The COVID-19 Genomics UK (COG-UK) consortium

**Funding acquisition, leadership, supervision, metadata curation, project administration, samples, logistics, Sequencing, analysis, and Software and analysis tools:**
Dr Thomas R Connor PhD33, 34, and Professor Nicholas J Loman PhD15.

**Leadership, supervision, sequencing, analysis, funding acquisition, metadata curation, project administration, samples, logistics, and visualisation:**

Dr Samuel C Robson Ph.D 68.

**Leadership, supervision, project administration, visualisation, samples, logistics, metadata curation and software and analysis tools:**

Dr Tanya Golubchik PhD 27.

**Leadership, supervision, metadata curation, project administration, samples, logistics sequencing and analysis:**

Dr M. Estee Torok FRCP 8, 10.

**Project administration, metadata curation, samples, logistics, sequencing, analysis, and software and analysis tools:**

Dr William L Hamilton PhD 8, 10.

**Leadership, supervision, samples logistics, project administration, funding acquisition sequencing and analysis:**

Dr David Bonsall PhD 27.

**Leadership and supervision, sequencing, analysis, funding acquisition, visualisation and software and analysis tools:**

Dr Ali R Awan PhD 74.

**Leadership and supervision, funding acquisition, sequencing, analysis, metadata curation, samples and logistics:**

Dr Sally Corden PhD 33 .

**Leadership supervision, sequencing analysis, samples, logistics, and metadata curation:** Professor Ian Goodfellow PhD 11.

**Leadership, supervision, sequencing, analysis, samples, logistics, and Project administration:**

Professor Darren L Smith PhD 60, 61.

**Project administration, metadata curation, samples, logistics, sequencing and analysis:**Dr Martin D Curran PhD 14, and Dr Surendra Parmar PhD 14**.**

**Samples, logistics, metadata curation, project administration sequencing and analysis:**Dr James G Shepherd MBChB MRCP 21.

**Sequencing, analysis, project administration, metadata curation and software and analysis tools:**

Dr Matthew D Parker PhD 38 and Dr Dinesh Aggarwal MRCP 1, 2, 3.

**Leadership, supervision, funding acquisition, samples, logistics, and metadata curation:**Dr Catherine Moore33 .

**Leadership, supervision, metadata curation, samples, logistics, sequencing and analysis:**Dr Derek J Fairley PhD 6, 88, Professor Matthew W Loose PhD 54, and Joanne Watkins MSc 33.

**Metadata curation, sequencing, analysis, leadership, supervision and software and analysis tools:**

Dr Matthew Bull PhD33 , and Dr Sam Nicholls PhD 15 .

**Leadership, supervision, visualisation, sequencing, analysis and software and analysis tools:**

Professor David M Aanensen PhD 1, 30.

**Sequencing, analysis, samples, logistics, metadata curation, and visualisation:**
Dr Sharon Glaysher 70 .

**Metadata curation, sequencing, analysis, visualisation, software and analysis tools:**Dr Matthew Bashton PhD 60, and Dr Nicole Pacchiarini PhD 33.

**Sequencing, analysis, visualisation, metadata curation, and software and analysis tools**:
Dr Anthony P Underwood PhD 1, 30.

**Funding acquisition, leadership, supervision and project administration:**Dr Thushan I de Silva PhD 38, and Dr Dennis Wang PhD 38**.**

**Project administration, samples, logistics, leadership and supervision**:

Dr Monique Andersson PhD 28 , Professor Anoop J Chauhan 70, Dr Mariateresa de Cesare PhD26, Dr Catherine Ludden 1,3 , and Dr Tabitha W Mahungu FRCPath 91.

**Sequencing, analysis, project administration and metadata curation:**Dr Rebecca Dewar PhD 20, and Martin P McHugh MSc20.

**Samples, logistics, metadata curation and project administration:**Dr Natasha G Jesudason MBChB MRCP FRCPath 21, Dr Kathy K Li MBBCh FRCPath 21, Dr Rajiv N Shah BMBS MRCP MSc 21, and Dr Yusri Taha MD, PhD 66.

