S/N	Question	Answer
1	Do we only deposit data used in publications or generated by the grant? Is there a data size limitation for the data to be uploaded? Is there fee incurred for the data storage?	Researchers should ensure that all final research data and its associated metadata are deposited, unless there are restrictions to sharing and the restrictions are assessed to be reasonable. There is currently no data size limitation imposed. NMRC will monitor the data storage capacity and make provision to increase capacity, on a need basis. There is no cost to the institution/PI for deposit of final research data generated from NMRC-funded research in the NMRC Research Data Repository arising from NMRC's requirement. However, PIs need to prepare the data , including de-identification prior to the deposit. The expenses involved could be supported by the NMRC grant.
2	It was mentioned only PI with primary appointment in local public institution is allowed to submit the Data Access Request (DAR). The question is can the RFs and collaborators (who will be listed as Co-Is) be part of the authorised individuals to have data access when the DAR has been approved?	In the data access request form, data requestors could list down the affiliates, who are defined as individuals collaborating with the Recipient, for whom access to data is required to carry out the Research Plan. Hence, the RFs and collaborators could be listed in this section.
3	Is video recording considered final research data? What would be the anonymisation workflow for video data?	If the video recording is required to validate the research findings and support future research work, they should be included as part of the final research data. Depending on the situation, speech/notes transcribed from video recording could be considered as part of the final research data instead. . If there are restrictions to sharing and the restrictions are assessed to be reasonable, data could be excluded from sharing. Such restrictions could be detailed in the data sharing plan submitted with the grant application for reasonableness assessment by the NMRC's review panel or equivalent body. The anonymisation could be based on the institution/investigator's current practice, but the anonymisation standards used shall be equivalent to or more robust than the government recognised anonymisation standards.

4	Could researchers search in the repository what data could be accessed prior to submitting a data access request?	The project information and metadata of the final research data will be made openly available in the NMRC Research Data Repository to serve as data catalogue and inform the prospective data requestors the data available for sharing.
5	Is there a cost for accessing data? Either via Brain or Trust platforms?	There will be cost incurred for accessing data through the TRUST/BRAIN platform. TRUST will commence charging in FY2024 and details of the charging framework will be released Nov/Dec 2023. As for BRAIN, the cost will vary depending on the services required. Data recipients could direct their queries to the following emails: For TRUST: TRUST_Support@moh.gov.sg For BRAIN: jeffrey.fong@synapxe.sg / brainit.svcdesk@synapxe.sg
6	The final research data shall be stored in the Research Data Repository for a minimum duration of ten (10) years. What would happen to the data in the repository after the 10th year? What is expected from the data sources on the management of the mapping tables? Are they expected to destroy or retain them? How would the facilitation be managed?	In view that this is a new initiative, we will keep to the minimum duration of 10-year period at this stage. We will continue to monitor and revisit the requirement, on a need basis.

