### List of abbreviations

| Abbreviation term | Term                                           |
|-------------------|------------------------------------------------|
| GP                | general practitioner                           |
| EHR               | electronic health record                       |
| IRRs              | Incidence rate ratios                           |
| ITP               | idiopathic thrombocytopenic purpura            |
| JCVI              | Joint Committee on Vaccination and Immunisation |
| PCR               | polymerase chain reaction                      |
| SAIL              | Secure Anonymised Information Linkage          |
| SCCS              | self-controlled case series                    |
| SD                | Standard Deviation                              |
| VE                | vaccine effectiveness                           |
| VITT              | Vaccine Vaccine-Induced Immune Thrombotic Thrombocytopenia |
| VTE               | venous thromboembolic                          |
| WRRS              | Welsh Result Reporting Service                 |

### Supplementary Table 1a - Cohort eligibility

Please note: That the <5 counts that can be seen in the ‘Events Diff’ column are referring to records have been removed due to either incomplete or erroneous information. This means that these are not a privacy risk.

| Step | Sample criteria             | Individuals n | Diff (%) | Events n | Diff (%) |
|------|-----------------------------|---------------|----------|----------|----------|
| 0    | c20 total                   | 3,449,059     | NA       | 45,686   | NA       |
| 1    | in c20 at study start       | 3,357,222     | -91837   | 45,605   | -81      |
| 2    | has wob and sex             | 3,357,222     | 0        | 45,605   | 0        |
| 3    | has lsoa at study start     | 3,009,949     | -347273  | 42,395   | -3210    |
| 4    | is registered with a gp     | 2,488,036     | -521913  | 36,353   | -6042    |
| 5    | has no bad vacc records     | 2,486,015     | -2021    | 36,315   | -38      |
| 6    | aged 16 years or older      | 2,062,144     | -423871  | 36,136   | -179     |

### Supplementary Table 2 - Detail of all datasets used to derive research ready data assets for this study

**Data sources**

The following data sources were used to identify study population and outcome events:

- WLGP: Welsh Longitudinal General Practice – primary care GP data.
- PEDW: Patient Episode Dataset for Wales – secondary care hospital admissions.

We have also used linked patients data from other sources compiled in a research ready data assets:
- ADDD: Office for National Statistics (ONS) register of all deaths of Welsh residence. (Daily extract).
- ADDE: Office for National Statistics (ONS) register of all deaths of Welsh residence. (Extract).
- CDDS: COVID-19 Consolidated Deaths dataset.
- CVVD: Vaccination records from the Welsh Immunisation System (WIS). Covers date of vaccination, type of vaccination and also has a flag for adverse events immediately following vaccination (to be used by caution).
- PATD: Active COVID-19 PCR testing and results.
- WDDS: Welsh Dispensing Dataset.

Research Ready Data Assets (RRDAs):

- C19_COHORT20: follow-up to end of December 2021.
- C19_COHORT20_MORTALITY: A cleaned and organised table of mortality records, refreshed on a daily basis with coverage up to end of December 2021.
- C19_DERIVED_VACCINATION: A cleaned and organised table of vaccination records, refreshed on a daily basis with coverage up to end of December 2021.

Positive and Negative control definition and datasets:

Any hospitalisation for hip fracture is retrieved and used as a

For derivation of positive control we used PEDW dataset for any records of Anaphylaxis shock and combined it with any existing recorded adverse reactions to vaccine from CVSD dataset from all existing types of adverse reactions including: (1-local reaction, 2-syncope(faint), 3-Allergic reaction but not anaphylaxis 4-Anaphylactoid reaction and 5-Full anaphylaxis), only those recorded as anaphylactic reaction or full anaphylaxis were included and monitored for the cohort.

**Supplementary Table 3a. ICD-10 codes for primary outcomes**

| ICD10 | Description                                          |
|-------|------------------------------------------------------|
| **Thrombocytopenia** |                                                   |
| D695  | Secondary thrombocytopenia                           |
| D694  | Other primary thrombocytopenia                       |
|       | Idiopathic thrombocytopenic purpura (ITP)            |
| D693  | Idiopathic thrombocytopenic purpura                  |
| **Venous thromboembolic events** |                                                   |
| I269  | Pulmonary embolism without mention of acute cor pulmonale |
| I802  | Phlebitis and thrombophlebitis of other deep vessels of lower extremities |
| H348  | Other retinal vascular occlusions                    |
| Code | Description |
|------|-------------|
| I801 | Phlebitis and thrombophlebitis of femoral vein |
| I81X | Portal vein thrombosis |
| I828 | Embolism and thrombosis of other specified veins |
| I803 | Phlebitis and thrombophlebitis of lower extremities, unspecified |
| I800 | Phlebitis and thrombophlebitis of superficial vessels of lower extremities |
| I260 | Pulmonary embolism with mention of acute cor pulmonale |
| I809 | Phlebitis and thrombophlebitis of unspecified site |
| I822 | Embolism and thrombosis of vena cava |
| H342 | Other retinal artery occlusions |
| I820 | Budd-Chiari syndrome |
| H341 | Central retinal artery occlusion |
| I829 | Embolism and thrombosis of unspecified vein |
| I823 | Embolism and thrombosis of renal vein |
| H349 | Retinal vascular occlusion, unspecified |

**Cerebral venous sinus thrombosis (CVST)**

| Code | Description |
|------|-------------|
| G08X | Intracranial and intraspinal phlebitis and thrombophlebitis |
| I676 | Nonpyogenic thrombosis of intracranial venous system |
| I636 | Cerebral infarction due to cerebral venous thrombosis, nonpyogenic |

**Hemorrhage**

| Code | Description |
|------|-------------|
| R31X | Unspecified haematuria |
| K920 | Haematemesis |
| T810 | Haemorrhage and haematoma complicating a procedure, not elsewhere classified |
| R042 | Haemoptysis |
| S065 | Traumatic subdural haemorrhage |
| S066 | Traumatic subarachnoid haemorrhage |
| I619 | Intracerebral haemorrhage, unspecified |
| I620 | Subdural haemorrhage (acute)(nontraumatic) |
| N029 | Recurrent and persistent haematuria unspecified |
| H431 | Vitreous haemorrhage |
| I609 | Subarachnoid haemorrhage, unspecified |
| N028 | Recurrent and persistent haematuria other |
| H113 | Conjunctival haemorrhage |
| I629 | Intracranial haemorrhage (nontraumatic), unspecified |
| I611 | Intracerebral haemorrhage in hemisphere, cortical |
| I618 | Other intracerebral haemorrhage |
| I615 | Intracerebral haemorrhage, intraventricular |
| I610 | Intracerebral haemorrhage in hemisphere, subcortical |
| J942 | Haemothorax |
| Code  | Description                                                                 |
|-------|------------------------------------------------------------------------------|
| R58X  | Haemorrhage, not elsewhere classified                                         |
| I614  | Intracerebral haemorrhage in cerebellum                                      |
| H356  | Retinal haemorrhage                                                          |
| N421  | Congestion and haemorrhage of prostate                                        |
| I602  | Subarachnoid haemorrhage from anterior communicating artery                  |
| I612  | Intracerebral haemorrhage in hemisphere, unspecified                         |
| R048  | Haemorrhage from other sites in respiratory passages                         |
| I601  | Subarachnoid haemorrhage from middle cerebral artery                         |
| I613  | Intracerebral haemorrhage in brain stem                                      |
| I616  | Intracerebral haemorrhage, multiple localized                                |
| I608  | Other subarachnoid haemorrhage                                               |
| I606  | Subarachnoid haemorrhage from other intracranial arteries                    |
| I603  | Subarachnoid haemorrhage from posterior communicating artery                 |
| I604  | Subarachnoid haemorrhage from basilar artery                                 |
| D683  | Haemorrhagic disorder due to circulating anticoagulants                       |
| I607  | Subarachnoid haemorrhage from intracranial artery, unspecified               |
| D699  | Haemorrhagic condition, unspecified                                           |
| H313  | Choroidal haemorrhage and rupture                                             |
| I600  | Subarachnoid haemorrhage from carotid siphon and bifurcation                 |
| I621  | Nontraumatic extradural haemorrhage                                           |
| R041  | Haemorrhage from throat                                                       |
| D698  | Other specified haemorrhagic conditions                                       |