**Leadership, supervision, funding acquisition and metadata curation:**Dr Kate E Templeton PhD 20**.**

**Leadership, supervision, funding acquisition, sequencing and analysis:**Dr Simon Cottrell PhD 33, Dr Justin O’Grady PhD 51, Professor Andrew Rambaut DPhil 19, and Professor Colin P Smith PhD93.

**Leadership, supervision, metadata curation , sequencing and analysis:**Professor Matthew T.G. Holden PhD 87, and Professor Emma C Thomson PhD/FRCP 21.

**Leadership, supervision, samples, logistics and metadata curation**:
Dr Samuel Moses MD 81, 82.

**Sequencing, analysis, leadership, supervision, samples and logistics:**Dr Meera Chand 7, Dr Chrystala Constantinidou PhD 71, Professor Alistair C Darby PhD 46, Professor Julian A Hiscox PhD 46, Professor Steve Paterson PhD 46, and Dr Meera Unnikrishnan PhD 71**.**

**Sequencing, analysis, leadership and supervision and software and analysis tools:**Dr Andrew J Page PhD 51, and Dr Erik M Volz PhD96.

**Samples, logistics, sequencing, analysis and metadata curation:**Dr Charlotte J Houldcroft PhD 8, Dr Aminu S Jahun PhD 11, Dr James P McKenna PhD 88, Dr Luke W Meredith PhD 11, Dr Andrew Nelson PhD 61, Sarojini Pandey MSc 72, and Dr Gregory R Young PhD 60.

**Sequencing, analysis, metadata curation, and software and analysis tools:**
Dr Anna Price PhD34, Dr Sara Rey PhD 33, Dr Sunando Roy PhD 41, Dr Ben Temperton Ph.D 49, and Matthew Wyles 38.

**Sequencing, analysis, metadata curation and visualisation:**

Stefan Rooke MSc19, and Dr Sharif Shaaban PhD87.

**Visualisation, sequencing, analysis and software and analysis tools:**Dr Helen Adams PhD 35, Dr Yann Bourgeois Ph.D 69, Dr Katie F Loveson Ph.D 68, Áine O'Toole MSc19, and Richard Stark MSc 71.

**Project administration, leadership and supervision:**

Dr Ewan M Harrison PhD 1, 3, David Heyburn 33, and Professor Sharon J Peacock 2, 3

**Project administration and funding acquisition:**

Dr David Buck PhD26 , and Michaela John BSc Hons 36

**Sequencing, analysis and project administration:**

Dorota Jamrozy 1, and Dr Joshua Quick PhD 15

**Samples, logistics, and project administration:**

Dr Rahul Batra MD78, Katherine L Bellis BSc (Hons) 1, 3, Beth Blane BSc 3 , Sophia T Girgis MSc 3, Dr Angie Green PhD 26, Anita Justice MSc 28 , Dr Mark Kristiansen PhD 41 , and Dr Rachel J Williams PhD 41.

**Project administration, software and analysis tools:**

Radoslaw Poplawski BSc 15.

**Project administration and visualisation:**

Dr Garry P Scarlett Ph.D69.

**Leadership, supervision, and funding acquisition:**

Professor John A Todd PhD 26 , Dr Christophe Fraser PhD 27, Professor Judith Breuer MD 40,41, Professor Sergi Castellano PhD 41, Dr Stephen L Michell PhD 49, Professor Dimitris Gramatopoulos PhD, FRCPath73, and Dr Jonathan Edgeworth PhD, FRCPath 78.

**Leadership, supervision and metadata curation:**Dr Gemma L Kay PhD 51.

**Leadership, supervision, sequencing and analysis:**Dr Ana da Silva Filipe PhD 21 , Dr Aaron R Jeffries PhD 49, Dr Sascha Ott PhD 71, Professor Oliver Pybus 24 , Professor David L Robertson PhD 21, Dr David A Simpson PhD 6 , and Dr Chris Williams MB BS33.

