

# Supplementary Information for ‘Vaccine escape, increased breakthrough and reinfections in infliximab-treated patients with IBD during the Omicron wave of the SARS-CoV-2 pandemic.’

## Table of Contents

Supplementary Table 1: Contributors to the CLARITY IBD study .....	2
Supplementary Table 2: Univariable factors associated with time to breakthrough infection.....	25
Supplementary Figure 1: Antibody concentrations following a third vaccine dose in patients with a prior history of SARS-CoV-2 infection.....	26
Supplementary Figure 2: Multivariable factors associated with hospitalisation with COVID-19 .....	27

Supplementary Table 1: Contributors to the CLARITY IBD study

<b>Affiliation</b>	<b>First name</b>	<b>Surname</b>
Barts Health NHS Trust	Klaartje	Kok
	Nick	Croft
	Bessie	Cipriano
	Caroline	Francia
	Nosheen	Khalid
	Ashley	Kingston
	Irish	Lee
	Anouk	Lehmann
	Kinnari	Naik
	Kevin	Samuels
	Nicolene	Plaatjies
	Hafiza	Khatun
	Farjana	Bokth
	Elise	Pabriaga
Madiha	Islam	
Basingstoke and North Hampshire Hospital	Rebecca	Saich
	Hayley	Cousins
	Wendy	Fraser
	Rachel	Thomas
	Matthew	Brown
	Benjamin	White
Basingstoke and North Hampshire Hospital (Hampshire Hospitals NHS Foundation Trust)	Nikolaos	Kirkineziadis
	Bernadette	Tilley
	Pennie	Porter
	Rachel	Bryant
	Natalia	Robaczewska
Birmingham Women's and Children's NHS Foundation Trust	Rafeeq	Muhammed
	Rehana	Bi

	Catherine	Cotter
	Jayne	Grove
	Kate	Hong
	Ruth	Howman
	Monica	Mitchell
	Sophie	Clayton
	Louise	Rogers
	Sugrah	Sultan
	Melanie	Rooney
	Charlotte	Cottrill
Bolton NHS Foundation Trust	Salil	Singh
	Chris	Dawe
	Robert	Hull
	Natalie	Silva
	Julie	Chadwick
	Laura	Robertson
Borders General Hospital	Jonathan	Manning
	Lauren	Finlayson
	Allison	Roebuck
	Joy	Dawson
Calderdale and Huddersfield NHS Foundation Trust	Sunil	Sonwalkar
	Naomi	Chambers
	Matthew	Robinson
	Andrew	Haigh
	Lear	Matapure
Cambridge University Hospitals NHS Foundation Trust	Tim	Raine
	Varun	George
	Christina	Kapizioni
	Konstantina	Strongili
	Tina	Thompson

	Mohamed	Ahmed
	Christos	Kontos
	Claire	Dawson
Cambridge Institute of Therapeutic Immunology and Infectious Disease, Jeffrey Cheah Biomedical Centre, University of Cambridge	Christophe	Bourges
	Isabella	Barbutti
	Megan E	Gozzard
Chelsea and Westminster Hospital NHS Foundation Trust	Philip	Hendy
	Rhian	Bull
	Patricia	Costa
	Lisa	Davey
	Hayley	Hannington
	Kribashnie	Nundlall
	Catarina	Martins
	Laura	Avanzi
	Jaime	Carungcong
	Sabrina	Barr
	Richard	Appleby
	Emma	Johnson
	Eathar	Shakweh
Chesterfield Royal Hospital	Kath	Phillis
	Rachel	Gascoyne
	Amanda	Crowder
	Amanda	Whileman
Countess Of Chester Hospital NHS Foundation Trust	Ian	London
	Jenny	Grounds
	Emmeline	Martin
	Susie	Pajak
	Jude	Price
	Kathryn	Cawley
	Sandra	Powell

