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| Brain Donation | Completion date: 30 March 2016 |
| Start date: 1 November 2014 | |
| Final report – January 2019 | |

Executive Summary of Project

The Team established that cohort participants are willing and interested in donating their brains on death. A blanket acceptance of all brains would not be possible as the current UK Brain Banks have limited capacity to take on additional brains without additional funding. The protocols developed thus emphasised that not all brains would be collected, an important point that donors and their family need to understand before consenting to brain donation. It was intended to pilot the developed protocols in UK Biobank (UKB) and in conjunction with the Manchester Brain Bank. However, this has been delayed whilst UKB developed their repeat brain imaging assessment cohort and finalised their recontact policy. At the end of 2018 UKB requested that a proposal for brain banking be submitted to the UKB enhancements committee for consideration.

Team members
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| Objectives | Dependencies to and from other work packages, networks and themes |
| <ol style="list-style-type: none"> 1. Identify most informative cohort(s) for brain donation 2. Development a consent form for participants with capacity to include nominated representative to handle donation at death. This will be based on BDR/UKB Network forms in use 3. Agree standards of collection, classification and storage of brains and other tissue 4. Develop a sample access plan 5. Develop an overarching ethics application for DPUK tissue bank access. 6. Provide an actuarial analysis of dementia related morbidity and mortality to inform consent materials 7. Establish a Brain banking strategy based of classification and storage capacity in relation to scientific value | <p>WP1 and WP2 WP3- Trials readiness</p> |

Where all Milestones completed- No
See above- to date it has not been possible to conduct a pilot project in UKB but the protocols and background information needed for this has been produced by the group.

| Deliverables | Milestones | Milestone deadline | Work package dependencies | Person(s) responsible |
|---|-------------------|---------------------------|----------------------------------|------------------------------|
| Objective 1: Identify most informative cohorts | | | | |
| D1.1 Brain donation questions included in DPUK fingerprint for characterising cohorts | M1.1.1 | M1.1.1 Complete | WP1 and WP2 | CO |
| D1.2 Cohorts evaluated and prioritised | M1.1.2 | M1.1.2 Complete | | |
| Objective 2: Development consent form for participants with capacity to include nominated representative to handle donation at death. This will be based on BDR/UKB Network forms in use | | | | |
| D2.1 Participant information sheets developed and finalised | M2.1.1 | M2.1.1 Complete | WP12 ELSI report | AM |
| D2.2 UKB approval of protocol & study materials | M2.2.1 | M2.2.1 Complete | WP3 BD | |
| D2.3 UKB ethics (amendment) approval submitted | M2.3.1 | M2.3.1 Complete | included in | |
| D2.4 Brain donation UKB pilot study | M2.4.1 | M2.4.1 Closed | imaging study | |

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| Objective 3: Agree standards of collection, classification and storage of brains and other tissue | | | | |
|---|--------|-----------------|------|----|
| D3.1 Collaboration & Workshop with BDR and UKBBN to discuss standards | M3.1.1 | M3.1.1 Complete | None | AM |
| D3.2 Standards agreed with UKBBN | M3.2.1 | M3.2.1 Complete | | |
| Objective 4: Develop a sample access plan | | | | |
| D4.1 Draft sample access plan developed & circulated to UKBBN for agreement | M4.1.1 | M4.1.1 Complete | None | HC |
| D4.2 Sample access plan written and agreed | M4.2.1 | M4.2.1 Complete | | |
| Objective 5: Develop an overarching ethics application for DPUK tissue bank access | | | | |
| D5.1 Ethics application developed and agreed | M5.1.1 | M5.1.1 Complete | None | AM |
| D5.2 Method developed | M5.2.1 | M5.2.1 Complete | | |
| Objective 6: Provide an actuarial analysis of dementia related morbidity and mortality to inform consent materials | | | | |
| D6.1 Analysis of CFAS and UKB completed | M6.1.1 | M6.1.1 Complete | None | HC |
| D6.2 Actuarial report submitted to DPUK | M6.2.1 | M6.2.1 Complete | | |
| Objective 7: Establish a Brain banking strategy based in classification and storage capacity in relation to scientific value | | | | |
| D7.1 Protocol for assessing UKBBN capacity developed & agreed with UKBBN | M7.1.1 | M7.1.1 Complete | None | HC |
| D7.2 Capacity questionnaire developed | M7.2.1 | M7.2.1 Complete | | |
| D7.3 Capacity UK Brain Banks assessed | M7.3.1 | M7.3.1 Complete | | |
| D7.4 Report agreed by DPUK Exec | M7.4.1 | M7.4.1 Complete | | |
| Lessons Learnt <ul style="list-style-type: none"> The project team worked together well using their complementary expertise and on the whole the objectives above have been achieved. A variety of reports, which will be made available on the DPUK website, have been produced. <p>Having identified UK Biobank (UKB) as the most informative cohort to use, the group has been involved in protracted negotiations with UKB regarding the conduct of a pilot study. The latest discussions (end of 2018) has seen UKB request that a proposal for brain banking be submitted to the UKB enhancements committee for consideration.</p> | | | | |
| Outcomes <ul style="list-style-type: none"> A Consent form and Patient Information Sheet for participants was developed with capacity to include nominated representative to handle donation at death. This was based on BDR/UKBB Network forms in use. A report was prepared on agreed standards of collection, classification and storage of brains and other tissue. A report was prepared providing the pivotal factors in developing a brain tissue access procedure. This described potential strategies for providing a streamlined and timely request process following death. An actuarial analysis of dementia related morbidity and mortality to inform consent materials A brain banking strategy based on classification and storage capacity in relation to scientific value was developed. | | | | |
| Report <ul style="list-style-type: none"> Introduction <p>The original aims of this work package were:</p> <ol style="list-style-type: none"> To establish a brain banking strategy for DPUK including ethical approval | | | | |

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2. To pilot in indicative cohorts adapted methods from those already in practice
3. To work at every stage with representatives of the cohorts
4. To plan for sustainable banking approaches which will endure over decades
5. To extend these findings to iPSCs

- **Outcomes**

As outlined previously, the Team worked on putting in place all the protocols and documentation required for conduct of a pilot study, identifying UK Biobank (and more specifically the individuals destined to take part in the repeat brain imaging) as the most informative cohort. The work was conducted in conjunction with BDR and UKB. Specific outputs, which will be made available on the DPUK website include (a) consent forms and patient information sheets to allow individuals to consent for brain donation; (b) a report that included the agreed standards of collection, classification and storage of brains and other tissue (c) a report on strategies for providing a streamlined and timely brain donation process (d) an actuarial analysis of dementia related morbidity and mortality and (e) a report, authored in 2015, as to the capacity of the current UK Brain Banks.

- **Conclusions**

This work package established that cohort participants are willing and interested in donating their brains on death. Current UK Brain Banks have a capacity issue and it would not be possible to accept all donated brains. The protocols developed by this work package emphasised that not all brains would be collected, an important point for donors and family to be aware of before consenting to brain banking. It was intended to pilot the developed protocols in UK Biobank (UKB) and in conjunction with the Manchester Brain Bank. However, this has been delayed whilst UKB developed their repeat brain imaging assessment cohort and finalised their recontact policy. At the end of 2018 UKB requested that a proposal for brain banking be submitted to the UKB enhancements committee for consideration

- **Recommendations**

That a pilot study be conducted using the materials developed as part of this work package. Discussions are on-going with UKB about using the cohort of individuals who will be invited to take part in the repeat brain imaging (reimaging) project. UKB has invited a proposal to be submitted for assessment by the UKB Enhancements Committee.