (0.12, 1.25) | | | | | 0.19 (0.03, 1.36) | |
| No prior history of event | 0.62 (0.50, 0.77) | | | | | 0.57 (0.43, 0.74) | |
| Prior history of event | 0.54 (0.30, 0.95) | | | | | 0.61 (0.32, 1.16) | |
| Sex: Female | 0.63 (0.48, 0.82) | | | | | 0.68 (0.49, 0.94) | |
| Sex: Male | 0.62 (0.46, 0.84) | | | | | 0.49 (0.34, 0.72) | |

Supplementary Table 35: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2 for those on a primary course of BNT-162b2/mRNA-1273.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | | **Week 1** | **Week 2** | | | **Weeks 3-4** | | | | **Weeks 5-12** | | **Weeks 13-24** | | |
|  |  |  | | **Weeks 1-4** | | | | | **Weeks 5-24** | | | | | | | |
| **Doses 1&2: BNT-162b2/mRNA-1273;**  **Booster: BNT-162b2/mRNA-1273** | Composite arterial | Age group: <40 | | 0.91 (0.55, 1.51) | | 1.14 (0.68, 1.89) | 0.87 (0.58, 1.30) | | | | 1.22 (0.84, 1.77) | | 1.08 (0.47, 2.48) | | |
| Age group: 40-59 | | 0.68 (0.57, 0.81) | | 0.79 (0.66, 0.93) | 0.86 (0.76, 0.98) | | | | 0.80 (0.72, 0.88) | | 0.70 (0.56, 0.88) | | |
| Age group: 60-79 | | 0.67 (0.62, 0.73) | | 0.80 (0.73, 0.86) | 0.77 (0.72, 0.82) | | | | 0.74 (0.70, 0.79) | | 0.69 (0.62, 0.76) | | |
| Age group: >=80 | | 0.65 (0.60, 0.70) | | 0.69 (0.64, 0.75) | 0.71 (0.67, 0.76) | | | | 0.68 (0.64, 0.72) | | 0.63 (0.58, 0.68) | | |
| Ethnicity: White | | 0.69 (0.65, 0.73) | | 0.80 (0.75, 0.84) | 0.81 (0.77, 0.84) | | | | 0.79 (0.76, 0.82) | | 0.74 (0.70, 0.79) | | |
| Ethnicity: Black or Black British | | 0.94 (0.61, 1.44) | | 0.89 (0.58, 1.38) | 0.70 (0.49, 1.01) | | | | 0.71 (0.55, 0.93) | | 0.86 (0.53, 1.38) | | |
| Ethnicity: Asian or Asian British | | 0.76 (0.59, 0.97) | | 0.72 (0.56, 0.93) | 0.84 (0.70, 1.01) | | | | 0.89 (0.78, 1.03) | | 0.73 (0.56, 0.95) | | |
| Ethnicity: Other Ethnic Groups | | 0.65 (0.37, 1.16) | | 0.57 (0.31, 1.08) | 0.71 (0.46, 1.10) | | | | 0.75 (0.54, 1.04) | | 0.58 (0.30, 1.12) | | |
| Ethnicity: Mixed | | 0.66 (0.25, 1.72) | | 0.51 (0.18, 1.44) | 1.16 (0.65, 2.06) | | | | 0.89 (0.53, 1.49) | | 1.45 (0.64, 3.27) | | |
| Ethnicity: Unknown | | 0.69 (0.39, 1.21) | | 0.68 (0.38, 1.21) | 0.82 (0.54, 1.23) | | | | 0.60 (0.42, 0.86) | | 0.47 (0.25, 0.89) | | |
| No prior history of COVID-19 | | 0.69 (0.65, 0.72) | | 0.78 (0.74, 0.83) | 0.79 (0.76, 0.83) | | | | 0.78 (0.75, 0.81) | | 0.72 (0.68, 0.77) | | |