	Nichola	Kearsley
Darlington Memorial Hospital	Anjan	Dhar
	Ellen	Brown
	Amanda	Cowton
	Kimberley	Stamp
Dartford and Gravesham NHS Trust	Ben	Warner
	Carmel	Stuart
	Louise	Lacey
The Dudley Group NHS Foundation Trust	Shanika	de Silva
	Clare	Allcock
	Philip	Harvey
	Lesley	Jones
	Elise	Cooke
	Jayne	Slater
	Dominic	King
East and North Hertfordshire NHS Trust	Johanne	Brooks
	Pearl	Baker
	Hannah	Beadle
	Carina	Cruz
	Debbie	Potter
East Lancashire Hospitals NHS Trust	Joe	Collum
	Farzana	Masters
Glangwili Hospital Hywel Dda University Health Board	Aashish	Kumar
	Samantha	Coetzee
	Mihaela	Peiu
	Becky	Icke
	Jill	Williams
	Meena	Raj
Great Ormond Street Hospital	Edward	Gaynor
	Sibongile	Chadokufa

	Bonita	Huggett
	Hamza	Meghari
	Sara	El-Khouly
	Fevronia	Kiparissi
	Waffa	Girshab
	Lynda	Russell-Walker
	Christopher	Jackson
	Sara	Sidler
Great Western Hospitals NHS Foundation Trust	Andrew	Claridge
	Emily	Fowler
	Laura	McCafferty
	Lesley	Haxton
Guy's and St Thomas' NHS Foundation Trust	Peter	Irving
	Karolina	Christodoulides
	Angela	Clifford
	Patrick	Dawson
	Sailish	Honap
	Samuel	Lim
	Raphael	Luber
	Karina	Mahiouz
	Susanna	Meade
	Parizade	Raymode
	Rebecca	Reynolds
	Anna	Stanton
	Sherill	Tripoli
	Naomi	Hare
	Sopuluchukwu	Odukwe
	Senthuran	Balachandran
	Emma	North

	Jessica	North
	Bria	Browne
	Jessica	Cordle
	Ella	Jameson
The Hillingdon Hospitals NHS Foundation Trust	Yih Harn	Siaw
	Lane	Manzano
	Jonathan	Segal
	Ibrahim	Al-Bakir
	Imran	Khakoo
	Sofiya	Portukhay
Homerton University Hospital Foundation Trust	Nora	Thoua
	Katherine	Davidson
	Jagrul	Miah
	Lisa	Canclini
	Alex	Hall
	Hassina	Furreed
	Christine	Mitchell-Inwang
Hull University Teaching Hospitals NHS Trust	Shaji	Sebastian
	Melony	Hayes
	Sally	Myers
	Alison	Talbot
	Jack	Turnbull
	Emma	Whitehead
	Katie	Stamp
	Alison	Pattinson
	Verghese	Mathew
	Leanne	Sherris
	Julie	Wilcox
	Sankaranarayanan	Ramachandran
	Hayley	Robertson

	Angela	Harvey
Imperial College Healthcare NHS Trust	Lucy	Hicks
	Tara-Marie	Byrne
	Leilani	Cabreros
	Hannah	Downing-Wood
	Sophie	Hunter
	Mohammad Aamir	Saifuddin
	Hemanth	Prabhudev
	Sharmili	Balarajah
	Jan	Krucznski
	Kalliopi	Driva
	Andrea	D'Mello
	Parith	Shah
Faculty of Medicine, Imperial College London	Hajir	Ibraheim
	Melissa	Torkizadeh
	Jonathan W	Lo
	Zhigang	Liu
James Paget University Hospitals NHS Foundation Trust	Helen	Sutherland
	Elva	Wilhelmsen
	Katherine	Mackintosh
Kettering General Hospital	Ajay M	Verma
	Juliemol	Sebastian
	Mohammad Farhad	Peerally
	Parizade	Raymode
	Anne-marie	Guerdette
	Susan	Coburn
	Ching Yee	Novem lam
	Donna	Durrant
	Belinda	Schaefer
	Solange	Serna