7	For lab data generated by specific lab instructions/equipment, they may come in special formats which might require certain programmes to access them. Hence, are researchers expected to convert to other more accessible formats?	Researchers are encouraged to deposit their final research data in formats that could be easily reuse for future research work. If this is not possible, lab data could be deposited in its current form. However, researchers are expected to indicate the relevant software in their metadata that will be required to access the lab data files.
8	For clinical data, CDISC organisation has guidelines in place (and mandated for FDA submission) for data format and structure. Can this be implemented in future for clinical data to be reposited?	The data standards and formats for the NMRC Research Data repository are not stipulated at this stage, but it is an area that could be pursued moving forward.
9	Who will provide the codes for the hashing? Does the institution need specific knowledge to performing the hashing and will there be costs involved?	The hashing programme is a simple point and click user interface. There are two options to use the TRUST anonymisation service/programme – Offline at your source environment or online via TRUST (if your data source is on AWS). There is no cost involved in running the programme. For the offline version, TRUST will share the programme via email/secure thumbdrive/hard disk when we arrange for the anonymisation and transfer of data. No special expertise or skillsets are required to execute the programme.
10	Does the data sharing framework apply to those grants awarded prior to the implementation of the framework in Jan 2024?	The implementation of the NMRC Research Data Governance and Sharing Framework will only apply to prospective projects awarded from the Jan 2024 grant call onwards. For the existing ongoing projects, they will not be impacted by the implementation of the framework. However, some project teams may be approached by the TRUST team, should the research data be deemed as a valuable resource to support future research work.
11	Do researchers require the ethics approval before receiving the datasets from the TRUST/Brain platform?	It is the responsibility of the investigators and their institution to ensure that the applicable legislations are complied, and IRB approval is obtained for the proposed research.
12	For studies involving collaboration with multiple institutions, in the event if institutions do not agree on the data to be shared, does that mean the project would not be funded?	The assessment of the data sharing plan will be done independently from the scientific review of the proposed research. However, a satisfactory data sharing plan is required prior to the award of the grant, and we will work with the applicants on the revision of the data sharing plans at the budget scrubbing stage before award. Compliance to the NMRC Research Data Governance and Sharing Framework will be part of the requirement in receiving funds from NMRC. Unless there are restrictions to sharing and the restrictions are assessed to be reasonable, the final research data for all NMRC funded projects should be made available for sharing.

13	If there are any changes to the data sharing plan following IRB review, does the researchers need to notify NMRC of the changes at that point in time?	Researchers could include an update on the data sharing plan as part of the Final Report, that is currently submitted within three (3) months following the end of the project term.
14	For research involving overseas collaborators contributing data, are the researchers only expected to submit the data generated in Singapore to NMRC, considering the potential challenge on the data sharing agreement with overseas collaborators?	Ideally, all final research data generated from the funded research should be deposited for sharing, including data generated by both the local and overseas collaborators. Nonetheless, NMRC recognises the potential challenge with regards to the data sharing agreement with overseas collaborators, as well as the limited re-usability of the overseas data in anonymized form within the TRUST/BRAIN platform. Researchers are encouraged to facilitate the inclusion of the overseas data as part of the final research data for sharing on best effort basis. If there are limitations to share the overseas data, researchers can indicate them in the data sharing plan for waiver consideration. If the restrictions/limitations are assessed to be reasonable, they should make known in the metadata so that data requestors/public are aware.
15	If researchers are interested to request a set of data from the NMRC research data repository and would like to link them with another dataset within the TRUST platform, who do they submit the data access request form to? Are they required to do dual submission?	As the data governance and associated processes will differ depending on the data sources, researchers will be required to request data access from both sources, i.e., from the NMRC Research Data Repository (via the Data Access Request form), and from the data source of the other dataset of interest.
16	What would be the amount made available in the upcoming grant calls to support these data sharing cost?	The funding quantum for the respective grant schemes remain unchanged for this funding tranche. Hence, PIs are required to budget for the associated cost, where applicable, within the current stipulated quantum. Nonetheless, it would be an area that we can look at in the next funding tranche. There is currently no limit imposed on the amount that can be budgeted for data sharing/data management related activities within the grant application, as long as these are reasonably justified.
17	Does the data sharing framework apply to Centre grants and NMRC RTF e.g. for MPH/PhD studies?	The NMRC Research Data Governance and Sharing Framework applies to projects funded under the following schemes: 1. Clinician Scientist – Individual Research Grant 2. Clinical Trial Grant 3. National Innovation Challenge on Active and Confident Ageing 4. Open Fund – Large Collaborative Grant

