Team Composition

T1.
Thanks for applying to the Wellcome Data Science Ideathon, make sure you have fully read the event webpage before you begin this application form. If you have any questions please do not hesitate to get in touch at ideathon@wellcome.org.

Data collected in this application form is required for progressing your application, for more information about how we use your data, see our Privacy Policy (Privacy and terms | Wellcome).

Q1. Team name

Q2. How many members are in your team?

- ○ 3
- ○ 4
- ○ 5

Q3. Which Health Challenge Area are you applying to tackle?

- ○ Climate and Health
- ○ Mental Health
- ○ Infectious Disease

Team Member Questions

T2. Team Member ${lm://CurrentLoopNumber} Details

Q4. Full name

First Name | Last Name | Preferred Name

Q5. Email address

Q6. Higher education institute (HEI) or Research Institute (RI) affiliation

Q6a. HEI/RI affiliation (Other)

Q6b. I confirm my HEI/RI is based in the UK

- Yes
- No

Q7. Academic status

- Student
- Researcher

Q7a. Postgraduate degree

- Masters
- PhD

Q7b. Job title

Q8. Please confirm that you will be in the UK during the in-person event (10-12 July 2023)

- ○ I **will** be in the UK during the event
- ○ I will **not** be in the UK during the event

PI

Q9. Team lead / Principal investigator (PI)

- ○ ${q://1_QID49/ChoiceTextEntryValue/1/2} ${q://1_QID49/ChoiceTextEntryValue/1/3}
- ○ ${q://2_QID49/ChoiceTextEntryValue/1/2} ${q://2_QID49/ChoiceTextEntryValue/1/3}
- ○ ${q://3_QID49/ChoiceTextEntryValue/1/2} ${q://3_QID49/ChoiceTextEntryValue/1/3}
- ○ ${q://4_QID49/ChoiceTextEntryValue/1/2} ${q://4_QID49/ChoiceTextEntryValue/1/3}
- ○ ${q://5_QID49/ChoiceTextEntryValue/1/2} ${q://5_QID49/ChoiceTextEntryValue/1/3}

Team Questions

Q10. Team Composition
Please detail how you have put together your team. What is the role of every team member and how will they proactively contribute to your team and solving the challenge? (Do not tell us about individual track record). (1000 characters max)

Q11. Trustworthy and open data science
At Wellcome, we support trustworthy data science to help solve urgent health challenges facing everyone, that is open, engaged, equitable, ethical and efficient. How will your project align with these goals? (750 characters max).

You may wish to consider the following:

- What does open science mean to you and how would you facilitate it in a project and to contribute to tool development?
- What does it mean to you for software to be ‘trustworthy’, how will you ensure this applies to your output?
- What does a healthy and engaged open-source community look like to you?

Q12. Inclusive Data Science

At Wellcome, we are committed to making sure that in everything Wellcome does, the broadest possible range of people contribute to, and benefit from, science's potential to change the world. How will your project align with these goals? (750 characters max)

You may wish to consider the following:

- How would you ensure community engagement in open science and how do you think this is important to tool development?
- What does the ‘broadest possible range of people’ mean to you and how would you ensure their engagement and benefit from your project?

Preliminary challenge questions

Q13. Please pick one of the following preliminary challenge questions (question will

appear on selection) to answer (1500 characters max)

Q13a. Correlates of protection are immune biomarkers that can be used to predict whether a vaccine is likely to protect against infection or disease. Identifying accurate and robust correlates of protection can speed up the time taken to license a new or improved vaccine. We are interested in the potential of using AI tools for inference and predictive methods to identify correlates. What do you see as being the biggest challenges with using AI in this way? How could AI be used to improve upon the status quo for discovering correlates?

Q13b. We are interested in the potential of qualitative data to drive policy and public health decision making. How do you think social media data can inform public health research? What do you see as the benefits and challenges of using this data? How do you think AI could be utilised to analyse this data for public health research?

Q13c. We are interested in the potential of qualitative data to drive policy and public

health decision making. How do you think social media data can inform public health research? What do you see as the benefits and challenges of using this data? How do you think trust could be built around this sort of data for public health research, especially when considering the challenge that the status-quo is robust quantitative datasets?

Q13a. We are interested in understanding how to improve long-term participant retention in longitudinal studies of mental health. A key barrier to long-term study is a high rate of participant drop-out. We'd like you to tell us what you think are the most common reasons for loss to follow-up. Why do you think these might be more pronounced in mental health research? What do you think could be the biggest driver of change to improve retention?

Q13b. Taking part in clinical trials is a recognised and important method of accessing and trialling new treatments. This is especially true for those suffering from life-threatening illnesses such as cancer where one in ten cancer patients in the UK participated in a trial during their treatment. However, there is still some way to go for the same being the case for people with mental health challenges. How do you think

we could translate successes from other medical fields to mental health, particularly access to trials, onboarding, and retention? What do you think are the most common reasons for people experiencing mental health problems not taking part in a trial and what do you think could be the biggest driver of change?

Q13c. Digital interventions in mental health (for example, internet-based cognitive behavioural therapy) hold large promise for the treatment and resolution of mental illness given their scalability and apparent efficacy. However, current digital interventions solutions are limited to research groups that have enough resources to hire engineering expertise to build their interventions. What do you think are the largest barriers blocking mental health researchers from developing their own digital interventions? What could be done to make the development of digital interventions more accessible to mental health researchers?

Q13a. There are many proven ways in which climate change directly negatively impacts on human health, however there are also indirect impacts on health. For example, the effects of climate change on the economy. How do you think climate change could impact on human health via economic impacts? How would you

consider proving this link between climate, health, and the economy?

Q13b. Unlike other areas of health research, there is a multitude of climatic datasets. However, the sheer amount of data means there can be a lack of agreement around standardisation and harmonisation of datasets, especially when it comes to augmenting climate data with other sources. What do you think are the biggest challenges with using climate data? How would you convince healthcare researchers of the need to include climate data in research? What do you think are the risks associated with establishing relationships (causal or otherwise) between climate and health data, especially thinking across geographic and temporal scales?

Q13c. At Wellcome, we are interested in funding a portfolio of projects around the effects methane emissions on health. This is not a novel area of research but there are some gaps in the literature including around data science methodology. What do you think are the biggest challenges with conveying the impacts of methane on health? What do you think are the biggest challenges of tracking methane emissions across geographical and temporal scales? How would you overcome these challenges?