

Funding acquisition, leadership, supervision, metadata curation, project administration, samples, logistics, Sequencing, analysis, and Software and analysis tools:

Dr Thomas R Connor PhD^{33,34}, 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.

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 FRCPATH^{49,50}, 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 PhD¹⁷, 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 PhD ⁵¹, 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, 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 Langford ¹, 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 PhD ⁵¹.

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 PhD ³⁴, 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 PhD ²⁸, 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 PhD⁶, Safiah Afifi BSc³⁶, Dr Elias Allara MD PhD^{2,3}, Dr Roberto Amato¹, Dr Adrienn Angyal PhD³⁸, Dr Elihu Aranday-Cortes PhD/DVM²¹, Cristina Ariani¹, Jordan Ashworth¹⁹, Dr Stephen Attwood²⁴, Alp Aydin MSc⁵¹, David J Baker BEng⁵¹, Dr Carlos E Balcazar PhD¹⁹, Angela Beckett MSc⁶⁸ Robert Beer BSc³⁶, Dr Gilberto Betancor PhD⁷⁶, Emma Betteridge¹, Dr David Bibby⁷, Dr Daniel Bradshaw⁷, Catherine Bresner BSc(Hons)³⁴, Dr Hannah E Bridgewater PhD⁷¹, Alice Broos BSc (Hons)²¹, Dr Rebecca Brown PhD³⁸, Dr Paul E Brown PhD⁷¹, Dr Kirstyn Bruncker PhD²², Dr Stephen N Carmichael PhD²¹, Jeffrey K. J. Cheng MSc⁷¹, Dr Rachel Colquhoun DPhil¹⁹, Dr Gavin Dabrera⁷, Dr Johnny Debebe PhD⁵⁴, Eleanor Drury¹, Dr Louis du Plessis²⁴, Richard Eccles MSc⁴⁶, Dr Nicholas Ellaby⁷, Audrey Farbos MSc⁴⁹, Ben Farr¹, Dr Jacqueline Findlay PhD⁴¹, Chloe L Fisher MSc⁷⁴, Leysa Marie Forrest MSc⁴¹, Dr Sarah Francois²⁴, Lucy R. Frost BSc⁷¹, William Fuller BSc³⁴, Dr Eileen Gallagher⁷, Dr Michael D Gallagher PhD¹⁹, Matthew Gemmell MSc⁴⁶, Dr Rachel AJ Gilroy PhD⁵¹, Scott Goodwin¹, Dr Luke R Green PhD³⁸, Dr Richard Gregory PhD⁴⁶, Dr Natalie Groves⁷, Dr James W Harrison PhD⁴⁹, Hassan Hartman⁷, Dr Andrew R Hesketh PhD⁹³, Verity Hill¹⁹, Dr Jonathan Hubb⁷, Dr Margaret Hughes PhD⁴⁶, Dr David K Jackson¹, Dr Ben Jackson PhD¹⁹, Dr Keith James¹, Natasha Johnson BSc (Hons)²¹, Ian Johnston¹, Jon-Paul Keatley¹, Dr Moritz Kraemer²⁴, Dr Angie Lackenby⁷, Dr Mara Lawniczak¹, Dr David Lee⁷, Rich Livett¹, Stephanie Lo¹, Daniel Mair BSc (Hons)²¹, Joshua Maksimovic FD sport science³⁶, Nikos Manesis⁷, Dr Robin Manley Ph.D⁴⁹, Dr Carmen Manso⁷, Dr Angela Marchbank BSc³⁴, Dr Inigo Martincorena¹, Dr Tamyo Mbisa⁷, Kathryn McCluggage MSc³⁶, Dr JT McCrone PhD¹⁹, Shahjahan Miah⁷, Michelle L Michelsen BSc⁴⁹, Dr Mari Morgan PhD³³, Dr Gaia Nebbia PhD, FRCPath⁷⁸, Charlotte Nelson MSc⁴⁶, Jenna Nichols BSc (Hons)²¹, Dr Paola Niola PhD⁴¹, Dr Kyriaki Nomikou PhD²¹, Steve Palmer¹, Dr. Naomi Park¹, Dr Yasmin A Parr PhD²¹, Dr Paul J Parsons PhD³⁸, Vineet Patel⁷, Dr. Minal Patel¹, Clare Pearson MSc^{2,1}, Dr Steven Platt⁷, Christoph Puethe¹, Dr. Mike Quail¹, Dr Jayna Raghwan²⁴, Dr Lucille Rainbow PhD⁴⁶, Shavanthi Rajatileka¹, Dr Mary Ramsay⁷, Dr Paola C Resende Silva PhD^{41,42}, Steven Rudder⁵¹, Dr Chris Ruis³, Dr Christine M Sambles PhD⁴⁹, Dr Fei Sang PhD⁵⁴, Dr Ulf Schaefer⁷, Dr Emily Scher PhD¹⁹, Dr. Carol Scott¹, Lesley Shirley¹, Adrian W Signell BSc⁷⁶, John Sillitoe¹, Christen Smith¹, Dr Katherine L Smollett PhD²¹, Karla Spellman FD³⁶, Thomas D Stanton BSc¹⁹, Dr David J Studholme PhD⁴⁹, Ms Grace Taylor-Joyce BSc⁷¹, Dr Ana P Tedim PhD⁵¹, Dr Thomas Thompson PhD⁶, Dr Nicholas M Thomson PhD⁵¹, Scott Thurston¹, Lily Tong PhD²¹, Gerry Tonkin-Hill¹, Rachel M Tucker MSc³⁸, Dr Edith E Vamos PhD⁴, Dr Tetyana Vasylyeva²⁴, Joanna Warwick-Dugdale BSc⁴⁹, Danni Weldon¹, Dr Mark Whitehead PhD⁴⁶, Dr David Williams⁷, Dr Kathleen A Williamson PhD¹⁹, Harry D Wilson BSc⁷⁶, Trudy Workman HNC³⁴, Dr Muhammad Yasir PhD⁵¹, Dr Xiaoyu Yu PhD¹⁹, and Dr Alex Zarebski²⁴.