**Samples, logistics, leadership and supervision:**

Dr Cressida Auckland FRCPath 50, Dr John Boyes MBChB83, Dr Samir Dervisevic FRCPath52 , Professor Sian Ellard FRCPath49, 50 , Dr Sonia Goncalves1, Dr Emma J Meader FRCPath 51, Dr Peter Muir PhD2, Dr Husam Osman PhD 95, Reenesh Prakash MPH52, Dr Venkat Sivaprakasam PhD18, and Dr Ian B Vipond PhD2.

**Leadership, supervision and visualisation**

Dr Jane AH Masoli MBChB 49, 50.

**Sequencing, analysis and metadata curation**

Dr Nabil-Fareed Alikhan PhD 51, Matthew Carlile BSc 54, Dr Noel Craine DPhil 33, Dr Sam T Haldenby PhD 46, Dr Nadine Holmes PhD 54, Professor Ronan A Lyons MD 37, Dr Christopher Moore PhD 54, Malorie Perry MSc 33 , Dr Ben Warne MRCP80, and Dr Thomas Williams MD 19.

**Samples, logistics and metadata curation:**

Dr Lisa Berry PhD 72, Dr Andrew Bosworth PhD 95 ,Dr Julianne Rose Brown PhD40, Sharon Campbell MSc 67, Dr Anna Casey PhD 17, Dr Gemma Clark PhD 56, Jennifer Collins BSc 66, Dr Alison Cox PhD 43, 44 , Thomas Davis MSc 84, Gary Eltringham BSc 66, Dr Cariad Evans 38, 39 , Dr Clive Graham MD 64, Dr Fenella Halstead PhD 18, Dr Kathryn Ann Harris PhD 40, Dr Christopher Holmes PhD 58, Stephanie Hutchings 2 , Professor Miren Iturriza-Gomara PhD 46 , Dr Kate Johnson 38, 39, Katie Jones MSc 72, Dr Alexander J Keeley MRCP 38, Dr Bridget A Knight PhD 49, 50 , Cherian Koshy MSc, CSci, FIBMS 90, Steven Liggett 63 , Hannah Lowe MSc 81 , Dr Anita O Lucaci PhD 46 , Dr Jessica Lynch PhD MBChB 25, 29 , Dr Patrick C McClure PhD 55 , Dr Nathan Moore MBChB 31 , Matilde Mori BSc 25, 29, 32 , Dr David G Partridge FRCP, FRCPath 38, 39 , Pinglawathee Madona 43, 44 , Hannah M Pymont MSc 2 , Dr Paul Anthony Randell MBBCh 43, 44 , Dr Mohammad Raza 38, 39 , Felicity Ryan MSc 81 , Dr Robert Shaw FRCPath 28, Dr Tim J Sloan PhD 57 , and Emma Swindells BSc 65 .

**Sequencing, analysis, Samples and logistics:**

Alexander Adams BSc 33, Dr Hibo Asad PhD 33, Alec Birchley MSc 33 , Tony Thomas Brooks BSc (Hons) 41, Dr Giselda Bucca PhD 93, Ethan Butcher 70, Dr Sarah L Caddy PhD 13, Dr Laura G Caller PhD 2, 3, 12 , Yasmin Chaudhry BSc 11, Jason Coombes BSc (HONS) 33, Michelle Cronin 33, Patricia L Dyal MPhil 41, Johnathan M Evans MSc 33,Laia Fina 33, Bree Gatica-Wilcox MPhil 33, Dr Iliana Georgana PhD 11, Lauren Gilbert A-Levels 33 , Lee Graham BSc 33, Danielle C Groves BA 38, Grant Hall BSc 11, Ember Hilvers MPH 33 , Dr Myra Hosmillo PhD 11, Hannah Jones 33, Sophie Jones MSc 33, Fahad A Khokhar BSc 13 , Sara Kumziene-Summerhayes MSc 33, George MacIntyre-Cockett BSc 26, Dr Rocio T Martinez Nunez PhD 94 , Dr Caoimhe McKerr PhD 33 , Dr Claire McMurray PhD 15, Dr Richard Myers 7, Yasmin Nicole Panchbhaya BSc 41 , Malte L Pinckert MPhil 11 , Amy Plimmer 33 , Dr Joanne Stockton PhD 15 , Sarah Taylor 33 , Dr Alicia Thornton 7 , Amy Trebes MSc 26 , Alexander J Trotter MRes 51 ,Helena Jane Tutill BSc 41 ,Charlotte A Williams BSc 41 , Anna Yakovleva BSc 11 and Dr Wen C Yew PhD 62.