| Prior history of COVID-19 | | 0.86 (0.66, 1.12) | | 0.84 (0.65, 1.10) | 1.03 (0.85, 1.25) | | | | 0.87 (0.74, 1.03) | | 0.77 (0.57, 1.03) | | |
| No prior history of event | | 0.63 (0.58, 0.68) | | 0.73 (0.68, 0.78) | 0.77 (0.72, 0.81) | | | | 0.74 (0.70, 0.77) | | 0.66 (0.61, 0.71) | | |
| Prior history of event | | 0.77 (0.71, 0.83) | | 0.85 (0.78, 0.91) | 0.84 (0.79, 0.89) | | | | 0.82 (0.78, 0.87) | | 0.84 (0.77, 0.91) | | |
| Sex: Female | | 0.68 (0.62, 0.74) | | 0.76 (0.70, 0.82) | 0.81 (0.76, 0.86) | | | | 0.76 (0.72, 0.81) | | 0.72 (0.66, 0.79) | | |
| Sex: Male | | 0.73 (0.68, 0.78) | | 0.84 (0.78, 0.90) | 0.83 (0.79, 0.88) | | | | 0.85 (0.81, 0.89) | | 0.80 (0.74, 0.86) | | |
| Composite venous | Age group: <40 | | 0.69 (0.39, 1.19) | | 1.07 (0.69, 1.64) | 0.92 (0.63, 1.33) | | | | 1.07 (0.77, 1.49) | | 0.75 (0.31, 1.81) | | |
| Age group: 40-59 | | 0.87 (0.65, 1.16) | | 0.71 (0.51, 0.98) | 0.75 (0.59, 0.94) | | | | 0.69 (0.57, 0.83) | | 0.66 (0.46, 0.94) | | |
| Age group: 60-79 | | 0.61 (0.51, 0.73) | | 0.56 (0.47, 0.67) | 0.54 (0.46, 0.62) | | | | 0.46 (0.40, 0.52) | | 0.48 (0.38, 0.59) | | |
| Age group: >=80 | | 0.45 (0.36, 0.55) | | 0.54 (0.45, 0.65) | 0.47 (0.40, 0.55) | | | | 0.43 (0.38, 0.49) | | 0.37 (0.30, 0.45) | | |
| Ethnicity: White | | 0.64 (0.56, 0.72) | | 0.66 (0.59, 0.75) | 0.65 (0.60, 0.72) | | | | 0.61 (0.56, 0.66) | | 0.56 (0.49, 0.64) | | |
| Ethnicity: Black or Black British | | 0.47 (0.15, 1.53) | | 0.45 (0.14, 1.47) | 0.64 (0.31, 1.33) | | | | 0.87 (0.51, 1.47) | | 0.41 (0.12, 1.43) | | |
| Ethnicity: Asian or Asian British | | 0.41 (0.15, 1.13) | | 0.42 (0.15, 1.15) | 0.54 (0.28, 1.03) | | | | 0.52 (0.32, 0.84) | | 0.47 (0.18, 1.22) | | |
| Ethnicity: Other Ethnic Groups | 0.36 (0.11, 1.11) | | | | | | | 0.77 (0.34, 1.73) | | | | |
| Ethnicity: Mixed | | 1.67 (0.32, 8.59) | | 1.46 (0.33, 6.46) | 0.91 (0.23, 3.67) | | | | 0.89 (0.26, 3.05) | | 0.87 (0.08, 9.10) | | |
| Ethnicity: Unknown | | 0.75 (0.26, 2.20) | | 1.12 (0.47, 2.68) | 0.15 (0.04, 0.66) | | | | 0.39 (0.18, 0.83) | | 0.18 (0.03, 1.01) | | |
| No prior history of COVID-19 | | 0.63 (0.55, 0.71) | | 0.67 (0.60, 0.75) | 0.64 (0.59, 0.71) | | | | 0.61 (0.56, 0.66) | | 0.56 (0.49, 0.63) | | |
| Prior history of COVID-19 | | 0.76 (0.44, 1.30) | | 0.64 (0.35, 1.16) | 0.68 (0.44, 1.06) | | | | 0.73 (0.53, 1.01) | | 0.62 (0.32, 1.19) | | |