	Muhammad	Shahzad
King's College Hospital NHS Foundation Trust	Alexandra	Kent
	Lee Meng	Choong
	Benedetta	Pantaloni
	Pantelis	Ravdas
King's College Hospital NHS Foundation Trust (paediatric)	Babu	Vadamalayan
King's Mill Hospital	Stephen	Foley
	Becky	Arnold
	Cheryl	Heeley
	Wayne	Lovegrove
	Donna	Sowton
	Lynne	Allsop
	Heidi	Gregory
	Mandy	Gill
	Megan	Holmes
	Valeria	Balan
	Susan	Smith
	Sarah	Turner
Liverpool University Hospitals NHS Foundation Trust	Philip J	Smith
	Alan	Steel
	Giovanna	Bretland
	Sarah	King
	Martina	Lofthouse
	Lindsey	Rigby
	Sreedhar	Subramanian
	David	Tyrer
	Kate	Martin
Christopher	Probert	
London North West University	Nikolaos	Kamperidis

Healthcare NHS Trust	Temí	Adedoyin
	Manisha	Baden
	Jeannette	Brown
	Feba	Chacko
	Lisa	Young
	Michela	Cicchetti
	Mohammad	Saifuddin
	Priya	Yesupatham
Maidstone and Tunbridge Wells NHS Trust	Rohit	Gowda
	Maureen	Williams
Manchester University NHS Foundation Trust	Karen	Kemp
	Rima	Akhand
	Glaxy	Gray
	Anu	John
	Maya	John
	Tasnim	Mohammed
	Diamond	Sathe
	Natasha	Jones
	Jennifer	Soren
The Mid Yorkshire Hospitals NHS Trust	Michael	Sprakes
	Julie	Burton
	Patricia	Kane
	Stephanie	Lupton
	Jacqueline	Bartholomew
	Elizabeth	Denis
	Alison	Daniels
Milton Keynes University Hospital	George	MacFaul
	Diane	Scaletta
	Loria	Siamia
	Felicity	Williams

	Chloe	Green
	Zeljka	Ver
Newcastle Hospitals NHS Foundation Trust	Chris	Lamb
	Mary	Doona
	Ashleigh	Hogg
	Lesley	Jeffrey
	Andrew	King
	R Alexander	Speight
	Jennifer	Doyle
	Ruth	Owen
	Jenny	Haworth
	Linda	Patterson
	Vithusa	Varnaulasingam
	Ninewells Hospital & Medical School	Craig
Debbie		Rice
Susan		MacFarlane
Anne		MacLeod
Samera		Mohammed
Ninewells Hospital & Medical	Shona	Murray
	Anne	Elliott
Norfolk and Norwich University Hospitals NHS Foundation Trust	Mary	Anne Morris
	Louise	Coke
	Grace	Hindle
	Eirini	Kolokouri
	Catherine	Wright
	Claire	Lee
	Nicola	Ward
	Adele	Dann
North Bristol NHS Trust	Melanie	Lockett
	Charlotte	Cranfield

	Louise	Jennings
	Ankur	Srivastava
	Lana	Ward
	Nouf	Jeynes
	Poonam	Ranga
North Tyneside General Hospital	Praveen	Rajasekhar
	Lisa	Gallagher
	Linda	Patterson
	Jill	Ward
	Rae	Basnett
	Judy	Murphy
	Lauren	Parking
	Emma	Lawson
	Stacey	Short
Nottingham University Hospitals NHS Trust	David	Devadason
	Gordon	Moran
	Neelam	Khan
	Lauren	Tarr
	Charmaine	Olivia
	Samantha	Warbarton
	Sian	Kelly
The Pennine Acute Hospitals NHS Trust	Jimmy	Limdi
	Kay	Goulden
	Asad	Javed
	Lauren	McKenzie
	Julie	Melville
	Eleanor	Liu
	Joseph	Sabine
	Patricia	Jacob
	Denise	McSorland

	Nick	Schofield
	Lisa	Cornwall
	James	Quirke
	Emma	Crook
	Anne	Turner
Portsmouth Hospitals NHS Trust	Pradeep	Bhandari
	Michelle	Baker-Moffatt
	Joanne	Dash
	Alison	Le Poidevin
	Hayley	Downe
	Lucille	Bombero
	Helen	Blackman
	Rebecca	Smith
The Queen Elizabeth Hospital Kings Lynn NHS Trust	Alan	Wiles
	Hannah	Bloxham
	Jose	Dias
	Evelyn	Nadar
	Hollie	Curgenvin
	Ellie	Gilham
Queen Elizabeth University Hospital, Glasgow	Jonathan	Macdonald
	Shona	Finan
	Faye	McMeeken
	Misbah	Mahmood
	Stephanie	Shields
	John Paul	Seenan
Royal Berkshire NHS Foundation Trust	Des	DeSilva
	Susanna	Malkakorpi
	Rachel	Carson
	Holly	Lawrence
	Ofori	Boateng