**Arterial thromboembolic events**

*Currently no ICD10 codes identified for AT events*

I60-I69  Note that these include 'chronic' occlusions from cholesterol etc and not just thromboembolic events but match to those in Nature paper

H34

I20 to 124.9  IHD
### Supplementary Table 3b. READ codes for primary outcomes

| READ Code | Description |
|-----------|-------------|

**Thrombocytopenia**

- **42P2** Thrombocytopenia
- **D313.** Primary thrombocytopenia
- **D3133** [X]Essential thrombocytopenia NOS
- **D313y** Other specified primary thrombocytopenia
- **D313z** Primary thrombocytopenia NOS
- **D314** Secondary thrombocytopenia
- **D3141** Thrombocytopenia due to drugs
- **D314y** Other specified secondary thrombocytopenia
- **D314z** Secondary thrombocytopenia NOS
- **D315** Thrombocytopenia NOS
- **Dyu32** [X]Other primary thrombocytopenia

**Idiopathic thrombocytopenic purpura (ITP)**

- **D3130** Idiopathic thrombocytopenic purpura

**Venous thromboembolic events**

- **8CMWA** On deep vein thrombosis care pathway
- **G801.** Deep vein phlebitis and thrombophlebitis of the leg
- **G801B** Deep vein thrombophlebitis of the leg unspecified
- **G801D** Deep vein thrombosis of lower limb
- **G801F** Deep vein thrombosis of peroneal vein
- **G801z** Deep vein phlebitis and thrombophlebitis of the leg NOS
- **G8020** Thrombosis of vein of leg
- **G80y4** Thrombophlebitis of the common iliac vein
- **G80y6** Thrombophlebitis of the external iliac vein
- **G401.** Pulmonary embolism
- **G4011** Recurrent pulmonary embolism
- **G81..** Portal vein thrombosis
- **G82..** Other venous embolism and thrombosis
- **G820.** Budd - Chiari syndrome (hepatic vein thrombosis)
- **G821.** Thrombophlebitis migrans
- **G822.** Embolism and thrombosis of the vena cava
Embolism and thrombosis of the renal vein

Other embolism and thrombosis

Embolism and thrombosis NOS

Embolus of vein NOS

Thrombosis of vein NOS

Embolism and thrombosis NOS

Central retinal vein occlusion

Referral to deep vein thrombosis clinic

Cerebral venous sinus thrombosis (CVST)