| No prior history of event | | 0.60 (0.53, 0.69) | | 0.66 (0.58, 0.74) | 0.62 (0.56, 0.68) | | | | 0.59 (0.54, 0.64) | | 0.53 (0.46, 0.60) | | |
| Prior history of event | | 0.72 (0.54, 0.96) | | 0.65 (0.48, 0.88) | 0.70 (0.56, 0.87) | | | | 0.63 (0.52, 0.76) | | 0.65 (0.46, 0.91) | | |
| Sex: Female | | 0.59 (0.51, 0.70) | | 0.60 (0.52, 0.71) | 0.61 (0.54, 0.68) | | | | 0.59 (0.53, 0.65) | | 0.58 (0.49, 0.69) | | |
| Sex: Male | | 0.68 (0.57, 0.81) | | 0.76 (0.64, 0.90) | 0.70 (0.61, 0.80) | | | | 0.65 (0.58, 0.73) | | 0.54 (0.45, 0.66) | | |

Supplementary Table 36: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2 for those on a primary course of ChAdOx1 or mRNA-1273 or BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | | **Week 1** | | **Week 2** | | | | **Weeks 3-4** | | | | **Weeks 5-12** | | | **Weeks 13-24** | | |
|  |  |  | | **Weeks 1-4** | | | | | | | **Weeks 5-24** | | | | | | | | |
| **Doses 1&2: Any;**  **Booster: BNT-162b2** | Composite arterial | Age group: <40 | | 0.94 (0.65, 1.37) | | | 0.94 (0.63, 1.41) | | 0.70 (0.50, 0.98) | | | | 0.91 (0.67, 1.24) | | | 1.21 (0.59, 2.49) | | |
| Age group: 40-59 | | 0.68 (0.62, 0.76) | | | 0.78 (0.71, 0.86) | | 0.83 (0.77, 0.89) | | | | 0.80 (0.75, 0.85) | | | 0.71 (0.60, 0.85) | | |
| Age group: 60-79 | | 0.74 (0.71, 0.78) | | | 0.81 (0.77, 0.85) | | 0.79 (0.76, 0.82) | | | | 0.74 (0.71, 0.77) | | | 0.67 (0.62, 0.72) | | |
| Age group: >=80 | | 0.70 (0.65, 0.74) | | | 0.73 (0.69, 0.78) | | 0.74 (0.71, 0.78) | | | | 0.71 (0.68, 0.73) | | | 0.65 (0.61, 0.69) | | |
| Ethnicity: White | | 0.74 (0.72, 0.77) | | | 0.82 (0.79, 0.85) | | 0.83 (0.80, 0.85) | | | | 0.80 (0.78, 0.82) | | | 0.74 (0.70, 0.77) | | |
| Ethnicity: Black or Black British | | 0.99 (0.74, 1.32) | | | 0.94 (0.70, 1.26) | | 0.85 (0.68, 1.07) | | | | 0.86 (0.72, 1.03) | | | 1.07 (0.74, 1.54) | | |
| Ethnicity: Asian or Asian British | | 0.77 (0.65, 0.90) | | | 0.81 (0.69, 0.95) | | 0.84 (0.75, 0.95) | | | | 0.79 (0.71, 0.86) | | | 0.70 (0.57, 0.85) | | |
| Ethnicity: Other Ethnic Groups | | 0.75 (0.52, 1.09) | | | 0.72 (0.49, 1.06) | | 0.77 (0.58, 1.03) | | | | 0.76 (0.61, 0.96) | | | 0.66 (0.40, 1.10) | | |
| Ethnicity: Mixed | | 0.60 (0.33, 1.08) | | | 0.47 (0.24, 0.92) | | 1.01 (0.71, 1.45) | | | | 0.78 (0.56, 1.10) | | | 1.14 (0.62, 2.08) | | |
| Ethnicity: Unknown | | 0.64 (0.45, 0.93) | | | 0.58 (0.39, 0.85) | | 0.77 (0.60, 1.01) | | | | 0.70 (0.56, 0.89) | | | 0.62 (0.39, 0.98) | | |