Samples and logistics:

Dr Evelien M Adriaenssens PhD⁵¹, Dr Shazaad S Y Ahmad MSc^{2,47}, Adela Alcolea-Medina MPharm^{59,77}, Dr John Allan PhD⁶⁰, Dr Patawee Asamaphan PhD²¹, Laura Atkinson MSc⁴⁰, Paul Baker MD⁶³, Professor Jonathan Ball PhD⁵⁵, Dr Edward Barton MD⁶⁴, Dr. Mathew A Beale¹, Dr. Charlotte Beaver¹, Dr Andrew Beggs PhD¹⁶, Dr Andrew Bell PhD⁵¹, Duncan J Berger¹, Dr Louise Berry⁵⁶, Claire M Bewshea MSc⁴⁹, Kelly Bicknell⁷⁰, Paul Bird⁵⁸, Dr Chloe Bishop⁷, Dr Tim Boswell⁵⁶, Cassie Breen BSc⁴⁸, Dr Sarah K Buddenborg¹, Dr Shirelle Burton-Fanning MD⁶⁶, Dr Vicki Chalker⁷, Dr Joseph G Chappell PhD⁵⁵, Themoula Charalampous MSc^{78,94}, Claire Cormie³, Dr Nick Cortes PhD^{29,25}, Dr Lindsay J Coupland PhD⁵², Angela Cowell MSc⁴⁸, Dr Rose K Davidson PhD⁵³, Joana Dias MSc³, Dr Maria Diaz PhD⁵¹, Thomas Dibling¹,

Matthew J Dorman¹, Dr Nichola Duckworth⁵⁷, Scott Elliott⁷⁰, Sarah Essex⁶³, Karlie Fallon⁵⁸, Theresa Feltwell⁸, Dr Vicki M Fleming PhD⁵⁶, Sally Forrest BSc³, Luke Foulser¹, Maria V Garcia-Casado¹, Dr Artemis Gavriil PhD⁴¹, Dr Ryan P George PhD⁴⁷, Laura Gifford MSc³³, 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 Harrison⁷, Dr Judith Heaney PhD⁸⁹, Thomas Helmer⁵⁸, Ellen E Higginson PhD³, Richard Hopes², Dr Hannah C Howson-Wells PhD⁵⁶, Dr Adam D Hunter¹, Robert Impey⁷⁰, Dr Dianne Irish-Tavares FRCPATH⁹¹, David A Jackson¹, Kathryn A Jackson MSc⁴⁶, Dr Amelia Joseph⁵⁶, Leanne Kane¹, Sally Kay¹, Leanne M Kermack MSc³, Manjinder Khakh⁵⁶, Dr Stephen P Kidd PhD^{29, 25, 31}, Dr Anastasia Kolyva PhD⁵¹, Jack CD Lee BSc⁴⁰, Laura Letchford¹, Nick Levene MSc⁷⁹, Dr Lisa J Levett PhD⁸⁹, Dr Michelle M Lister PhD⁵⁶, Allyson Lloyd⁷⁰, Dr Joshua Loh PhD⁶⁰, Dr Louissa R Macfarlane-Smith PhD⁸⁵, Dr Nicholas W Machin MSc^{2, 47}, Mailis Maes M.Phil³, Dr Samantha McGuigan¹, Liz McMinn¹, Dr Lamia Mestek-Boukhibar D.Phil⁴¹, Dr Zoltan Molnar PhD⁶, Lynn Monaghan⁷⁹, Dr Catrin Moore²⁷, Plamena Naydenova BSc³, Alexandra S Neaverson¹, Dr. Rachel Nelson PhD¹, Marc O Niebel MSc²¹, Elaine O'Toole BSc⁴⁸, Debra Padgett BSc⁶⁴, Gaurang Patel¹, Dr Brendan AI Payne MD⁶⁶, Liam Prestwood¹, Dr Veena Raviprakash MD⁶⁷, Nicola Reynolds PhD⁸⁶, Dr Alex Richter PhD¹⁶, Dr Esther Robinson PhD⁹⁵, Dr Hazel A Rogers¹, Dr Aileen Rowan PhD⁹⁶, Garren Scott BSc⁶⁴, Dr Divya Shah PhD⁴⁰, Nicola Sheriff BSc⁶⁷, Dr Graciela Sluga MD - MSc⁹², Emily Souster¹, Dr. Michael Spencer-Chapman¹, Sushmita Sridhar BSc^{1, 3}, Tracey Swingler⁵³, Dr Julian Tang⁵⁸, Professor Graham P Taylor DSc⁹⁶, Dr Theocharis Tsoleridis PhD⁵⁵, Dr Lance Turtle PhD MRCP⁴⁶, Dr Sarah Walsh⁵⁷, Dr Michelle Wantoch PhD⁸⁶, Joanne Watts BSc⁴⁸, Dr Sheila Waugh MD⁶⁶, Sam Weeks⁴¹, Dr Rebecca Williams BMBS³¹, Dr Iona Willingham⁵⁶, Dr Emma L Wise PhD^{25, 29, 31}, Victoria Wright BSc⁵⁴, Dr Sarah Wyllie⁷⁰, and Jamie Young BSc³.

Software and analysis tools

Amy Gaskin MSc³³, Dr Will Rowe PhD¹⁵, and Dr Igor Siveroni PhD⁹⁶.

Visualisation:

Dr Robert Johnson PhD⁹⁶.

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.