	Felix	Kpodo
University Hospitals Dorset NHS Foundation Trust	Simon	Whiteoak
	Kelli	Edger-Earley
	Luke	Vamplew
	Joanna	Samways
	Sue	Roffe
Royal Cornwall Hospitals NHS Trust	Sarah	Ingram
	Joel	James
	Sharon	Botfield
	Fiona	Hammonds
	Clare	James
	Zoe	Berry
Royal Devon and Exeter NHS Foundation Trust	Tariq	Ahmad
	Gemma	Aspinall
	Sarah	Hawkins
	Marian	Parkinson
	Helen	Gardner-Thorpe
	Suzie	Marriott
	Clare	Redstone
	Halina	Windak
	Ana-Marie	Adam
	Hannah	Mabb
	Emma	Stevenson
Jessica	Record	
Royal Free London NHS Foundation Trust	Charles	Murray
	Cynthia	Diaba
	Fexy	Joseph
	Glykeria	Pakou
	Yvonne	Gleeson
	Annalyn	Nunag

Royal Glamorgan Hospital	James	Berrill
	Natalie	Stroud
	Carla	Pothecary
	Lisa	Roche
	Keri	Turner
	Lisa	Deering
	Lynda	Israel
Royal Gwent Hospital	Evelyn	Baker
	Maxine	Nash
Royal Hampshire County Hospital (Hampshire Hospitals NHS Foundation Trust)	John	Gordon
	Emma	Levell
	Silvia	Zagalo
	Wendy	Fraser
	Ina	Hoad
	Nikolaos	Kirkineziadis
	Bernadette	Tilley
	Natalia	Robaczewska
	Bindu	Anil
Royal Hospital for Sick Children, Edinburgh	Richard	Russell
	Paul	Henderson
	Margaret	Millar
Royal Manchester Children's Hospital	Andrew	Fagbemi
	Felicia	Jennings
	Imelda	Mayor
	Jill	Wilson
	Alice	Wheeler
	Nicola	Phillips
Royal Surrey County Hospital	Christopher	Alexakis
	Natalia	Michalak
	Cheryl	Marriott

	Sarah	Stone
	Veronika	Pristopan
Royal United Hospitals Bath	John	Saunders
	Helen	Burton
	Vanessa	Cambridge
	Tonia	Clark
	Charlotte	Ekblad
	Sarah	Hierons
	Joyce	Katebe
	Emma	Saunbury
	Rachel	Perry
The Royal Wolverhampton NHS Trust	Matthew	Brookes
	Kathryn	Davies
	Marie	Green
	Ann	Plumbe
Salford Royal NHS Foundation Trust	Clare	Ormerod
	Helen	Christensen
	Hannah	Howlett
	Anne	Keen
	Jonathan	Ogor
	Marie	Greenhaigh
	Karen	Knowles
	Shanzi	Yin
	Maria	Poulaka
Salisbury District Hospital	Alpha	Anthony
	Emily	Newitt
	Fiona	Trim
	Ruth	Casey
	Katherine	Seymour
	Catherine	Reed



	Lijo	Joy
Sandwell and West Birmingham NHS Trust	Edward	Fogden
	Kalisha	Russell
	Samia	Hussain
Sheffield Teaching Hospitals NHS Foundation Trust	Anne	Phillips
	Muaad	Abdulla
Shrewsbury and Telford Hospital NHS Trust	Jeff	Butterworth
	Colene	Adams
	Mandy	Carnahan
	Elizabeth	Buckingham
	Danielle	Childs
	Alison	Magness
	Jo	Stickley
	Nichola	Motherwell
	Louise	Tonks
	Hannah	Gibson
	Susie	Pajak
	Kate	Wistance
Singleton Hospital Swansea Bay University Health Board	Caradog	Thomas
	Elaine	Brinkworth
	Lynda	Connor
	Amanda	Cook
	Tabitha	Rees
	Rachel	Harford
	Sean	Farley
Somerset NHS Foundation Trust	Marie	Jones
	Emma	Wesley
	Alison	Moss
	Jacob	Lucas
	Claire	Lorimer