**Sequencing, analysis and software and analysis tools:**Dr Mohammad T Alam PhD 71 , Dr Laura Baxter PhD 71, Olivia Boyd MSc 96 , Dr Fabricia F. Nascimento PhD 96, Timothy M Freeman MPhil 38, Lily Geidelberg MSc 96, Dr Joseph Hughes PhD 21, David Jorgensen MSc 96, Dr Benjamin B Lindsey MRCP 38, Dr Richard J Orton PhD 21 , Dr Manon Ragonnet-Cronin PhD 96 Joel Southgate MSc 33, 34, and Dr Sreenu Vattipally PhD 21.

**Samples, logistics and software and analysis tools:**

Dr Igor Starinskij MSc MRCP 23.

**Visualisation and software and analysis tools:**Dr Joshua B Singer PhD 21 , Dr Khalil Abudahab PhD 1, 30, Leonardo de Oliveira Martins PhD51 , Dr Thanh Le-Viet PhD 51 ,Mirko Menegazzo 30 ,Ben EW Taylor Meng 1, 30, and Dr Corin A Yeats PhD 30.

**Project Administration:**

Sophie Palmer  3, Carol M Churcher 3 , Dr Alisha Davies 33, Elen De Lacy MSc 33, Fatima Downing 33, Sue Edwards 33 , Dr Nikki Smith PhD 38 , Dr Francesc Coll PhD97 , Dr Nazreen F Hadjirin PhD3  and Dr Frances Bolt PhD 44, 45 .

**Leadership and supervision:**

Dr. Alex Alderton 1, Dr Matt Berriman 1, Ian G Charles 51, Dr Nicholas Cortes MBChB 31 ,Dr Tanya Curran PhD 88 , Prof John Danesh 1, Dr Sahar Eldirdiri MBBS, MSC FRCPath 84, Dr Ngozi Elumogo FRCPath 52, Prof Andrew Hattersley FRS 49, 50, Professor Alison Holmes MD 44, 45, Dr Robin Howe 33, Dr Rachel Jones 33 , Anita Kenyon MSc 84, Prof Robert A Kingsley PhD 51, Professor Dominic Kwiatkowski 1, 9, Dr Cordelia Langford1, Dr Jenifer Mason MBBS 48, Dr Alison E Mather PhD 51, Lizzie Meadows MA 51, Dr Sian Morgan FRCPath 36, Dr James Price PhD 44, 45, Trevor I Robinson MSc 48 , Dr Giri Shankar 33 , John Wain 51, and Dr Mark A Webber PhD51 .

**Metadata curation:**

Dr Declan T Bradley PhD 5, 6 ,Dr Michael R Chapman PhD 1, 3, 4 , Dr Derrick Crooke 28 , Dr David Eyre PhD 28, Professor Martyn Guest PhD34 , Huw Gulliver 34 , Dr Sarah Hoosdally 28 , Dr Christine Kitchen PhD 34 , Dr Ian Merrick PhD 34, Siddharth Mookerjee MPH 44, 45 , Robert Munn BSc 34 , Professor Timothy Peto PhD28, Will Potter 52, Dr Dheeraj K Sethi MBBS 52, Wendy Smith 56 ,Dr Luke B Snell MB BS 75, 94 , Dr Rachael Stanley PhD 52 , Claire Stuart 52 and Dr Elizabeth Wastenge MD 20.