Cerebral vein thrombosis

Thrombosis of central nervous system venous sinus NOS

Thrombophlebitis of central nervous system venous sinuses

Nonpyogenic venous sinus thrombosis

Phlebitis and thrombophlebitis of intracranial sinuses

Embolism of central nervous system venous sinus

Embolism cavernous sinus

Embolism superior longitudinal sinus

Embolism lateral sinus

Embolism transverse sinus

Embolism central nervous system venous sinus NOS

Thrombosis of central nervous system venous sinuses

Thrombosis cavernous sinus

Thrombosis of superior longitudinal sinus

Thrombosis lateral sinus

Thrombosis transverse sinus

Phlebitis of central nervous system venous sinuses

Phlebitis cavernous sinus

Phlebitis of superior longitudinal sinus

Phlebitis lateral sinus

Phlebitis transverse sinus

Phlebitis of central nervous system venous sinus NOS

Thrombophlebitis of cavernous sinus

Thrombophlebitis of superior longitudinal venous sinus

Thrombophlebitis lateral venous sinus

Thrombophlebitis of central nervous system venous sinus NOS

Phlebitis or thrombophlebitis of CNS venous sinus NOS

Haemorrhage

Intracerebral haemorrhage
| Code   | Description                                      |
|--------|--------------------------------------------------|
| G610.  | Cortical haemorrhage                             |
| G611.  | Internal capsule haemorrhage                     |
| G612.  | Basal nucleus haemorrhage                        |
| G613.  | Cerebellar haemorrhage                           |
| G614.  | Pontine haemorrhage                              |
| G615.  | Bulbar haemorrhage                               |
| G617.  | Intracerebral haemorrhage, intraventricular      |
| G619.  | Lobar cerebral haemorrhage                       |
| G61X.  | Intracerebral haemorrhage, unspecified           |
| G61X0  | Left sided intracerebral haemorrhage, unspecified|
| G61X1  | Right sided intracerebral haemorrhage, unspecified|
| G61z.  | Intracerebral haemorrhage NOS                    |
| G62..  | Other and unspecified intracranial haemorrhage   |
| G620.  | Extradural haemorrhage – non-traumatic           |
| G621.  | Subdural haemorrhage – non-traumatic             |
| G623.  | Subdural haemorrhage NOS                         |
| G62z.  | Intracranial haemorrhage NOS                     |
| 2BB5.  | O/E - retinal haemorrhages                       |
| 2BB8.  | O/E - vitreous haemorrhages                      |
| 2DE7.  | O/E - throat haemorrhage                         |
| C1542  | Adrenal haemorrhage                              |
| F4045  | Intraocular haemorrhage                          |
| F42y1  | Superficial retinal haemorrhage                  |
| F42y3  | Deep retinal haemorrhage                         |
| F42y4  | Subretinal haemorrhage                           |
| F42y5  | Retinal haemorrhage NOS                          |
| F436.  | Choroidal haemorrhage and rupture                |
| F4360  | Unspecified choroidal haemorrhage                |
| F4361  | Expulsive choroidal haemorrhage                  |
| F436z  | Choroidal haemorrhage or rupture NOS             |
| F4C72  | Conjunctival haemorrhage NOS                     |
| F4Ey0  | Haemorrhage of eyelid                            |
| F4H41  | Optic nerve sheath haemorrhage                   |
| F4K28  | Vitreous haemorrhage                             |
| F4K7.  | Retrobulbar haemorrhage                          |
| FyuH4  | [X]Vitreous haemorrhage in diseases classified elsewhere |
| G8y0.  | Haemorrhage NOS                                  |
| Gyu61  | [X]Other subarachnoid haemorrhage               |
| Gyu62  | [X]Other intracerebral haemorrhage              |
| Gyu6F  | [X]Intracerebral haemorrhage in hemisphere, unspecified |
| K1381  | Renal artery haemorrhage                         |
| Code   | Description                                                      |
|--------|----------------------------------------------------------------|
| R048   | Throat haemorrhage                                              |
| R0631  | Pulmonary haemorrhage NOS                                       |
| R09z0  | Umbilical bleeding                                               |
| G60..  | Subarachnoid haemorrhage                                        |
| G601.. | Subarachnoid haemorrhage from carotid siphon and bifurcation     |
| G602.. | Subarachnoid haemorrhage from middle cerebral artery             |
| G603.. | Subarachnoid haemorrhage from anterior communicating artery      |
| G604.. | Subarachnoid haemorrhage from posterior communicating artery     |
| G605.. | Subarachnoid haemorrhage from basilar artery                     |
| G60z.. | Subarachnoid haemorrhage NOS                                    |
| D3...  | Clotting and bleeding disorders                                  |
| D30..  | Coagulation defects                                              |
| D3z... | Clotting or bleeding disorder NOS                                |
|        | **Arterial thromboembolic events**                              |
| G63..  | Precerebral arterial occlusion                                   |
| G630.. | Basilar artery occlusion                                        |
| G631.. | Carotid artery occlusion                                        |
| G632.. | Vertebral artery occlusion                                      |
| G633.. | Multiple and bilateral precerebral arterial occlusion            |
| G634.. | Carotid artery stenosis                                         |
| G63y.. | Other precerebral artery occlusion                              |
| G63y0  | Cerebral infarct due to thrombosis of precerebral arteries       |
| G63y1  | Cerebral infarction due to embolism of precerebral arteries      |
| G63z.. | Precerebral artery occlusion NOS                                |
| G64..  | Cerebral arterial occlusion                                     |
| G640.. | Cerebral thrombosis                                             |
| G6400  | Cerebral infarction due to thrombosis of cerebral arteries       |
| G641.. | Cerebral embolism                                               |
| G6410  | Cerebral infarction due to embolism of cerebral arteries         |
| G64z.. | Cerebral infarction NOS                                         |
| G64z0  | Brainstem infarction                                            |
| G64z1  | Wallenberg syndrome                                             |
| G64z2  | Left sided cerebral infarction                                  |
| G64z3  | Right sided cerebral infarction                                 |
| G65..  | Transient cerebral ischaemia                                    |
| G650.. | Basilar artery syndrome                                         |
| G651.. | Vertebral artery syndrome                                       |
| G6510  | Vertebro-basilar artery syndrome                                 |
| G652.. | Subclavian steal syndrome                                       |
| Code  | Description                                      |
|-------|--------------------------------------------------|
| G653  | Carotid artery syndrome hemispheric             |
| G654  | Multiple and bilateral precerebral artery syndromes |
| G65y  | Other transient cerebral ischaemia              |
| G65z  | Transient cerebral ischaemia NOS                |
| G6520 | Impending cerebral ischaemia                    |
| G6521 | Intermittent cerebral ischaemia                 |
| G65zz | Transient cerebral ischaemia NOS                |
| G66   | Stroke and cerebrovascular accident unspecified |
| G660  | Middle cerebral artery syndrome                 |
| G661  | Anterior cerebral artery syndrome               |
| G662  | Posterior cerebral artery syndrome              |
| G663  | Brain stem stroke syndrome                      |
| G664  | Cerebellar stroke syndrome                      |
| G665  | Pure motor lacunar syndrome                     |
| G666  | Pure sensory lacunar syndrome                   |
| G667  | Left sided CVA                                  |
| G668  | Right sided CVA                                 |
| G66   | Other cerebrovascular disease                   |
| G660  | Cerebral atherosclerosis                        |
| G661  | Generalised ischaemic cerebrovascular disease NOS |
| G6610 | Acute cerebrovascular insufficiency NOS         |
| G6611 | Chronic cerebral ischaemia                      |
| G661z | Generalised ischaemic cerebrovascular disease NOS |
| G6730 | Dissection of cerebral arteries, nonruptured    |
| G677  | Occlusion/stenosis cerebral arts not result cerebral infarct |
| G6770 | Occlusion and stenosis of middle cerebral artery |
| G6771 | Occlusion and stenosis of anterior cerebral artery |
| G6772 | Occlusion and stenosis of posterior cerebral artery |
| G6773 | Occlusion and stenosis of cerebellar arteries   |
| G6774 | Occlusion+stenosis of multiple and bilat cerebral arteries |
| G66z  | Other cerebrovascular disease OS                |
| G672  | Other cerebrovascular disease NOS               |
| G680  | Sequelae of subarachnoid haemorrhage            |
| G681  | Sequelae of intracerebral haemorrhage           |
| G682  | Sequelae of other nontraumatic intracranial haemorrhage |
| G683  | Sequelae of cerebral infarction                 |
| G68W  | Sequelae/other + unspecified cerebrovascular diseases |
| G68X  | Sequelae of stroke, not specfd as h'morrhage or infarction |
| G6W   | Cereb infarct due unsp occlus/stenos precerebr arteries |
| G6X   | Cerebrl infarctn due/unspcf occlusn or sten/cerebrl artrs |
| Code   | Description                                      |
|--------|--------------------------------------------------|
| G6y..  | Other specified cerebrovascular disease          |
| G74..  | Arterial embolism and thrombosis                 |
| G740.  | Embolism and thrombosis of the abdominal aorta   |
| G741.  | Embolism and thrombosis of the thoracic aorta    |
| G742.  | Embolism and thrombosis of an arm or leg artery  |
| G7420  | Embolism and thrombosis of the brachial artery   |
| G7421  | Embolism and thrombosis of the radial artery     |
| G7422  | Embolism and thrombosis of the ulnar artery      |
| G7423  | Embolism and thrombosis of an arm artery NOS     |
| G7424  | Embolism and thrombosis of the femoral artery    |
| G7425  | Embolism and thrombosis of the popliteal artery  |
| G7426  | Embolism and thrombosis of the anterior tibial artery |
| G7427  | Embolism and thrombosis of the dorsalis pedis artery |
| G7428  | Embolism and thrombosis of the posterior tibial artery |
| G7429  | Embolism and thrombosis of a leg artery NOS      |
| G742z  | Peripheral arterial embolism and thrombosis NOS  |
| G743.  | Embolism and thrombosis of other and unspec parts aorta |
| G74y.  | Embolism and thrombosis of other specified artery|
| G74y0  | Embolism and/or thrombosis of the common iliac artery |
| G74y1  | Embolism and/or thrombosis of the internal iliac artery |
| G74y2  | Embolism and/or thrombosis of the external iliac artery |
| G74y3  | Embolism and thrombosis of the iliac artery unspecified |
| G74y5  | Embolism and thrombosis of the subclavian artery |
| G74y6  | Embolism and thrombosis of the splenic artery    |
| G74y7  | Embolism and thrombosis of the axillary artery    |
| G74y8  | Embolism and thrombosis of the coeliac artery     |
| G74y9  | Embolism and thrombosis of the hepatic artery     |
| G74yz  | Embolism and thrombosis of other arteries NOS     |
| G74z.  | Arterial embolism and thrombosis NOS             |
| F423.  | Retinal vascular occlusion                       |
| F4230  | Unspecified retinal vascular occlusion           |
| F4231  | Central retinal artery occlusion                 |
| F4232  | Retinal arterial branch occlusion                |
| F4233  | Retinal microembolism                            |
| F4234  | Hollenhorst plaque                               |
| F4235  | Retinal partial arterial occlusion NOS           |
| F4236  | Amaurosis fugax                                  |
| F4237  | Retinal transient arterial occlusion NOS         |
| G3...  | Ischaemic heart disease                          |
| G30..  | Acute myocardial infarction                      |
| G300.  | Acute anterolateral infarction                    |
G301. Other specified anterior myocardial infarction
G3010 Acute anteroapical infarction
G3011 Acute anteroseptal infarction
G301z Anterior myocardial infarction NOS
G302. Acute inferolateral infarction
G303. Acute inferoposterior infarction
G304. Posterior myocardial infarction NOS
G305. Lateral myocardial infarction NOS
G306. True posterior myocardial infarction
G307. Acute subendocardial infarction
G3070 Acute non-Q wave infarction
G3071 Acute non-ST segment elevation myocardial infarction
G308. Inferior myocardial infarction NOS
G309. Acute Q-wave infarct
G30B. Acute posterolateral myocardial infarction
G30X. Acute transmural myocardial infarction of unspecified site
G30X0 Acute ST segment elevation myocardial infarction
G30y. Other acute myocardial infarction
G30y0 Acute atrial infarction
G30y1 Acute papillary muscle infarction
G30y2 Acute septal infarction
G30yz Other acute myocardial infarction NOS
G30z. Acute myocardial infarction NOS
G31.. Other acute and subacute ischaemic heart disease
G310. Postmyocardial infarction syndrome
G310. Dressler's syndrome
G31.. Arteriosclerotic heart disease
G311. Preinfarction syndrome
G3110 Myocardial infarction aborted
G3111 Unstable angina
G3112 Angina at rest
G3113 Refractory angina
G3114 Worsening angina
G3115 Acute coronary syndrome
G311z Preinfarction syndrome NOS
G312. Coronary thrombosis not resulting in myocardial infarction
G31y. Other acute and subacute ischaemic heart disease
G31y0 Acute coronary insufficiency
G31y1 Microinfarction of heart
G31y2 Subendocardial ischaemia
G31y3 Transient myocardial ischaemia
G31yz Other acute and subacute ischaemic heart disease NOS
G35.. Subsequent myocardial infarction
G350. Subsequent myocardial infarction of anterior wall
G351. Subsequent myocardial infarction of inferior wall
G353. Subsequent myocardial infarction of other sites
G35X. Subsequent myocardial infarction of unspecified site
G36.. Certain current complication follow acute myocardial infarct
G360. Haemopericardium/current comp folow acut myocard infarct
G361. Atrial septal defect/curr comp folow acut myocardal infarct
G362. Ventric septal defect/curr comp fol acut myocardal infarctn
G363. Ruptur cardiac wall w'out haemopericard/cur comp fol ac MI
G364. Ruptur chordae tendinae/curr comp fol acute myocard infarct
G365. Rupture papillary muscle/curr comp fol acute myocard infarct
G38.. Postoperative myocardial infarction
G380. Postoperative transmural myocardial infarction anterior wall
G381. Postoperative transmural myocardial infarction inferior wall
G384. Postoperative subendocardial myocardial infarction
G38Z. Postoperative myocardial infarction; unspecified
G3Y.. Other specified ischaemic heart disease
G3Z.. Ischaemic heart disease NOS
Gyu32 [X]Other forms of acute ischaemic heart disease
Gyu34 [X]Acute transmural myocardial infarction of unspecif site
Gyu36 [X]Subsequent myocardial infarction of unspecified site