| No prior history of COVID-19 | | 0.74 (0.71, 0.77) | | | 0.81 (0.78, 0.84) | | 0.82 (0.80, 0.85) | | | | 0.79 (0.77, 0.81) | | | 0.74 (0.70, 0.77) | | |
| Prior history of COVID-19 | | 0.87 (0.75, 1.01) | | | 0.82 (0.70, 0.96) | | 0.91 (0.81, 1.02) | | | | 0.81 (0.74, 0.90) | | | 0.77 (0.63, 0.94) | | |
| No prior history of event | | 0.67 (0.64, 0.70) | | | 0.76 (0.73, 0.80) | | 0.77 (0.74, 0.80) | | | | 0.73 (0.71, 0.75) | | | 0.65 (0.62, 0.69) | | |
| Prior history of event | | 0.83 (0.79, 0.88) | | | 0.85 (0.80, 0.89) | | 0.87 (0.83, 0.90) | | | | 0.84 (0.81, 0.87) | | | 0.84 (0.78, 0.89) | | |
| Sex: Female | | 0.76 (0.72, 0.80) | | | 0.79 (0.75, 0.84) | | 0.84 (0.81, 0.88) | | | | 0.79 (0.76, 0.82) | | | 0.74 (0.69, 0.79) | | |
| Sex: Male | | 0.75 (0.72, 0.79) | | | 0.85 (0.81, 0.89) | | 0.84 (0.81, 0.87) | | | | 0.83 (0.81, 0.86) | | | 0.79 (0.75, 0.84) | | |
| Composite venous | Age group: <40 | | 0.75 (0.51, 1.10) | | | 1.15 (0.83, 1.59) | | 0.97 (0.74, 1.26) | | | | 0.90 (0.71, 1.16) | | | 0.88 (0.46, 1.67) | | |
| Age group: 40-59 | | 0.77 (0.65, 0.92) | | | 0.86 (0.72, 1.01) | | 0.75 (0.66, 0.86) | | | | 0.76 (0.68, 0.85) | | | 0.66 (0.50, 0.87) | | |
| Age group: 60-79 | | 0.62 (0.56, 0.70) | | | 0.60 (0.54, 0.67) | | 0.61 (0.56, 0.66) | | | | 0.51 (0.47, 0.55) | | | 0.54 (0.46, 0.62) | | |
| Age group: >=80 | | 0.49 (0.41, 0.58) | | | 0.57 (0.49, 0.66) | | 0.51 (0.46, 0.58) | | | | 0.48 (0.44, 0.53) | | | 0.42 (0.36, 0.49) | | |
| Ethnicity: White | | 0.67 (0.62, 0.73) | | | 0.72 (0.66, 0.77) | | 0.71 (0.66, 0.75) | | | | 0.65 (0.61, 0.68) | | | 0.60 (0.54, 0.66) | | |
| Ethnicity: Black or Black British | | 0.68 (0.36, 1.29) | | | 0.56 (0.28, 1.14) | | 0.70 (0.44, 1.11) | | | | 0.66 (0.46, 0.95) | | | 0.24 (0.07, 0.77) | | |
| Ethnicity: Asian or Asian British | | 0.39 (0.20, 0.80) | | | 0.81 (0.48, 1.36) | | 0.64 (0.42, 0.99) | | | | 0.67 (0.48, 0.93) | | | 0.55 (0.25, 1.21) | | |
| Ethnicity: Other Ethnic Groups | 0.24 (0.03, 1.73) | | 1.37 (0.58, 3.23) | | | 0.45 (0.16, 1.29) | | | | 0.80 (0.44, 1.44) | | | 0.77 (0.23, 2.55) | | |
| Ethnicity: Mixed | | 1.20 (0.44, 3.26) | | | 1.21 (0.44, 3.31) | | 1.70 (0.87, 3.33) | | | | 0.55 (0.26, 1.15) | | | 0.94 (0.23, 3.77) | | |
| Ethnicity: Unknown | | 0.43 (0.18, 0.99) | | | 0.78 (0.41, 1.50) | | 0.37 (0.19, 0.69) | | | | 0.43 (0.27, 0.68) | | | 0.29 (0.11, 0.77) | | |