**Sequencing and analysis:**

Dr Erwan Acheson PhD 6 , Safiah Afifi BSc 36 , Dr Elias Allara MD PhD 2, 3 , Dr Roberto Amato 1, Dr Adrienn Angyal PhD38, Dr Elihu Aranday-Cortes PhD/DVM21 , Cristina Ariani 1, Jordan Ashworth 19, Dr Stephen Attwood 24, Alp Aydin MSci 51 , David J Baker BEng 51 , Dr Carlos E Balcazar PhD 19, Angela Beckett MSc 68 Robert Beer BSc 36 , Dr Gilberto Betancor PhD76, Emma Betteridge 1 , Dr David Bibby 7 , Dr Daniel Bradshaw 7 , Catherine Bresner Bsc(Hons) 34, Dr Hannah E Bridgewater PhD 71 , Alice Broos BSc (Hons) 21 , Dr Rebecca Brown PhD 38 , Dr Paul E Brown PhD 71, Dr Kirstyn Brunker PhD 22 , Dr Stephen N Carmichael PhD 21 , Jeffrey K. J. Cheng MSc 71, Dr Rachel Colquhoun DPhil 19 , Dr Gavin Dabrera 7 , Dr Johnny Debebe PhD 54, Eleanor Drury 1, Dr Louis du Plessis 24 , Richard Eccles MSc 46, Dr Nicholas Ellaby 7, Audrey Farbos MSc 49, Ben Farr 1 ,Dr Jacqueline Findlay PhD 41 , Chloe L Fisher MSc 74, Leysa Marie Forrest MSc 41, Dr Sarah Francois 24, Lucy R. Frost BSc 71, William Fuller BSc 34 , Dr Eileen Gallagher 7 , Dr Michael D Gallagher PhD19 , Matthew Gemmell MSc 46, Dr Rachel AJ Gilroy PhD 51, Scott Goodwin 1, Dr Luke R Green PhD 38 ,Dr Richard Gregory PhD 46 ,Dr Natalie Groves 7 ,Dr James W Harrison PhD 49, Hassan Hartman 7 , Dr Andrew R Hesketh PhD93,Verity Hill 19, Dr Jonathan Hubb 7 ,Dr Margaret Hughes PhD46 ,Dr David K Jackson 1 ,Dr Ben Jackson PhD 19 ,Dr Keith James 1 ,Natasha Johnson BSc (Hons)21 ,Ian Johnston 1, Jon-Paul Keatley 1, Dr Moritz Kraemer 24, Dr Angie Lackenby 7, Dr Mara Lawniczak 1 , Dr David Lee 7, Rich Livett 1, Stephanie