	Maria	Oleary
	Maxine	Dixon
	Fiona	Goodchild
	Rebecca	Twenlow
	Corinne	Pawley
South Tees Hospitals NHS Foundation Trust	Arvind	Ramadas
	Julie	Tregonning
	Olaku	Okeke
	Wendy	Jackson
Southend University Hospital NHS Foundation Trust	Ioannis	Koumoutsos
	Viji	George
	Swapna	Kunhunni
	Sophie	Laverick
	Isla	Anderson
	Sophie	Smith
	Joan	Joyce
	Sarala	Janarthan
St George's University Hospitals NHS Foundation Trust	Kamal	Patel
	Mariam	Ali
	Hilda	Mhandu
	Aleem	Rana
	Katherine	Spears
	Joana	Teixeira
	Richard	Pollok
	Mark	Mencias
	Abigail	Seaward
	Jessica	Sousa
	Nooria	Said
	Mark	Soomaroo
	Valentina	Raspa

	Asha	Tacouri
St George's University Hospitals NHS Foundation Trust (paediatric)	Nicholas	Reps
	Rebecca	Martin
	Tinashe	Samakomva
St James's University Hospital (The Leeds Teaching Hospital NHS Trust)	Christian	Selinger
	Jenelyn	Carbonell
	Felicia	Onovira
	Doris	Quartey
	Alice	L'Anson
	Andrew	Ashworth
	Jessica	Bailey
	Angie	Dunn
	Gjuzel	Bespaloj
	Harold	Rasalan
Stockport NHS Foundation Trust	Zahid	Mahmood
	Racheal	Campbell
	Liane	Marsh
	Tricia	Coughlan
	Wisam	Jafar
	Janet	Marrs
	Christopher	McPheat
Surrey and Sussex Healthcare NHS Trust	Monira	Rahman
	Sarah	Davies
	Ruth	Habibi
	Ellen	Jessup-Dunton
	Teishel	Joefield
	Reina	Layug
Tameside and Glossop Integrated Care NHS Foundation Trust	Vinod	Patel
	Joanne	Vere
	Victoria	Turner

	Susan	Kilroy
	Martina	Coulding
	Martyn	Clark
	Jacqueline	McCormick
	Attiya	Nisar
Torbay and South Devon NHS Foundation Trust	Gareth	Walker
	Stacey	Atkins
	Jasmine	Growdon
	Becky	George
	Charlotte	McNeill
	Bryony	Reed
	Angela	Foulds
	Catherine	Marshall
	Michele	Allison
	Briony	Dillon
University Hospitals Birmingham NHS Foundation Trust	Rachel	Cooney
	Lillie	Bennett
	Louise	Bowlas
	Sharafaath	Shariff
University Hospitals Bristol NHS Foundation Trust	Aileen	Fraser
	Dwayne	Punnette
	Rebecca	Lambert
	Charlotte	Bishop-Hurman
	Elizabeth	Undrell
	Katherine	Belfield
University Hospitals of Derby and Burton NHS Foundation Trust	Said	Din
	Catherine	Addleton
	Marie	Appleby
	Johanna	Brown
	Kathleen	Holding

	Catherine	Fraser
	Janice	Birkenshaw
	Jodie	Williams
	Kamille	Maulion
	Meg	Lane
	Arita	Kravale
	Claud	Smith
University Hospitals of Leicester NHS Trust	Patricia	Hooper
	John	deCaestecker
	Olivia	Watchorn
	Ellie	Clarke
University Hospitals Plymouth NHS Trust	Chris	Hayward
	Susan	Inniss
	Lucy	Pritchard
	Karen	Rudge
	Amanda	Carney
	Sarah	Griffiee
United Lincolnshire Hospitals NHS Trust	Jervoise	Andreyev
	Sathish	Babu
	Caroline	Hayhurst
	Carol	Lockwood
	Lynn	Osborne
	Amanda	Roper
	Karen	Warner
	Julia	Hindle
	Tara	Lawrence
	Kimberley	Netherton
	Caroline	Watt
	Kinga	Szymiczek
University College London Hospitals	Shameer	Mehta