		5. Open Fund – Individual Research Grant 6. Open Fund – Young Individual Research Grant 7. Population Health Research Grant 8. Singapore Translational Research Investigator Award 9. Clinician Scientist Award 10. Clinician Innovator Award 11. HPHSR* Clinician Scientist Award 12. Transition Award. *HPHSR: Health Promotion, Preventive Health, Population Health and Health Services Research
18	Would you be able to share more info. (weblink, etc.) on the government recognised anonymisation standards mentioned?	Examples of government recognised anonymisation standards include the Framework on Anonymisation Standards for the Public Healthcare Sector or the PDPC anonymisation guidelines.
19	Does that mean from Jan 2024 Grant Call onwards, all NMRC-funded studies must seek consent for future/wider research?	Yes. To facilitate research data sharing, it is essential for the informed consent of the research study to include explicit provision for sharing of data for wider or future research use.
20	The Data Sharing Plan (DSP) submitted to IRB will supersede the NMRC approved DSP?	The IRB has to review and verify before work requiring IRB approval commences, that the data sharing plan in the ethics approval application is consistent with the informed consent of study participants from whom the data will be obtained, and there is adequate protection for the study participants involved in relation to data sharing. The IRB's decision will also take priority over the assessment of the NMRC Review Panel with regard to human subject protection. If there are any changes on the data sharing plan, researchers are required to include an update on the data sharing plan as part of the final report, that is currently submitted within three (3) months following the end of the project term.
21	Datasets may from different sources and/or projects and the hashing may be different. Hence, in this scenario, how are the different datasets from the different sources linked?	Different data sources may have different de-identification/anonymisation methods. Nonetheless, the mapping tables from the various data sources will undergo a common hashing programme before being provided to the TRUST team. With that, the different datasets from the different sources can be linked.

22	If NRIC is collected for research, when PI upload data to repository, who will anonymise the data? Will there be a de-anonymisation key maintained by PI to re-identify the data?	We understand that typically the parties (i.e. data sources) who collect the data with identifiers are distinct from the investigators conducting the research, who will only work with de-identified/anonymised data. Based on this understanding, the data sources will de-identify the collected data based on its current practice, and provide the data with de-identified IDs (or research ID) to the investigators for further work. Mapping tables are maintained by the data sources, and to be provided only if there are approved data access requests requiring data linkage. The host institution/Lead PI is responsible to collate the final research data into a single, combined dataset and ensure all the data is anonymized before depositing a copy of the final research data into the NMRC research data repository.
23	It will be helpful if NMRC could define what constitutes raw data and Final research data	The general guiding principle to what constitute final research data would be what researchers themselves find sufficient to validate research findings and support future research work. It does not include raw data such as laboratory notebooks, preliminary analyses, drafts of scientific papers, plans for future research, peer review reports, communications with colleagues, or physical objects such as gels or laboratory specimens.
24	Many of the genomic dataset generated will be uploaded in the public datasets such as the GEO (Gene Expression Omnibus). Are researchers expected to deposit these genomic data separately in the repository as well?	Yes. Researchers are required to upload a copy of the genomic datasets to the NMRC Research Data Repository if they are part of the final research data of the NMRC funded research.
25	Should the final research data deposited include participates who did not give agreement for data sharing?	The final research data deposited should only include data from participants who gave consent for data sharing.
26	If a new research project involves the use of past data where no consent was sought in the past for research, are researchers expected to seek waiver of consent from IRB?	For past studies where informed consent for sharing of data for wider/future research use was not included, this could be stated in the data sharing plan for consideration of data sharing to be waived.