Lo 1, Daniel Mair BSc (Hons) 21, Joshua Maksimovic FD sport science 36, Nikos Manesis 7 ,Dr Robin Manley Ph.D 49, Dr Carmen Manso 7 ,Dr Angela Marchbank BSc 34 ,Dr Inigo Martincorena 1 ,Dr Tamyo Mbisa 7, Kathryn McCluggage MSC 36,Dr JT McCrone PhD 19, Shahjahan Miah 7 , Michelle L Michelsen BSc 49 , Dr Mari Morgan PhD 33, Dr Gaia Nebbia PhD, FRCPath 78,Charlotte Nelson MSc 46 ,Jenna Nichols BSc (Hons) 21 ,Dr Paola Niola PhD 41 ,Dr Kyriaki Nomikou PhD21 ,Steve Palmer 1 , Dr. Naomi Park 1, Dr Yasmin A Parr PhD21 ,Dr Paul J Parsons PhD 38 , Vineet Patel 7 ,Dr. Minal Patel 1 ,Clare Pearson MSc 2, 1 ,Dr Steven Platt 7 ,Christoph Puethe 1, Dr. Mike Quail 1,Dr JaynaRaghwani 24 , Dr Lucille Rainbow PhD 46 ,Shavanthi Rajatileka 1 ,Dr Mary Ramsay 7 ,Dr Paola C Resende Silva PhD 41, 42, Steven Rudder 51, Dr Chris Ruis 3 ,Dr Christine M Sambles PhD 49 ,Dr Fei Sang PhD 54 ,Dr Ulf Schaefer7 ,Dr Emily Scher PhD 19 ,Dr. Carol Scott 1 ,Lesley Shirley 1, Adrian W Signell BSc 76 ,John Sillitoe 1 ,Christen Smith 1 ,Dr Katherine L Smollett PhD 21 ,Karla Spellman FD 36 ,Thomas D Stanton BSc 19 ,Dr David J Studholme PhD 49 ,Ms Grace Taylor-Joyce BSc 71 ,Dr Ana P Tedim PhD 51 ,Dr Thomas Thompson PhD6 ,Dr Nicholas M Thomson PhD 51 ,Scott Thurston1 ,Lily Tong PhD 21 ,Gerry Tonkin-Hill 1, Rachel M Tucker MSc 38 , Dr Edith E Vamos PhD 4,Dr Tetyana Vasylyeva24 , Joanna Warwick-Dugdale BSc 49 , Danni Weldon 1 ,Dr Mark Whitehead PhD 46 ,Dr David Williams 7,Dr Kathleen A Williamson PhD19,Harry D Wilson BSc 76,Trudy Workman HNC 34 ,Dr Muhammad Yasir PhD 51, Dr Xiaoyu Yu PhD 19, and Dr Alex Zarebski 24.