NHS Foundation Trust	James	Bell
	William	Blad
	Lisa	Whitley
	Roman	Jastrub
University Hospital Llandough	Dhamaraj	Durai
	Mark	Baker
	Elizabeth	John Sivamurugan
	Mim	Evans
University Hospital Southampton NHS Foundation Trust	Fraser	Cummings
	Clare	Harris
	Amy	Jones
	Liga	Krauze
	Sohail	Rahmany
	Michelle	Earl
	Jenny	Vowles
	Audrey	Torokwa
	Mirela	Petrova
	Andrew	Procter
	Jo	Stanley
	Claudia	Silvamoniz
	Marion	Betty
University Hospital of Wales (paediatric)	Amar	Wahid
	Zoe	Morrison
	Rhian	Thomas-Turner
	Louise	Yendle
	Jennifer	Muller
Exeter NIHR Clinical Research Facility, University of Exeter	Marcus	Mitchell
	John	Kirkwood
	Anna	Barnes
West Hertfordshire Hospitals NHS	Rakesh	Chaudhary

Trust	Melanie	Claridge
	Chiara	Ellis
	Cheryl	Kemp
	Ogwa	Tobi
	Jentus	Milton
West Middlesex University Hospital (Chelsea and Westminster NHS Hospital Foundation Trust)	Emma	Johnston
	Metod	Oblak
	Richard	Appleby
	Carmen	Winpenny
	Marie-Louise	Svensson
West Suffolk NHS Foundation Trust	Jo	Godden
	Marium	Ashhar
Western General Hospital	Charlie	Lees
	Debbie	Alexander
	Kate	Covil
	Lauranne	Derikx
	Sryros	Siakavellas
	Helen	Baxter
	Scott	Robertson
	Linda	Smith
	Beena	Poulose
	Anne	Colemam
	Margareta	Balint
	Gareth	Rhys-Jones
	Helen	Watters
	Susan	Begg
	Beatriz	Grosalcalde
Judy	Coyle	
Withybush General Hospital	Kerrie	Johns
	Rachel	Hughes

	Janet	Phipps
	Abigail	Taylor
	Catherine	MacPhee
	Suzanne	Brooks
	Jolene	John
	Michelle	Edwards
Yeovil District Hospital NHS Foundation Trust	Katie	Smith
	Linda	Howard
	Dianne	Wood
York Teaching Hospital NHS Foundation Trust	Ajay	Muddu
	Laura	Barman
	Janine	Mallinson
	Tania	Neale
	Diana	Ionita
	Kerry	Elliot
	Alison	Turnball
Ysbyty Gwynedd	Iola	Thomas
	Alice	Thomas
	Kelly	Andrews
	Jonathon	Sutton
	Caroline	Mulvaney Jones
	Julia	Roberts
	Jeannie	Bishop