Supplementary Table 4 - Number of cases stratified based on their vaccination status and dosage received by the end of 2021. Please note in Table 1 the two shaded groups are presented under Booster category.

| No. | Total cases | VACC_COUNT | %  | VACCINE_STATUS         |
|-----|-------------|------------|----|------------------------|
| 1   | 36136       | 23140      | 64 | D1 + D2 + Booster      |
| 2   | 36136       | 69         | 0.2| D1 + D2 + D3 + Booster |
| 3   | 36136       | 1895       | 5.2| D1 + D2 + D3           |
| 4   | 36136       | 7111       | 19.7| D1 + D2                |
| 5   | 36136       | 1582       | 4.4| D1                     |
| 6   | 36136       | 2339       | 6.5| UV                     |
### Supplementary Table 5- Negative and Positive control outcomes

Incidence rate ratios (95% confidence intervals) stratified by vaccination dose intervals, and separately by COVID-19 infection intervals.

| Time period | Event | ChAdOx1 vaccine | PCR-confirmed COVID-19 infection | Event | BNT162b2 vaccine | PCR-confirmed COVID-19 infection |
|-------------|-------|------------------|---------------------------------|-------|------------------|---------------------------------|
| **Anaphylaxis** | | | | | | |
| **Baseline** | 51 | 1.00 | | | 18 | 1.00 |
| 1-14 days-pre first dose clearance | <10 | 0.36(0.05,2.58) | | | 0 | --- |
| 0-7 days post first dose risk | 15 | 11.87(6.56,21.47)** | | | 10 | 33.3 (14.08,78.76) ** |
| 8-14 days post first dose risk | <10 | 0.77(0.11,5.58) | | | 0 | --- |
| 15-21 days post first dose risk | 0 | -- | | | <10 | 2.69 (0.35,20.42) |
| 22-28 days post first dose risk | 0 | -- | | | <10 | 2.74 (0.36,20.89) |
| 1-14 days-pre second dose clearance | 0 | -- | | | --- | --- |
| 0-7 days post second dose risk | <10 | 3.23(1.15,9.04)* | | | <10 | 14.62(4.56,46.85)** |
| 8-15 days post second dose risk | <10 | 0.9(0.12,6.55) | | | --- | --- |
| 15-21 days post second dose risk | <10 | 0.9(0.12,6.53) | | | <10 | 3.85(0.49,30.01) |
| 22-28 days post second dose risk | 0 | -- | | | <10 | 7.22(1.69,35.15) ** |
| 1-14 days-pre third dose clearance | --- | --- | | | --- | --- |
| 0-7 days post third dose risk | --- | --- | | | --- | --- |
| 8-15 days post third dose risk | --- | --- | | | --- | --- |
| 15-21 days post third dose risk | --- | --- | | | --- | --- |
| 22-28 days post third dose risk | --- | --- | | | --- | --- |
| **Booster** | Moderna or Moderna half vaccine | BNT162b2 vaccine |
| 1-14 days-pre second dose clearance | --- | --- | | <10 | 0.48(0.03,5.75) |
| 0-7 days post second dose risk | <10 | Inf (+inf,+inf) ** | | <10 | 9.80(1.62,59.35) ** |
| 8-15 days post second dose risk | --- | --- | | --- | --- |
| 15-21 days post second dose risk | --- | --- | | --- | --- |
| 22-28 days post second dose risk | --- | --- | | --- | --- |
| **Hip fracture** | | | | | | |
| **Baseline** | 1916 | 1.00 | | | 548 | 1.00 |
| 1-14 days-pre first dose clearance | 36 | 0.34(0.24,0.47) ** | | <10 | 0.15(0.06,0.41)** |
| 0-7 days post first dose risk | 58 | 1.01(0.78,1.32) | | 18 | 1.29(0.82,2.06) |
| 8-15 days post first dose risk | 47 | 0.96(0.72,1.28) | | <10 | 0.33(0.12,1.00) |
| 15-21 days post first dose risk | 48 | 0.98(0.73,1.30) | | 12 | 0.99(0.56,1.76) |
| 22-28 days post first dose risk | 47 | 0.96(0.72,1.28) | | 14 | 1.16(0.68,1.98) |
| 1-14 days-pre second dose clearance | 59 | 0.60(0.46,0.78) ** | | <10 | 0.13(0.04,0.39) ** |
| 0-7 days post second dose risk | 55 | 1.04(0.79,1.36) | | 10 | 0.78(0.42,1.46) |

*P-values marked with an asterisk are significant at the 5% level.

**P-values marked with a double asterisk are significant at the 1% level.

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Pre-infection

0-28 days post-infection

0-29+ days post-infection
| Time period                        | Thrombocytopenia                          | Baseline | Dose 1                      | Dose 2                      | Dose 3                      |
|----------------------------------|------------------------------------------|----------|-----------------------------|-----------------------------|-----------------------------|
|                                  |                                          | IRR (95% CI) | 1.00 (0.44,2.32) | 0.46(0.06,3.36) | 0.95 (0.33,2.79) |
| Pre-infection                    |                                          | 1.00      | 2.57(0.78,8.53) | 0.98(0.13,7.22) | 0.38 (0.16,0.92) ** |
| 1-14 days-pre first dose clearance |                                          | 1.09      | 0.73(0.18,2.94) | 1.09(0.34,3.43) | 1.90(0.62,5.86) |
| 0-7 days post first dose risk     |                                          | 0.36(0.05,2.61) | 0.36(0.05,2.56) | 0.42(0.06,2.99) | 0.42(0.06,3.01) |
| 8-14 days post first dose risk    |                                          | ---       | ---                         | ---                         | ---                         |
| 15-21 days post first dose risk   |                                          | ---       | ---                         | ---                         | ---                         |
| 22-28 days post first dose risk   |                                          | ---       | ---                         | ---                         | ---                         |
| 1-14 days-pre second dose clearance |                                          | 0.58(0.18,1.83) | ---                         | ---                         | ---                         |
| 0-7 days post second dose risk    |                                          | 0.36(0.05,2.56) | 0.36(0.05,2.56) | 0.42(0.06,2.99) | 0.42(0.06,3.01) |
| 8-14 days post second dose risk   |                                          | 0.42(0.06,2.99) | ---                         | ---                         | ---                         |
| 15-21 days post second dose risk  |                                          | 1.90(0.62,5.86) | ---                         | ---                         | ---                         |
| 22-28 days post second dose risk  |                                          | 0.42(0.06,3.01) | 3.15(0.96,10.32) * | 3.15(0.96,10.32) * | 3.15(0.96,10.32) * |

**P-value ≤0.01

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**Supplementary Table 6- Sensitivity analysis 1 – Excluding those who died within 90 days of the event**

Incidence rate ratios (95% confidence intervals) stratified by vaccination dose intervals, and separately by COVID-19 infection intervals. This had minimal change on our results.
| Time Post-Dose | Baseline Risk | Pre-infection Risk |
|----------------|---------------|--------------------|
| 1-14 days     | 0.76(0.61,0.96) | 0.73(0.51,1.03)    |
| 0-7 days      | 0.72(0.53,0.99) | 0.98(0.65,1.47)    |
| 8-14 days     | 0.84(0.61,1.15) | 1.57(1.11,2.23)    |
| 15-21 days    | 0.95(0.70,1.27) | 0.76(0.46,1.24)    |
| 22-28 days    | 0.95(0.70,1.27) | 0.95(0.61,1.48)    |

**Moderna Half dose booster**

| Time Post-Dose | Baseline Risk | Pre-infection Risk |
|----------------|---------------|--------------------|
| 1-14 days     | 0.62(0.48,0.80) | 0.66(0.45,0.96)    |
| 0-7 days      | 1.01(0.77,1.32) | 0.71(0.44,1.15)    |
| 8-14 days     | 1.00(0.74,1.34) | 1.03(0.67,1.59)    |
| 15-21 days    | 0.98(0.73,1.31) | 0.83(0.51,1.35)    |
| 22-28 days    | 0.98(0.73,1.31) | 1.37(0.94,2.00)    |