**Samples and logistics:**

Dr Evelien M Adriaenssens PhD 51, Dr Shazaad S Y Ahmad MSc 2, 47 , Adela Alcolea-Medina MPharm 59, 77 ,Dr John Allan PhD60, Dr Patawee Asamaphan PhD21, Laura Atkinson MSc 40, Paul Baker MD 63, Professor Jonathan Ball PhD 55, Dr Edward Barton MD64, Dr. Mathew A Beale1, Dr. Charlotte Beaver1 , Dr Andrew Beggs PhD16, Dr Andrew Bell PhD51, Duncan J Berger 1, Dr Louise Berry. 56, Claire M Bewshea MSc 49, Kelly Bicknell 70, Paul Bird 58, Dr Chloe Bishop 7 , Dr Tim Boswell 56, Cassie Breen BSc48, Dr Sarah K Buddenborg1, Dr Shirelle Burton-Fanning MD 66, Dr Vicki Chalker 7, Dr Joseph G Chappell PhD 55, Themoula Charalampous MSc 78, 94, Claire Cormie3, Dr Nick Cortes PhD29, 25, Dr Lindsay J Coupland PhD 52, Angela Cowell MSc48 , Dr Rose K Davidson PhD 53 , Joana Dias MSc3 , Dr Maria Diaz PhD51 , Thomas Dibling1, Matthew J Dorman1, Dr Nichola Duckworth57, Scott Elliott70, Sarah Essex63, Karlie Fallon 58 , Theresa Feltwell 8 , Dr Vicki M Fleming PhD 56, Sally Forrest BSc 3, Luke Foulser1, Maria V Garcia-Casado1, Dr Artemis Gavriil PhD 41, Dr Ryan P George PhD47, Laura Gifford MSc 33, Harmeet K Gill PhD3, Jane Greenaway MSc65, Luke Griffith Bsc53, Ana Victoria Gutierrez51, Dr Antony D Hale MBBS85, Dr Tanzina Haque FRCPath, PhD91, Katherine L Harper MBiol85, Dr Ian Harrison 7 , Dr Judith Heaney PhD89, Thomas Helmer 58, Ellen E Higginson PhD 3 , Richard Hopes 2, Dr Hannah C Howson-Wells PhD 56, Dr Adam D Hunter 1, Robert Impey 70, Dr Dianne Irish-Tavares FRCPath 91, David A Jackson1 , Kathryn A Jackson MSc 46 , Dr Amelia Joseph 56, Leanne Kane 1, Sally Kay 1, Leanne M Kermack MSc 3, Manjinder Khakh 56, Dr Stephen P Kidd PhD29, 25,31, , Dr Anastasia Kolyva PhD 51, Jack CD Lee BSc 40, Laura Letchford 1 , Nick Levene MSc79, Dr LisaJ Levett PhD 89, Dr Michelle M Lister PhD 56, Allyson Lloyd 70 , Dr Joshua Loh PhD60 , Dr Louissa R Macfarlane-Smith PhD85, Dr Nicholas W Machin MSc 2 , 47, Mailis Maes M.phil3, Dr Samantha McGuigan 1, Liz McMinn 1, Dr Lamia Mestek-Boukhibar D.Phil 41, Dr Zoltan Molnar PhD 6, Lynn Monaghan 79, Dr Catrin Moore 27, Plamena Naydenova BSc 3, Alexandra S Neaverson 1, Dr. Rachel Nelson PhD 1, Marc O Niebel MSc21 , Elaine O'Toole BSc 48 , Debra Padgett BSc 64, Gaurang Patel 1 , Dr Brendan AI Payne MD 66, Liam Prestwood 1, Dr Veena Raviprakash MD67, Nicola Reynolds PhD86 Dr Alex Richter PhD 16, Dr Esther Robinson PhD95, Dr Hazel A Rogers1, Dr Aileen Rowan PhD 96, Garren Scott BSc 64, Dr Divya Shah PhD40, Nicola Sheriff BSc 67, Dr Graciela Sluga MD - MSc92 , Emily Souster1, Dr. Michael Spencer-Chapman1, Sushmita Sridhar BSc1, 3, Tracey Swingler 53, Dr Julian Tang58, Professor Graham P Taylor DSc96, Dr Theocharis Tsoleridis PhD55, Dr Lance Turtle PhD MRCP46, Dr Sarah Walsh 57, Dr Michelle Wantoch PhD 86, Joanne Watts BSc48 , Dr Sheila Waugh MD66, Sam Weeks41, Dr Rebecca Williams BMBS 31, Dr Iona Willingham56, Dr Emma L Wise PhD 25, 29, 31, Victoria Wright BSc 54, Dr Sarah Wyllie 70 , and Jamie Young BSc 3.

 **Software and analysis tools**

Amy Gaskin MSc33, Dr Will Rowe PhD 15, and Dr Igor Siveroni PhD96.

 **Visualisation:**

Dr Robert Johnson PhD 96.