| No prior history of COVID-19 | | 0.66 (0.60, 0.71) | | | 0.71 (0.66, 0.77) | | 0.70 (0.66, 0.75) | | | | 0.65 (0.62, 0.68) | | | 0.60 (0.54, 0.66) | | |
| Prior history of COVID-19 | | 0.82 (0.60, 1.13) | | | 0.91 (0.67, 1.24) | | 0.80 (0.63, 1.01) | | | | 0.64 (0.53, 0.79) | | | 0.59 (0.38, 0.92) | | |
| No prior history of event | | 0.65 (0.60, 0.71) | | | 0.70 (0.65, 0.76) | | 0.69 (0.65, 0.74) | | | | 0.62 (0.59, 0.66) | | | 0.56 (0.50, 0.62) | | |
| Prior history of event | | 0.68 (0.56, 0.84) | | | 0.78 (0.64, 0.95) | | 0.71 (0.61, 0.84) | | | | 0.69 (0.61, 0.78) | | | 0.66 (0.52, 0.85) | | |
| Sex: Female | | 0.68 (0.61, 0.76) | | | 0.70 (0.63, 0.78) | | 0.70 (0.65, 0.76) | | | | 0.65 (0.61, 0.70) | | | 0.60 (0.52, 0.68) | | |
| Sex: Male | | 0.66 (0.59, 0.75) | | | 0.77 (0.69, 0.86) | | 0.74 (0.67, 0.80) | | | | 0.68 (0.63, 0.74) | | | 0.65 (0.57, 0.75) | | |

Supplementary Table 37: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with mRNA-1273 for those on a primary course of ChAdOx1 or mRNA-1273 or BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | **Week 1** | | **Week 2** | | **Weeks 3-4** | **Weeks 5-12** | **Weeks 13-24** | |
|  |  |  | **Weeks 1-4** | | | | | **Weeks 5-24** | |
| |  | | --- | | **Doses 1&2: Any;** | | **Booster: mRNA-1274** | | Composite arterial | Age group: <40 | 0.80 (0.55, 1.16) | | | | | 0.61 (0.33, 1.11) | |
| Age group: 40-59 | 0.80 (0.68, 0.94) | 0.92 (0.79, 1.07) | | 0.81 (0.72, 0.92) | | 0.74 (0.65, 0.83) | 4.13 (0.54, 31.78) | | | | |
| Age group: 60-79 | 0.70 (0.61, 0.82) | | | | | 0.72 (0.67, 0.77) | |
| Age group: >=80 | 0.90 (0.69, 1.17) | 0.80 (0.60, 1.06) | | 0.73 (0.58, 0.91) | | 0.76 (0.64, 0.91) | 0.76 (0.19, 3.10) | | |
| Ethnicity: White | 0.73 (0.66, 0.81) | 0.82 (0.74, 0.90) | | 0.79 (0.73, 0.85) | | 0.71 (0.66, 0.76) | 0.58 (0.18, 1.82) | | | |
| Ethnicity: Black or Black British | 0.76 (0.49, 1.16) | | | | | 0.60 (0.34, 1.05) | |
| Ethnicity: Asian or Asian British | 0.79 (0.63, 0.99) | | | | | 0.81 (0.61, 1.08) | |
| Ethnicity: Other Ethnic Groups | 1.14 (0.74, 1.76) | | | | | 0.92 (0.50, 1.71) | |
| Ethnicity: Mixed | 0.93 (0.49, 1.77) | | | | | 0.49 (0.19, 1.30) | |
| Ethnicity: Unknown | 0.72 (0.49, 1.05) | | | | | 0.33 (0.19, 0.59) | |
| No prior history of COVID-19 | 0.72 (0.65, 0.79) | 0.83 (0.75, 0.91) | | 0.78 (0.72, 0.84) | | 0.71 (0.67, 0.76) | 0.51 (0.16, 1.62) | | |