**BNT162b2 vaccine**

| Time Post-Dose | Baseline Risk | Pre-infection Risk |
|----------------|---------------|--------------------|
| 1-14 days     | 0.56(0.45,0.69) | 0.84(0.64,1.10)    |
| 0-7 days      | 1.05(0.84,1.31) | 1.21 (0.88,1.67)   |

**Venous thromboembolic (VTE)**

| Time Post-Dose | Baseline Risk | Pre-infection Risk |
|----------------|---------------|--------------------|
| 1-14 days     | 0.79(0.67,0.94) | 0.67 (0.50,0.89)    |
| 0-7 days      | 0.77(0.61,0.97) | 0.71 (0.49,1.02)    |
| 8-14 days     | 1.05(0.84,1.30) | 0.98 (0.69,1.38)    |
| 15-21 days    | 1.02(0.82,1.27) | 1.01 (0.72,1.41)    |
| 22-28 days    | 0.75(0.58,0.97) | 0.89 (0.62,1.27)    |

**Moderna Half dose booster**

| Time Post-Dose | Baseline Risk | Pre-infection Risk |
|----------------|---------------|--------------------|
| 1-14 days     | 3.24(0.39,27.21) | 1.49(1.14,1.96)    |
| 0-7 days      | 4.64(0.54,39.91) | 1.12(0.76,1.65)    |
| 8-14 days     | 1.98(0.18,21.91) | 0.97(0.62,1.51)    |
| 15-21 days    | 3.33(0.34,32.26) | 0.91(0.58,1.44)    |
| 22-28 days    | 1.40(0.49,4.02) | 0.67(0.16,2.83)    |

**BNT162b2 vaccine**

| Time Post-Dose | Baseline Risk | Pre-infection Risk |
|----------------|---------------|--------------------|
| 1-14 days     | 3.56(0.45,0.69) | 0.84 (0.64,1.10)    |
| 0-7 days      | 0.80(0.70,1.10) | 0.74 (0.51,1.08)    |
| 8-14 days     | 1.05(0.84,1.31) | 1.21 (0.88,1.67)    |
| Time Period                  | Risk Ratio (95% CI) | p-value |
|-----------------------------|---------------------|---------|
| 15-21 days post second dose risk | 0.88 (0.69, 1.12)  |         |
| 22-28 days post second dose risk | 0.71 (0.54, 0.93) ** |         |
| Dose 3 1-14 days-pre third dose clearance | --- |         |
| 0-7 days post third dose risk | --- |         |
| 8-14 days post third dose risk | --- |         |
| 15-21 days post third dose risk | --- |         |
| 22-28 days post third dose risk | --- |         |
| Booster 1-14 days-pre booster clearance | 0.89 (0.69, 1.12)  |         |
| 0-7 days post booster risk | --- |         |
| 8-14 days post booster risk | --- |         |
| 15-21 days post booster risk | --- |         |
| 22-28 days post booster risk | --- |         |
| Idiopathic thrombocytopenic purpura (ITP) | |         |
| Baseline | 1.00 | 1.00 |
| Dose 1 1-14 days-pre first dose clearance | 0.66 (0.24, 1.8) |         |
| 0-7 days post first dose risk | 1.22 (0.45, 3.33) |         |
| 8-14 days post first dose risk | 1.43 (0.53, 3.90) |         |
| 15-21 days post first dose risk | 1.07 (0.34, 3.38) |         |
| 22-28 days post first dose risk | 1.07 (0.34, 3.36) |         |
| Dose 2 1-14 days-pre second dose clearance | 0.55 (0.17, 1.76) |         |
| 0-7 days post second dose risk | 1.72 (0.69, 4.27) |         |
| 8-14 days post second dose risk | 0.40 (0.06, 2.86) |         |
| 15-21 days post second dose risk | 0.79 (0.19, 3.23) |         |
| 22-28 days post second dose risk | 1.60 (0.58, 4.38) |         |
| Dose 3 1-14 days-pre third dose clearance | --- |         |
| 0-7 days post third dose risk | --- |         |
| 8-14 days post third dose risk | --- |         |
| 15-21 days post third dose risk | --- |         |
| 22-28 days post third dose risk | --- |         |
| Booster 1-14 days-pre booster clearance | Inf (0, Inf) |         |
| 0-7 days post booster risk | --- |         |
| 8-14 days post booster risk | --- |         |
| 15-21 days post booster risk | Inf (0, Inf) |         |
| 22-28 days post booster risk | --- |         |
| Arterial Thrombosis | |         |
| Baseline | 1.00 | 1.00 |
| Dose 1 1-14 days-pre first dose clearance | 0.69 (0.62, 0.77) ** |         |
| 0-7 days post first dose risk | 0.70 (0.50, 0.96) ** |         |
| 8-14 days post first dose risk | 0.99 (0.87, 1.13) ** |         |
| 15-21 days post first dose risk | 0.96 (0.84, 1.10)  |         |
| Time Post-dose | Risk Ratio (95% CI) | Pre-infection Risk Ratio (95% CI) |
|---------------|---------------------|----------------------------------|
| 22-28 days post first dose risk | 0.95 (0.83, 1.09) | 0.89 (0.70, 1.13) |
| **Dose 1** 1-14 days-pre first dose clearance | 0.70 (0.62, 0.78) ** | 0.83 (0.69, 0.98) * |
| 0-7 days post first dose risk | 0.79 (0.69, 0.91) ** | 0.80 (0.63, 1.01) |
| 8-14 days post first dose risk | 0.92 (0.80, 1.06) | 1.15 (0.92, 1.42) |
| 15-21 days post first dose risk | 1.02 (0.89, 1.17) | 1.17 (0.95, 1.45) |
| 22-28 days post first dose risk | 1.13 (0.99, 1.28) | 1.02 (0.82, 1.29) |
| 0-28 days post-infection | 1.98 (1.77, 2.22) ** |
| **Dose 2** 1-14 days-pre second dose clearance | 0.70 (0.62, 0.78) ** | 0.83 (0.69, 0.98) * |
| 0-7 days post second dose risk | 0.79 (0.69, 0.91) ** | 0.80 (0.63, 1.01) |
| 8-14 days post second dose risk | 0.92 (0.80, 1.06) | 1.15 (0.92, 1.42) |
| 15-21 days post second dose risk | 1.02 (0.89, 1.17) | 1.17 (0.95, 1.45) |
| 22-28 days post second dose risk | 1.13 (0.99, 1.28) | 1.02 (0.82, 1.29) |
| 0-28 days post-infection | 1.98 (1.77, 2.22) ** |
| **Dose 3** 1-14 days-pre third dose clearance | 0.35 (0.05, 2.51) | 0.74 (0.40, 1.38) |
| 0-7 days post third dose risk | --- | --- |
| 8-14 days post third dose risk | 0.75 (0.10, 5.37) | 1.27 (0.64, 2.52) |
| 15-21 days post third dose risk | --- | 1.73 (0.95, 3.15) |
| 22-28 days post third dose risk | --- | 0.84 (0.37, 1.92) |

| Time Post-dose | Risk Ratio (95% CI) | Pre-infection Risk Ratio (95% CI) |
|---------------|---------------------|----------------------------------|
| **Booster** Moderna Half dose booster | 6.84 (2.69, 17.38) ** | 0.86 (0.75, 1.00) * |
| 0-7 days post booster risk | 4.53 (1.73, 11.90) ** | 0.96 (0.80, 1.14) |
| 8-14 days post booster risk | 3.14 (1.14, 8.66) * | 1.25 (1.05, 1.48) ** |
| 15-21 days post booster risk | 2.27 (0.79, 6.55) | 0.99 (0.74, 1.10) |
| 22-28 days post third dose risk | --- | 0.91 (0.75, 1.10) |
| 29+ days post-infection | 0.50 (0.45, 0.56) ** |