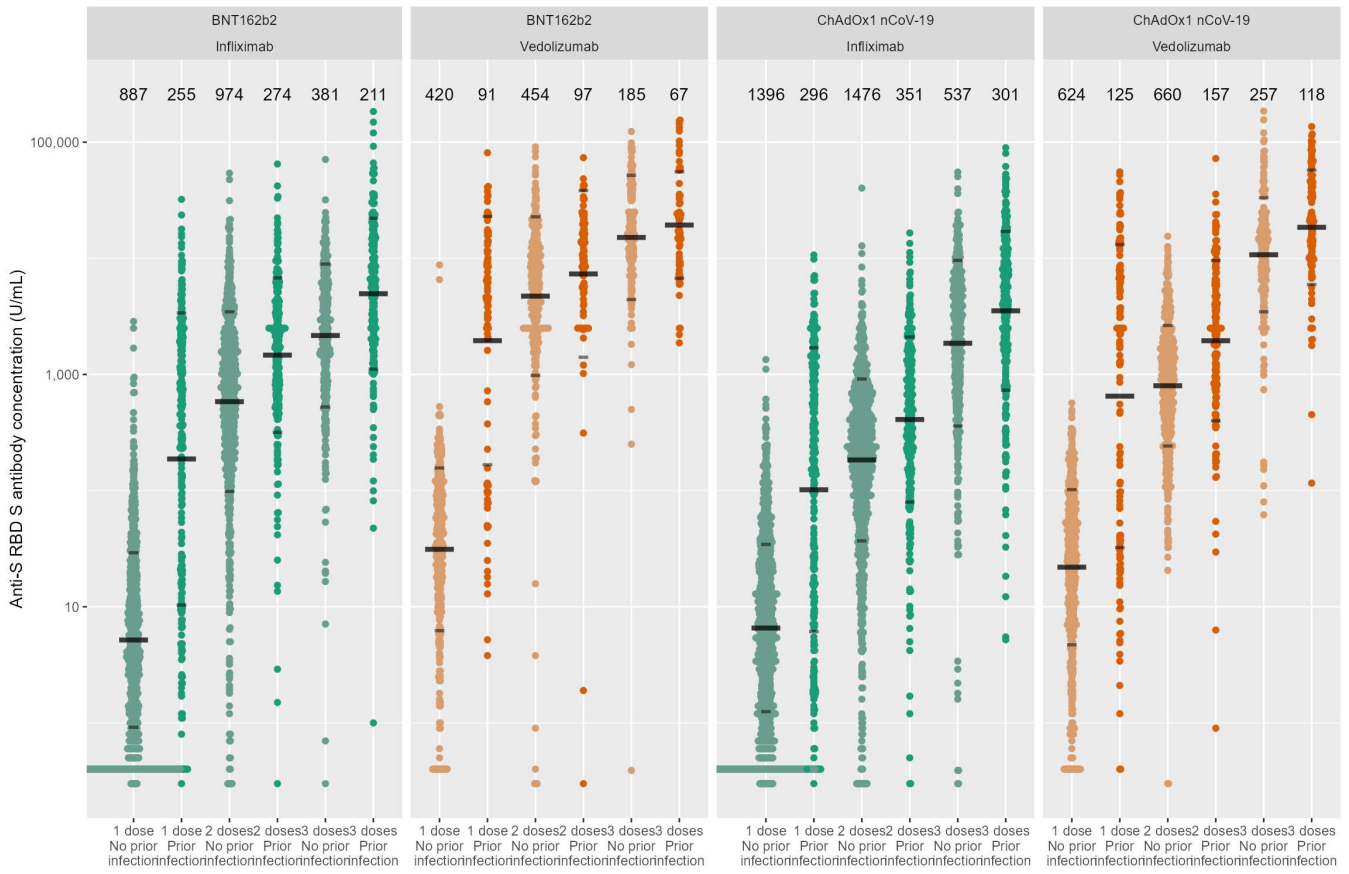


## Supplementary Table 2: Univariable factors associated with time to breakthrough infection

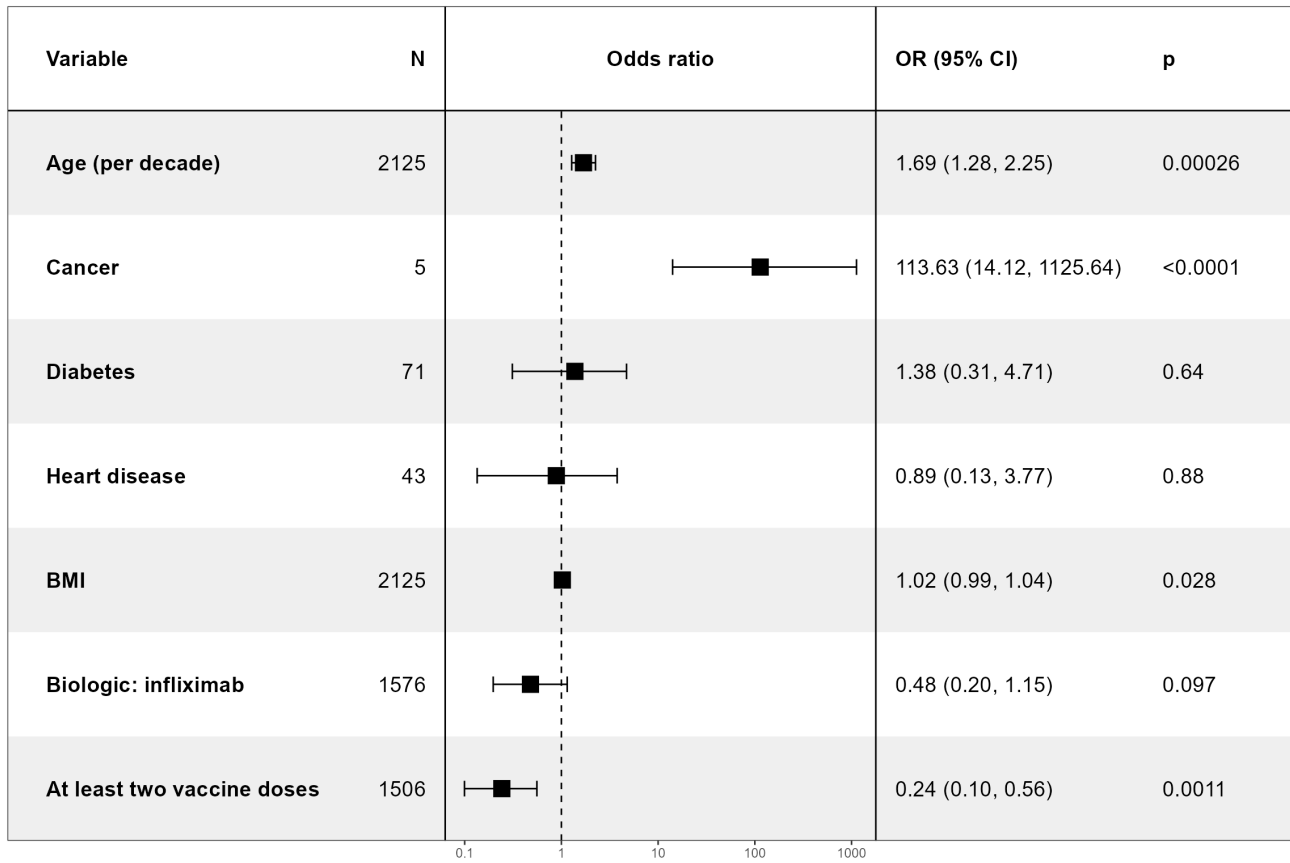
Variable	Level	Hazard ratio (95% CI)	p
Infliximab (vs vedolizumab)	TRUE	1.83 (1.44 - 2.33)	<0.0001
Thiopurine	TRUE	1.52 (1.24 - 1.85)	<0.0001
Methotrexate	TRUE	0.77 (0.50 - 1.20)	0.25
Vaccine	BNT162b2	Reference	
	ChAdOx1 nCoV-19	0.89 (0.73 - 1.09)	0.26
Steroids	TRUE	0.52 (0.30 - 0.90)	0.021
Age >= 60	TRUE	0.26 (0.18 - 0.38)	<0.0001
Crohn's disease (vs UC or IBDU)	TRUE	0.98 (0.81 - 1.22)	0.96
Non-white ethnicity	TRUE	1.19 (0.83 - 1.69)	0.34
Current smoker	TRUE	0.90 (0.62 - 1.29)	0.55
Anti-spike (S) receptor binding domain antibody concentrations (overall)		0.98 (0.82 - 1.18)	0.85

Abbreviations: UC = ulcerative colitis, IBDU = IBD unclassified

Supplementary Figure 1: Antibody concentrations following a third vaccine dose in patients with a prior history of SARS-CoV-2 infection.



## Supplementary Figure 2: Multivariable factors associated with hospitalisation with COVID-19



Abbreviations: BMI = body mass index, CI = confidence interval