27	Could we confirm that the deposit of the final research data requirement in the NMRC Research Data repository could take place after publication?	If the dataset is used for publications, the final research data could be deposited in the repository after the date of publication, but no later than 12 months from the date of that publication. Otherwise, data should be shared within 24 months after grant completion. If there are strong justifications to delay sharing of the data beyond the timeline stipulated, request to delay sharing may be sought, subject to NMRC's approval.
28	When is NMRC expecting the roll out of the repository system?	The current projected timeline would be before 2027.
29	Could you please elaborate to what extent is this data sharing framework contingent on participant's agreement to share data and agreement to future research as part of IRB's informed consent process?	Subjects who participate in research need to understand what the research will involve, what data will be collected and how these data will be used. To facilitate research data sharing, it is essential for informed consent of the research study to include explicit provision for sharing of data for wider or future research use . It should also include option for subjects to opt out. If participants choose not to allow their data to be shared for future research, their data should be excluded from the final research data that will be deposited in the NMRC research data repository.
30	Is this new data sharing requirement unique to the NMRC and Singapore or is this requirement also common to other large grant agencies in Europe, the UK and the USA? Is the NMRC Research Data Governance and Sharing Framework compatible and not conflicted with international practices? In view that we have extensive overseas collaborations, it would be difficult to coordinate across multiple conflicting rules. Could the relevant regulations be listed?	This framework is developed with reference to research data sharing requirements and practices overseas (including in Europe, the UK and the US). Interested researchers may wish to refer to the publicly available data sharing websites from NIH, UKMRC etc for more information. NIH: https://sharing.nih.gov/data-management-and-sharing-policy UKMRC: https://www.ukri.org/publications/data-management-plan-template/

31	Will the data deposited within the NMRC Research Repository be made publicly accessible?	Basic project information and metadata of the final research data will be made openly available to serve as data catalogue. The final research data in the repository may be made available to data requestor upon request in anonymized form, subject to approval by the data contributing institutions. Data requestors should be employees with a primary appointment in a local public institution at a level equivalent to a Principal Investigator.
32	Will the CIRB/ DSRB templates for informed consent be amended to reflect this additional requirement?	PIs (and their institutions) who are applying for NMRC grants have the responsibility of ensuring that the NMRC data sharing requirement is fulfilled. This will involve the inclusion of the various additional consent clauses necessary to fulfil the NMRC data sharing requirements (e.g., explicit provision for sharing of data for wider or future research use).
33	If a new research project involves the use of de-identified data from other existing sub-studies under a different IRB PI and as a result, secondary and tertiary data were generated, who will be the party responsible to upload the data generated to the repository? For example, biomarker samples were collected from the parent study. Using those biomarkers samples, new analysis is derived in a new study. Hence, does that mean the PI of the new study should be the party responsible to upload the data to the repository?	PIs who are awarded research funding from NMRC will be required to deposit a copy of the final research data arising from the NMRC-funded research to the NMRC Research Data Repository. If the current NMRC-funded study builds on other existing or past studies, the data used could be part of the final research data to be deposited if they are deemed necessary to validate research findings and support future research work. On the other hand, PIs will not be responsible for depositing data which arise from future secondary research that is not part of the funded research.
34	Is it necessary for the data contributor to be listed as part of the project team member in the research that the data recipient planned to undertake?	It is not a requirement to include the data contributor as part of the project team for the research that the data requestor plans to undertake, but the data requestors will be required to acknowledge the contribution of the data contributors in all resulting oral or written presentations, disclosures, or publications of the analysis, as part of the data use agreement. Nonetheless, it is recognised that the involvement of the data contributors will be beneficial to

		the new research (e.g., data contributor could provide clearer guidance on the interpretation of the data). Hence, data requestors may wish to take this into consideration when planning for the new research. Also, any Data Access Request (DAR) will be reviewed by the Data Contributor's cluster/institution-based Data Access Committee/ Representative. Hence, we will defer to the Data Contributor's data access committee/representative to assess and recommend, when granting approval to the data request.
35	If HELIOS is a cohort study under NMRC, and we are doing sub-analysis de-identified data from HELIOS, would NMRC already have access to HELIOS data already and therefore submission of de-identified sub-analysis would denote a duplication of data submission?	The sub-analysis work mentioned should be separately funded from the HELIOS study. As such, the HELIOS study's final research data will likely not cover the sub-analysis work. Hence there should be minimal duplication in the data submission. Nonetheless, we recognise that some data from the HELIOS study may be included as part of the final research data of the sub-analysis work if the data is deemed necessary to validate research findings and support future research work.