| Time Post-dose | Risk Ratio (95% CI) | Pre-infection Risk Ratio (95% CI) |
|---------------|---------------------|----------------------------------|
| **Ischaemic stroke** Baseline | 1.00 | 1.00 |
| **Dose 1** 1-14 days-pre first dose clearance | 0.62 (0.49, 0.78) ** | 0.40 (0.25, 0.66) ** |
| 0-7 days post first dose risk | 0.67 (0.50, 0.91) ** | 0.75 (0.46, 1.23) |
| 8-14 days post first dose risk | 1.13 (0.88, 1.46) | 0.66 (0.37, 1.16) |
| 15-21 days post first dose risk | 0.75 (0.55, 1.02) | 1.21 (0.79, 1.85) |
| 22-28 days post first dose risk | 1.06 (0.82, 1.38) | 0.55 (0.29, 1.02) |
| **Dose 2** 1-14 days-pre second dose clearance | 0.56 (0.44, 0.73) ** | 0.41 (0.25, 0.68) ** |
| 0-7 days post second dose risk | 0.76 (0.57, 1.02) | 0.86 (0.54, 1.37) |
| 8-14 days post second dose risk | 0.91 (0.68, 1.21) | 1.17 (0.76, 1.81) |
| 15-21 days post second dose risk | 1.10 (0.85, 1.43) | 1.34 (0.89, 2.01) |
| 22-28 days post second dose risk | 0.95 (0.71, 1.26) | 1.17 (0.76, 1.81) |
| **Dose 3** 1-14 days-pre third dose clearance | --- | 1.32 (0.43, 4.12) |
| 0-7 days post third dose risk | --- | --- |
| 8-14 days post third dose risk | --- | 1.25 (0.27, 5.75) |
| 15-21 days post third dose risk | --- | 1.09 (0.24, 5.06) |
| 22-28 days post third dose risk | --- | 0.55 (0.07, 4.32) |
| 29+ days post-infection | 0.38 (0.32, 0.47)** |

| Time Post-dose | Risk Ratio (95% CI) | Pre-infection Risk Ratio (95% CI) |
|---------------|---------------------|----------------------------------|
| **Booster** Moderna Half dose booster | 3.52 (0.73, 16.95) | 0.76 (0.54, 1.06) |
| 0-7 days post booster risk | 2.94 (0.59, 14.68) | 1.18 (0.82, 1.68) |
| 8-14 days post booster risk | 2.15 (0.39, 11.75) | 0.77 (0.49, 1.21) |
| 15-21 days post booster risk | 1.05 (0.15, 7.46) | 1.09 (0.74, 1.61) |
| 22-28 days post third dose risk | --- | 1.00 (0.67, 1.50) |

| Time Post-dose | Risk Ratio (95% CI) | Pre-infection Risk Ratio (95% CI) |
|---------------|---------------------|----------------------------------|
| **Myocardial infarction** Baseline | 1.00 | 1.00 |
| **Dose 1** 1-14 days-pre first dose clearance | 0.62 (0.49, 0.78) ** | 0.40 (0.25, 0.66) ** |
| 0-7 days post first dose risk | 0.67 (0.50, 0.91) ** | 0.75 (0.46, 1.23) |
| 8-14 days post first dose risk | 1.13 (0.88, 1.46) | 0.66 (0.37, 1.16) |
| 15-21 days post first dose risk | 0.75 (0.55, 1.02) | 1.21 (0.79, 1.85) |
| 22-28 days post first dose risk | 1.06 (0.82, 1.38) | 0.55 (0.29, 1.02) |
| **Dose 2** 1-14 days-pre second dose clearance | 0.56 (0.44, 0.73) ** | 0.41 (0.25, 0.68) ** |
| 0-7 days post second dose risk | 0.76 (0.57, 1.02) | 0.86 (0.54, 1.37) |
| 8-14 days post second dose risk | 0.91 (0.68, 1.21) | 1.17 (0.76, 1.81) |
| 15-21 days post second dose risk | 1.10 (0.85, 1.43) | 1.34 (0.89, 2.01) |
| 22-28 days post second dose risk | 0.95 (0.71, 1.26) | 1.17 (0.76, 1.81) |
| **Dose 3** 1-14 days-pre third dose clearance | --- | 1.32 (0.43, 4.12) |
| 0-7 days post third dose risk | --- | --- |
| 8-14 days post third dose risk | --- | 1.25 (0.27, 5.75) |
| 15-21 days post third dose risk | --- | 1.09 (0.24, 5.06) |
| 22-28 days post third dose risk | --- | 0.55 (0.07, 4.32) |
| 29+ days post-infection | 0.38 (0.32, 0.47)** |
### Supplementary Table 7 - Sensitivity analysis 3 – Excluding unvaccinated cases

Incidence rate ratios (95% confidence intervals) stratified by vaccination dose intervals, and separately by COVID-19 infection intervals.

| Time period | ChAdOx1 vaccine | BNT162b2 vaccine | PCR-confirmed COVID-19 infection |
|-------------|-----------------|------------------|---------------------------------|
| Thrombocytopenia | **Baseline** | **Dose 1** | **Dose 2** | **Dose 3** |
| **Baseline** | 1.00 | 1.00 | 1.00 | Pre-infection 1.00 |
| 1-14 days-pre first dose clearance | 0.68 (0.53, 0.87) | 0.44 (0.27, 0.73) ** | 0.61 (0.46, 0.79) | 0.37 (0.22, 0.65) ** |
| 0-7 days post first dose risk | 0.64 (0.46, 0.9) | 1.19 (0.78, 1.80) | 0.80 (0.46, 1.39) | 1.61 (1.23, 2.12) ** |
| 8-14 days post first dose risk | 0.93 (0.69, 1.27) | 0.84 (0.49, 1.42) | 0.64 (0.46, 1.35) | 1.17 (0.74, 1.85) |
| 15-21 days post first dose risk | 1.07 (0.81, 1.42) | 0.78 (0.45, 1.35) | 0.72 (0.48, 1.07) | 1.61 (1.23, 2.12) ** |
| 22-28 days post first dose risk | 0.61 (0.41, 0.87) | 0.78 (0.45, 1.35) | 0.72 (0.48, 1.07) | 1.61 (1.23, 2.12) ** |
| **Dose 2** | | | 0-7 days post second dose risk | 0.8 (0.58, 1.09) | 1.00 (0.64, 1.59) |
| 8-14 days post second dose risk | 1.07 (0.81, 1.44) | 1.11 (0.70, 1.78) | 0.80 (0.46, 1.39) | 1.61 (1.23, 2.12) ** |
| 15-21 days post second dose risk | 1.17 (0.88, 1.54) | 0.40 (0.29, 1.06) | 1.17 (0.74, 1.85) | 1.61 (1.23, 2.12) ** |
| 22-28 days post second dose risk | --- | --- | --- | --- |
| **Dose 3** | | | 0-7 days post third dose risk | --- | --- |
| 1-14 days-pre third dose clearance | --- | --- | --- | --- |
| 0-7 days post third dose risk | --- | --- | --- | --- |
| 8-14 days post third dose risk | --- | --- | --- | --- |
| 15-21 days post third dose risk | --- | --- | --- | --- |
| 22-28 days post third dose risk | 2.09 (0.62, 7.02) | 2.09 (0.62, 7.02) | 2.09 (0.62, 7.02) | 2.09 (0.62, 7.02) |