| Prior history of COVID-19 | 0.96 (0.78, 1.18) | | | | | 0.72 (0.54, 0.96) | |
| No prior history of event | 0.66 (0.59, 0.75) | 0.76 (0.68, 0.86) | | 0.74 (0.68, 0.81) | | 0.65 (0.60, 0.70) | 0.70 (0.22, 2.22) | | |
| Prior history of event | 0.83 (0.72, 0.96) | | | | | 0.86 (0.79, 0.94) | |
| Sex: Female | 0.74 (0.63, 0.87) | 0.73 (0.62, 0.86) | | 0.73 (0.64, 0.83) | | 0.64 (0.57, 0.72) | 0.88 (0.21, 3.62) | | |
| Sex: Male | 0.75 (0.67, 0.85) | 0.90 (0.80, 1.00) | | 0.82 (0.75, 0.90) | | 0.77 (0.71, 0.84) | 0.29 (0.04, 2.07) | | |
| Composite venous | Age group: <40 | 0.88 (0.64, 1.20) | | | | | 0.92 (0.55, 1.52) | |
| Age group: 40-59 | 0.62 (0.52, 0.74) | | | | | 0.63 (0.51, 0.79) | |
| Age group: 60-79 | 0.49 (0.41, 0.57) | | | | | 0.42 (0.34, 0.51) | |
| Age group: >=80 | 0.53 (0.36, 0.79) | | | | | 0.57 (0.36, 0.88) | |
| Ethnicity: White | 0.60 (0.54, 0.67) | | | | | 0.58 (0.51, 0.67) | |
| Ethnicity: Black or Black British | 0.56 (0.24, 1.32) | | | | | 0.67 (0.26, 1.72) | |
| Ethnicity: Asian or Asian British | 0.53 (0.25, 1.15) | | | | | 0.38 (0.12, 1.22) | |
| Ethnicity: Unknown | 2.51 (0.95, 6.61) | | | | | 1.03 (0.21, 5.11) | |
| No prior history of COVID-19 | 1.69 (0.56, 5.07) | | | | | 2.22 (0.59, 8.35) | |
| Prior history of COVID-19 | 0.45 (0.19, 1.04) | | | | | 0.34 (0.11, 1.00) | |
| No prior history of event | 0.59 (0.53, 0.66) | | | | | 0.57 (0.50, 0.66) | |
| Prior history of event | 0.76 (0.50, 1.14) | | | | | 0.44 (0.23, 0.83) | |
| Sex: Female | 0.57 (0.51, 0.64) | | | | | 0.54 (0.47, 0.63) | |
| Sex: Male | 0.74 (0.57, 0.98) | | | | | 0.70 (0.50, 0.98) | |

Supplementary Table 38: Subgroup-specific maximally-adjusted hazard ratios and 95% CIs for composite arterial and composite venous events by time since booster with BNT-162b2/mRNA-1273 for those on a primary course of ChAdOx1 or mRNA-1273 or BNT-162b2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Vaccination course** | **Event** | **Stratum** | | **Week 1** | | **Week 2** | | | | **Weeks 3-4** | | | | **Weeks 5-12** | | | **Weeks 13-24** | | |
|  |  |  | | **Weeks 1-4** | | | | | | | **Weeks 5-24** | | | | | | | | |
| **Doses 1&2: Any;**  **Booster: BNT-162b2/mRNA-1273** | Composite arterial | Age group: <40 | | 0.97 (0.70, 1.34) | | | 0.96 (0.67, 1.36) | | 0.74 (0.55, 0.99) | | | | 0.81 (0.61, 1.09) | | | 1.00 (0.50, 1.99) | | |