**1** Wellcome Sanger Institute, **2** Public Health England, **3** University of Cambridge, **4** Health Data Research UK, Cambridge, **5** Public Health Agency, Northern Ireland ,**6** Queen's University Belfast **7** Public Health England Colindale, **8** Department of Medicine, University of Cambridge, **9** University of Oxford, **10** Departments of Infectious Diseases and Microbiology, Cambridge University Hospitals NHS Foundation Trust; Cambridge, UK, **11** Division of Virology, Department of Pathology, University of Cambridge, **12** The Francis Crick Institute, **13** Cambridge Institute for Therapeutic Immunology and Infectious Disease, Department of Medicine, **14** Public Health England, Clinical Microbiology and Public Health Laboratory, Cambridge, UK, **15** Institute of Microbiology and Infection, University of Birmingham, **16** University of Birmingham, **17** Queen Elizabeth Hospital, **18** Heartlands Hospital, **19** University of Edinburgh, **20** NHS Lothian, **21** MRC-University of Glasgow Centre for Virus Research, **22** Institute of Biodiversity, Animal Health & Comparative Medicine, University of Glasgow, **23** West of Scotland Specialist Virology Centre, **24** Dept Zoology, University of Oxford, **25** University of Surrey, **26** Wellcome Centre for Human Genetics, Nuffield Department of Medicine, University of Oxford, **27** Big Data Institute, Nuffield Department of Medicine, University of Oxford, **28** Oxford University Hospitals NHS Foundation Trust, **29** Basingstoke Hospital, **30** Centre for Genomic Pathogen Surveillance, University of Oxford, **31** Hampshire Hospitals NHS Foundation Trust, **32** University of Southampton, **33** Public Health Wales NHS Trust, **34** Cardiff University, **35** Betsi Cadwaladr University Health Board, **36** Cardiff and Vale University Health Board, **37** Swansea University, **38** University of Sheffield, **39** Sheffield Teaching Hospitals, **40** Great Ormond Street NHS Foundation Trust, **41** University College London, **42** Oswaldo Cruz Institute, Rio de Janeiro **43** North West London Pathology, **44** Imperial College Healthcare NHS Trust, **45** NIHR Health Protection Research Unit in HCAI and AMR, Imperial College London, **46** University of Liverpool, **47** Manchester University NHS Foundation Trust, **48** Liverpool Clinical Laboratories, **49** University of Exeter, **50** Royal Devon and Exeter NHS Foundation Trust, **51** Quadram Institute Bioscience, University of East Anglia, **52** Norfolk and Norwich University Hospital, **53** University of East Anglia, **54** Deep Seq, School of Life Sciences, Queens Medical Centre, University of Nottingham, **55** Virology, School of Life Sciences, Queens Medical Centre, University of Nottingham, **56** Clinical Microbiology Department, Queens Medical Centre, **57** PathLinks, Northern Lincolnshire & Goole NHS Foundation Trust, **58** Clinical Microbiology, University Hospitals of Leicester NHS Trust, **59** Viapath, **60** Hub for Biotechnology in the Built Environment, Northumbria University, **61** NU-OMICS Northumbria University, **62** Northumbria University, **63** South Tees Hospitals NHS Foundation Trust, **64** North Cumbria Integrated Care NHS Foundation Trust, **65** North Tees and Hartlepool NHS Foundation Trust, **66** Newcastle Hospitals NHS Foundation Trust, **67** County Durham and Darlington NHS Foundation Trust, **68** Centre for Enzyme Innovation, University of Portsmouth, **69** School of Biological Sciences, University of Portsmouth, **70** Portsmouth Hospitals NHS Trust, **71** University of Warwick, **72** University Hospitals Coventry and Warwickshire, **73** Warwick Medical School and Institute of Precision Diagnostics, Pathology, UHCW NHS Trust, **74** Genomics Innovation Unit, Guy's and St. Thomas' NHS Foundation Trust, **75** Centre for Clinical Infection & Diagnostics Research, St. Thomas' Hospital and Kings College London, **76** Department of Infectious Diseases, King's College London, **77** Guy's and St. Thomas’ Hospitals NHS Foundation Trust, **78** Centre for Clinical Infection and Diagnostics Research, Department of Infectious Diseases, Guy's and St Thomas' NHS Foundation Trust, **79** Princess Alexandra Hospital Microbiology Dept. , **80** Cambridge University Hospitals NHS Foundation Trust, **81** East Kent Hospitals University NHS Foundation Trust, **82** University of Kent, **83** Gloucestershire Hospitals NHS Foundation Trust, **84** Department of Microbiology, Kettering General Hospital, **85** National Infection Service, PHE and Leeds Teaching Hospitals Trust, **86** Cambridge Stem Cell Institute, University of Cambridge, **87** Public Health Scotland, 88 Belfast Health & Social Care Trust, **89** Health Services Laboratories, **90** Barking, Havering and Redbridge University Hospitals NHS Trust, **91** Royal Free NHS Trust, **92** Maidstone and Tunbridge Wells NHS Trust, **93** University of Brighton, **94** Kings College London, **95** PHE Heartlands, **96** Imperial College London, **97** Department of Infection Biology, London School of Hygiene and Tropical Medicine.