* P-value ≤0.05
**P-value ≤0.01
| Time Period                  | Risk Ratio | Confidence Interval | Time Period                  | Risk Ratio | Confidence Interval |
|-----------------------------|------------|---------------------|-----------------------------|------------|---------------------|
| 22-28 days post first dose | 0.33(0.05,2.36) | 0.94(0.13,6.9) | 0-28 days post-infection | 3.08 (0.65,14.62) |
| 1-14 days-pre second dose clearance | 0.54(0.17,1.69) | --- | 0-7 days post second dose risk | 0.33(0.05,2.37) | 0.9(0.12,6.56) |
| 8-14 days post second dose risk | 0.38(0.05,2.76) | --- | 15-21 days post second dose risk | 1.56(0.57,4.26) | --- |
| 22-28 days post second dose risk | 0.39(0.05,2.78) | 3.15(0.96,10.32) | 1-14 days-pre third dose clearance | --- | 2.45(0.31,19.28) |
| 0-7 days post third dose risk | --- | --- | 0-28 days post-infection | 1.21 (0.56,2.61) |
| 8-14 days post third dose risk | --- | --- | 0-7 days post third dose risk | --- | --- |
| 15-21 days post third dose risk | --- | --- | 8-14 days post third dose risk | --- | --- |
| 22-28 days post third dose risk | --- | --- | 15-21 days post third dose risk | --- | --- |
| 0-7 days post booster clearance | --- | --- | 22-28 days post booster clearance | --- | --- |
| 8-14 days post booster clearance | --- | --- | 0-7 days post booster clearance | --- | 0.87(0.10,7.60) |
| 15-21 days post booster clearance | --- | --- | 8-14 days post booster clearance | --- | 1.04(0.12,9.12) |
| 22-28 days post booster clearance | --- | --- | 15-21 days post booster clearance | --- | 1.00(0.11,8.77) |
| 1-14 days-pre booster clearance | 1.15(0.24,5.57) | 0.87(0.10,7.60) | 0-7 days post booster clearance | --- | --- |
| 0-7 days post booster clearance | --- | 0.91(0.61,1.22) | 8-14 days post booster clearance | --- | --- |
| 0-28 days post-infection | 1.21 (0.56,2.61) | 1.02(0.67,1.57) | 15-21 days post booster clearance | --- | 0.79(0.49,1.28) |
| 1-14 days-pre second dose clearance | 0.72(0.58,0.91) ** | 0.91(0.61,1.37) | 22-28 days post booster clearance | --- | --- |
| 0-7 days post first dose risk | 0.72(0.53,0.98) ** | 1.47(1.04,2.08) * | 0-7 days post first dose risk | 0.68(0.48,0.96) * | 0.75(0.47,1.22) |
| 8-14 days post first dose risk | 0.86(0.64,1.16) | 0.75(0.47,1.22) | 8-14 days post first dose risk | 0.93(0.61,1.44) | --- |
| 15-21 days post first dose risk | 0.92(0.69,1.23) | 0.93(0.61,1.44) | 0-28 days post-infection | 0.96(0.62,1.48) |
| 22-28 days post first dose risk | 0.92(0.69,1.23) | --- | 0-7 days post first dose risk | 1.05(0.80,1.39) | 1.02(0.67,1.57) |
| 1-14 days-pre second dose clearance | 0.61(0.48,0.79) * | 0.63(0.43,0.91) ** | 8-14 days post second dose risk | 1.05(0.80,1.39) | 1.55(0.93,1.96) |
| 0-7 days post second dose risk | 1.01(0.78,1.32) | 0.68(0.42,1.09) | 15-21 days post second dose risk | 1.03(0.78,1.37) | 0.79(0.49,1.28) |
| 8-14 days post second dose risk | 1.05(0.80,1.39) | 1.02(0.67,1.57) | 22-28 days post second dose risk | 1.05(0.80,1.39) | 1.35(0.93,1.96) |
| 1-14 days-pre third dose clearance | --- | 0.84(0.33,2.18) | 0-7 days post third dose risk | --- | --- |
| 0-7 days post third dose risk | --- | --- | 8-14 days post third dose risk | --- | 1.10(0.33,3.60) |
| 15-21 days post third dose risk | --- | 1.82(0.70,4.69) | 22-28 days post third dose risk | --- | 0.70(0.17,2.91) |
| 1-14 days-pre booster clearance | 3.24(0.39,27.21) | 1.40(1.07,1.84) ** | 0-7 days post booster clearance | 4.64(0.54,39.91) | 1.13(0.78,1.65) |
| 8-14 days post booster clearance | 1.98(0.18,21.91) | 0.96(0.62,1.48) | 15-21 days post booster clearance | 3.33(0.34,32.26) | 0.95(0.62,1.47) |
| 22-28 days post booster clearance | --- | 0.91(0.58,1.42) | 0-28 days post-infection | 1.01 (0.16,0.57)** |
| 1-14 days-pre booster clearance | --- | --- | 0-7 days post first dose risk | --- | --- |
| 0-7 days post first dose risk | --- | --- | 8-14 days post first dose risk | --- | --- |
| 15-21 days post first dose risk | --- | --- | 22-28 days post first dose risk | --- | --- |
| 0-7 days post second dose risk | --- | --- | 0-28 days post-infection | 1.00 (1.00,1.00) |
| 8-14 days post second dose risk | --- | --- | 0-7 days post second dose risk | --- | --- |
| 15-21 days post second dose risk | --- | --- | 8-14 days post second dose risk | --- | --- |
| 22-28 days post second dose risk | --- | --- | 15-21 days post second dose risk | --- | --- |
| 0-7 days post third dose risk | --- | --- | 22-28 days post third dose risk | --- | --- |
| 0-7 days post booster risk | --- | --- | 0-28 days post-infection | 1.00 (1.00,1.00) |
| 8-14 days post booster risk | --- | --- | 0-7 days post booster risk | --- | --- |
| 15-21 days post booster risk | --- | --- | 8-14 days post booster risk | --- | --- |
| 22-28 days post booster risk | --- | --- | 15-21 days post booster risk | --- | --- |
| Venous thromboembolic (VTE) | 1.00 | 1.00 | Pre-infection | 1.00 |
| Dose 1 | 1-14 days-pre first dose clearance | 0.78 (0.66,0.91)** | 0.66 (0.50,0.87)** |
|        | 0-7 days post first dose risk     | 0.78 (0.63,0.98)** | 0.72 (0.51,1.02)   |
|        | 8-14 days post first dose risk    | 1.12 (0.92,1.36)   | 1.03 (0.75,1.41)   |
|        | 15-21 days post first dose risk   | 1.05 (0.86,1.29)   | 0.97 (0.70,1.35)   |
|        | 22-28 days post first dose risk   | 0.79 (0.62,1.00)   | 0.81 (0.57,1.16)   |
|        | 0-7 days post second dose risk    | 0.55 (0.46,0.67)** | 0.79 (0.61,1.03)   |
|        | 8-14 days post second dose risk   | 0.94 (0.76,1.16)   | 0.77 (0.54,1.09)   |
|        | 15-21 days post second dose risk  | 1.17 (0.95,1.44)   | 1.27 (0.94,1.72)   |
|        | 22-28 days post second dose risk  | 0.71 (0.55,0.92)   | 0.81 (0.56,1.17)   |
| Dose 2 | 1-14 days-pre third dose clearance | ---               | 0.59 (0.28,1.23)   |
|        | 0-7 days post third dose risk     | ---               | ---               |
|        | 8-14 days post third dose risk    | ---               | 1.12 (0.51,2.46)   |
|        | 15-21 days post third dose risk   | ---               | 0.62 (0.22,1.70)   |
|        | 22-28 days post third dose risk   | ---               | 0.46 (0.14,1.48)   |
| Booster| Moderna Half dose booster         | ---               | ---               |
|        | 1-14 days-pre booster clearance   | 4.60(1.35,15.64)** | 0.88 (0.68,1.14)   |
|        | 0-7 days post booster risk        | 3.39(0.94,12.20)   | 0.70 (0.48,1.01) *|
|        | 8-14 days post booster risk       | 3.62(0.99,13.17) * | 1.39 (1.04,1.87) *|
|        | 15-21 days post booster risk      | 0.67(0.11,3.99)    | 0.92 (0.65,1.30)   |
|        | 22-28 days post booster risk      | ---               | 0.81 (0.56,1.17)   |
| ITP    | Baseline                          | 1.00              | 1.00              |
| Dose 1 | 1-14 days-pre first dose clearance | 0.61(0.22,1.65)   | 0.25(0.03,1.78)   |
|        | 0-7 days post first dose risk     | 1.40(0.57,3.43)   | 2.80(1.21,6.49) *|
|        | 8-14 days post first dose risk    | 1.31(0.48,3.56)   | 0.53(0.07,3.84)   |
|        | 15-21 days post first dose risk   | 0.98(0.31,3.08)   | 0.53(0.07,3.83)   |
|        | 22-28 days post first dose risk   | 0.97(0.31,3.07)   | 1.63(0.51,5.18)   |
| Dose 2 | 1-14 days-pre second dose clearance | 0.51(0.16,1.62)   | ---               |
|        | 0-7 days post second dose risk    | 1.59(0.64,3.93)   | 0.47(0.07,3.40)   |
|        | 8-14 days post second dose risk   | 0.37(0.05,2.64)   | ---               |
|        | 15-21 days post second dose risk  | 0.73(0.18,2.98)   | ---               |
|        | 22-28 days post second dose risk  | 1.76(0.71,4.36)   | 1.10(0.27,4.50)   |
| Dose 3 | 1-14 days-pre third dose clearance | ---               | 0.33(0.04,2.84)   |
|        | 0-7 days post third dose risk     | ---               | ---               |
|        | 8-14 days post third dose risk    | ---               | ---               |
|        | 15-21 days post third dose risk   | ---               | ---               |
|        | 22-28 days post third dose risk   | 0.61(0.22,1.65)   | ---               |
| Booster| Moderna Half dose booster         | ---               | ---               |
|        | 1-14 days-pre booster clearance   | ---               | 0.77(0.21,2.75)   |
|        | 0-7 days post booster risk        | ---               | 0.89(0.20,4.01)   |
|        | 8-14 days post booster risk       | ---               | 0.50(0.06,3.84)   |
|        | 15-21 days post booster risk      | ---               | 1.04(0.23,4.69)   |