| Age group: 40-59 | | 0.71 (0.65, 0.77) | | | 0.81 (0.75, 0.88) | | 0.82 (0.77, 0.88) | | | | 0.78 (0.73, 0.83) | | | 0.72 (0.60, 0.85) | | |
| Age group: 60-79 | | 0.74 (0.70, 0.77) | | | 0.81 (0.77, 0.85) | | 0.79 (0.76, 0.83) | | | | 0.74 (0.71, 0.77) | | | 0.67 (0.63, 0.72) | | |
| Age group: >=80 | | 0.70 (0.66, 0.75) | | | 0.73 (0.69, 0.78) | | 0.74 (0.71, 0.78) | | | | 0.70 (0.67, 0.73) | | | 0.65 (0.61, 0.69) | | |
| Ethnicity: White | | 0.74 (0.72, 0.77) | | | 0.82 (0.79, 0.84) | | 0.82 (0.80, 0.84) | | | | 0.79 (0.77, 0.81) | | | 0.73 (0.70, 0.77) | | |
| Ethnicity: Black or Black British | | 0.95 (0.73, 1.24) | | | 0.91 (0.69, 1.20) | | 0.82 (0.66, 1.03) | | | | 0.82 (0.69, 0.98) | | | 1.01 (0.70, 1.45) | | |
| Ethnicity: Asian or Asian British | | 0.78 (0.67, 0.91) | | | 0.83 (0.72, 0.97) | | 0.82 (0.73, 0.92) | | | | 0.79 (0.72, 0.87) | | | 0.71 (0.58, 0.86) | | |
| Ethnicity: Other Ethnic Groups | | 0.89 (0.64, 1.23) | | | 0.80 (0.56, 1.13) | | 0.84 (0.64, 1.10) | | | | 0.83 (0.66, 1.03) | | | 0.67 (0.41, 1.11) | | |
| Ethnicity: Mixed | | 0.60 (0.34, 1.06) | | | 0.65 (0.38, 1.14) | | 1.11 (0.78, 1.57) | | | | 0.81 (0.58, 1.14) | | | 1.16 (0.62, 2.16) | | |
| Ethnicity: Unknown | | 0.62 (0.45, 0.87) | | | 0.63 (0.45, 0.88) | | 0.76 (0.60, 0.97) | | | | 0.66 (0.52, 0.82) | | | 0.59 (0.38, 0.93) | | |
| No prior history of COVID-19 | | 0.74 (0.71, 0.77) | | | 0.82 (0.79, 0.84) | | 0.82 (0.80, 0.84) | | | | 0.79 (0.77, 0.81) | | | 0.74 (0.70, 0.77) | | |
| Prior history of COVID-19 | | 0.94 (0.82, 1.08) | | | 0.86 (0.75, 1.00) | | 0.93 (0.83, 1.04) | | | | 0.86 (0.78, 0.95) | | | 0.83 (0.68, 1.02) | | |
| No prior history of event | | 0.67 (0.64, 0.70) | | | 0.77 (0.73, 0.80) | | 0.77 (0.75, 0.80) | | | | 0.73 (0.71, 0.75) | | | 0.66 (0.62, 0.69) | | |
| Prior history of event | | 0.83 (0.79, 0.88) | | | 0.86 (0.81, 0.90) | | 0.86 (0.83, 0.90) | | | | 0.84 (0.81, 0.87) | | | 0.84 (0.78, 0.89) | | |
| Sex: Female | | 0.75 (0.71, 0.80) | | | 0.78 (0.74, 0.82) | | 0.83 (0.79, 0.86) | | | | 0.78 (0.75, 0.81) | | | 0.74 (0.69, 0.79) | | |
| Sex: Male | | 0.76 (0.72, 0.79) | | | 0.86 (0.82, 0.90) | | 0.84 (0.82, 0.87) | | | | 0.84 (0.81, 0.86) | | | 0.80 (0.75, 0.84) | | |
| Composite venous | Age group: <40 | | 0.79 (0.57, 1.08) | | | 1.06 (0.79, 1.40) | | 0.88 (0.69, 1.11) | | | | 0.84 (0.67, 1.06) | | | 0.84 (0.45, 1.55) | | |
| Age group: 40-59 | | 0.73 (0.63, 0.86) | | | 0.86 (0.74, 0.99) | | 0.72 (0.63, 0.81) | | | | 0.75 (0.67, 0.84) | | | 0.69 (0.52, 0.92) | | |
| Age group: 60-79 | | 0.61 (0.55, 0.68) | | | 0.60 (0.54, 0.67) | | 0.61 (0.56, 0.66) | | | | 0.52 (0.48, 0.56) | | | 0.54 (0.47, 0.63) | | |
| Age group: >=80 | | 0.49 (0.42, 0.58) | | | 0.57 (0.49, 0.66) | | 0.52 (0.46, 0.58) | | | | 0.49 (0.45, 0.54) | | | 0.43 (0.37, 0.50) | | |
| Ethnicity: White | | 0.66 (0.61, 0.72) | | | 0.72 (0.67, 0.78) | | 0.70 (0.66, 0.74) | | | | 0.66 (0.63, 0.70) | | | 0.62 (0.56, 0.68) | | |
| Ethnicity: Black or Black British | | 0.76 (0.44, 1.33) | | | 0.52 (0.26, 1.03) | | 0.67 (0.43, 1.06) | | | | 0.68 (0.48, 0.97) | | | 0.25 (0.08, 0.82) | | |
| Ethnicity: Asian or Asian British | | 0.41 (0.22, 0.78) | | | 0.77 (0.47, 1.27) | | 0.59 (0.39, 0.90) | | | | 0.60 (0.44, 0.83) | | | 0.47 (0.21, 1.05) | | |
| Ethnicity: Other Ethnic Groups | 0.68 (0.25, 1.83) | | 0.92 (0.39, 2.15) | | | 0.63 (0.28, 1.42) | | | | 0.76 (0.41, 1.40) | | | 0.75 (0.20, 2.88) | | |
| Ethnicity: Mixed | | 1.17 (0.44, 3.13) | | | 1.39 (0.56, 3.43) | | 2.04 (1.10, 3.79) | | | | 0.64 (0.32, 1.30) | | | 1.27 (0.32, 5.02) | | |
| Ethnicity: Unknown | | 0.47 (0.23, 0.97) | | | 0.86 (0.49, 1.51) | | 0.33 (0.18, 0.62) | | | | 0.46 (0.30, 0.72) | | | 0.32 (0.13, 0.83) | | |
| No prior history of COVID-19 | | 0.64 (0.60, 0.70) | | | 0.71 (0.66, 0.77) | | 0.69 (0.65, 0.73) | | | | 0.65 (0.62, 0.68) | | | 0.60 (0.54, 0.66) | | |
| Prior history of COVID-19 | | 0.83 (0.62, 1.11) | | | 0.90 (0.68, 1.19) | | 0.79 (0.63, 0.99) | | | | 0.64 (0.52, 0.79) | | | 0.65 (0.42, 1.00) | | |
| No prior history of event | | 0.64 (0.59, 0.69) | | | 0.70 (0.65, 0.76) | | 0.68 (0.64, 0.72) | | | | 0.63 (0.59, 0.66) | | | 0.57 (0.51, 0.63) | | |
| Prior history of event | | 0.70 (0.58, 0.85) | | | 0.78 (0.65, 0.94) | | 0.73 (0.62, 0.84) | | | | 0.69 (0.61, 0.79) | | | 0.66 (0.52, 0.85) | | |
| Sex: Female | | 0.67 (0.61, 0.74) | | | 0.68 (0.61, 0.75) | | 0.68 (0.63, 0.73) | | | | 0.65 (0.60, 0.69) | | | 0.59 (0.52, 0.67) | | |
| Sex: Male | | 0.64 (0.57, 0.71) | | | 0.79 (0.71, 0.87) | | 0.72 (0.66, 0.78) | | | | 0.68 (0.63, 0.73) | | | 0.64 (0.56, 0.74) | | |

1. Acute myocardial infarction [↑](#footnote-ref-2)
2. Deep venous thrombosis [↑](#footnote-ref-3)
3. Intracranial venous thrombosis [↑](#footnote-ref-4)
4. Subarachnoid haemorrhage and haemorrhagic stroke [↑](#footnote-ref-5)