0-28 days post-infection: 7.99(5.79,11.01)**

0-28 days post-infection: 0.23(0.16,0.34)**
## Arterial Thrombosis

| Baseline | Pre-infection | Pre-infection |
|----------|---------------|---------------|
| 1.00     | 1.00          | 1.00          |

### Dose 1

| 1-14 days-pre first dose clearance | 0.65 (0.58, 0.72)** | 0.55 (0.45, 0.67)** |
| 0-7 days post first dose risk      | 0.85 (0.73, 0.95)** | 0.69 (0.54, 0.88)** |
| 8-14 days post first dose risk     | 1.02 (0.90, 1.16)   | 0.67 (0.51, 0.85)** |
| 15-21 days post first dose risk    | 1.00 (0.88, 1.14)   | 0.99 (0.79, 1.23)   |
| 22-28 days post first dose risk    | 0.99 (0.87, 1.13)   | 0.94 (0.75, 1.18)   |

### Dose 2

| 1-14 days-pre second dose clearance | 0.67 (0.60, 0.75) | 0.78 (0.65, 0.93)** |
| 0-7 days post second dose risk     | 0.83 (0.72, 0.94)** | 0.83 (0.67, 1.05)   |
| 8-14 days post second dose risk    | 0.99 (0.87, 1.13) | 1.10 (0.89, 1.36)   |
| 15-21 days post second dose risk   | 1.08 (0.95, 1.22) | 1.15 (0.94, 1.42)   |
| 22-28 days post second dose risk   | 1.14 (1.01, 1.29)* | 1.02 (0.82, 1.28)   |

### Dose 3

| 1-14 days-pre third dose clearance | 0.35 (0.05, 2.52) | 0.68 (0.37, 1.27)   |
| 0-7 days post third dose risk      | ---              | ---               |
| 8-14 days post third dose risk     | 0.75 (0.10, 5.39) | 1.31 (0.68, 2.51)   |
| 15-21 days post third dose risk    | ---              | 1.87 (1.07, 3.28)*  |
| 22-28 days post third dose risk    | ---              | 0.91 (0.42, 1.96)   |

### Booster

| 1-14 days-pre booster clearance    | 6.77 (2.67, 17.17)** | 0.84 (0.73, 0.97)*  |
| 0-7 days post booster risk         | 5.21 (2.00, 13.56)** | 0.96 (0.81, 1.14)   |
| 8-14 days post booster risk        | 3.14 (1.14, 8.64)*   | 1.34 (1.15, 1.58)** |
| 15-21 days post booster risk       | 2.49 (0.88, 7.07)    | 0.96 (0.80, 1.16)   |
| 22-28 days post booster dose risk  | ---                | 0.94 (0.78, 1.14)   |

## Ischaemic Stroke

| Baseline | Pre-infection | Pre-infection |
|----------|---------------|---------------|
| 1.00     | 1.00          | 1.00          |

### Dose 1

| 1-14 days-pre first dose clearance | 0.56 (0.45, 0.71)** | 0.36 (0.22, 0.59)** |
| 0-7 days post first dose risk     | 0.75 (0.57, 0.97)*  | 0.75 (0.47, 1.2)   |
| 8-14 days post first dose risk    | 1.14 (0.91, 1.44)   | 0.63 (0.36, 1.09)  |
| 15-21 days post first dose risk   | 0.75 (0.56, 0.99)*  | 1.27 (0.86, 1.88)  |
| 22-28 days post first dose risk   | 1.0 (0.78, 1.28)    | 0.78 (0.48, 1.28)  |

### Dose 2

| 1-14 days-pre second dose clearance | 0.54 (0.43, 0.69)** | 0.40 (0.25, 0.64)** |
| 0-7 days post second dose risk     | 0.78 (0.59, 1.02)    | 0.86 (0.55, 1.25)   |
| 8-14 days post second dose risk    | 0.89 (0.68, 1.18)    | 1.16 (0.77, 1.76)   |
| 15-21 days post second dose risk   | 1.15 (0.91, 1.47)    | 1.41 (0.97, 2.06)   |
| 22-28 days post second dose risk   | 1.03 (0.81, 1.33)    | 1.26 (0.85, 1.88)   |

### Dose 3

| 1-14 days-pre third dose clearance | 3.52 (0.73, 16.95)  | 1.14 (0.36, 3.60)  |
| 0-7 days post third dose risk      | 2.94 (0.59, 14.68)  | ---               |
| 8-14 days post third dose risk     | 2.15 (0.39, 11.75)  | 1.09 (0.23, 5.04)  |
| 15-21 days post third dose risk    | 1.05 (0.15, 7.46)   | 0.95 (0.20, 4.44)  |
| 22-28 days post third dose risk    | ---                | 0.48 (0.06, 3.79)  |

### Booster

| Moderna Half dose booster | BNT162b2 vaccine | Moderna Half dose booster | BNT162b2 vaccine |
|--------------------------|------------------|--------------------------|------------------|
| 29+ days post-infection  | 0.23 (0.18, 0.29)** | 29+ days post-infection  | 2.74 (1.86, 4.05)** |

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** indicates significance at the 0.05 level.
* indicates significance at the 0.1 level.
| Time Period                        | Baseline | Dose 1 | Dose 2 | Dose 3 | Booster |
|-----------------------------------|----------|--------|--------|--------|---------|
| 1-14 days-pre booster clearance   | 1.00     | 0.63(0.49,0.8) ** | 0.57(0.43,0.74) ** | --- | --- |
| 0-7 days post booster risk        | 1.00     | 0.4(0.25,0.66) ** | 0.86(0.51,1.43) *** | --- | --- |
| 8-14 days post booster risk       | 1.00     | 0.18(0.11,0.30) ** | 0.18(0.11,0.30) ** | --- | --- |
| 0-7 days post first dose clearance| 0.63(0.46,0.87) ** | 0.94(0.71,1.25) | 0.88(0.66,1.17) | 0.85(0.62,0.97) - p-value=0.23 |
| 8-14 days post first dose risk    | 0.94(0.71,1.25) | 0.94(0.71,1.25) | 1.15(0.88,1.51) | 1.26(0.83,1.93) |
| 15-21 days post first dose risk   | 1.14(0.87,1.47) | 0.93(0.57,1.51) | 1.15(0.88,1.51) | --- |
| 22-28 days post first dose risk   | 0.78(0.57,1.06) | 0.93(0.58,1.51) | 1.15(0.88,1.51) | --- |
| 1-14 days-pre second dose clearance| ---     | 0.63(0.49,0.8) ** | 0.63(0.49,0.8) ** | --- | --- |
| 0-7 days post second dose risk    | 0.86(0.51,1.43) *** | 0.86(0.51,1.43) *** | 0.86(0.51,1.43) *** | --- | --- |
| 8-14 days post second dose risk   | 0.86(0.51,1.43) *** | 0.86(0.51,1.43) *** | 0.86(0.51,1.43) *** | --- | --- |
| 15-21 days post second dose risk  | 1.15(0.88,1.51) | 1.14(0.73,1.79) | 1.15(0.88,1.51) | --- |
| 22-28 days post second dose risk  | 1.15(0.88,1.51) | 1.26(0.83,1.93) | 1.15(0.88,1.51) | --- |
| 1-14 days-pre third dose clearance| ---     | 0.25(0.03,2.02) | 0.25(0.03,2.02) | --- | --- |
| 0-7 days post third dose risk     | ---     | --- | --- | --- | --- |
| 8-14 days post third dose risk    | ---     | --- | --- | --- | --- |
| 15-21 days post third dose risk   | ---     | --- | --- | --- | --- |
| 22-28 days post third dose risk   | 2.08(0.62,6.97) - p-value=0.23 | 2.08(0.62,6.97) - p-value=0.23 | 2.08(0.62,6.97) - p-value=0.23 | --- | --- |

* P-value ≤0.05  
**P-value ≤0.01