**Data Management Plans – A sample**

by Simon Moss

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| **Introduction** |

 All researchers, including PhD and Masters by Research candidates, should construct a data management plan. Sometimes, these plans are short documents. In other occasions, especially when several organizations are contributing and the data are multifaceted, these plans can be lengthy. This document illustrates a lengthy example. This example is primarily designed to demystify these data management plans and offer a few ideas as well. For other examples, visit [this webpage](https://libguides.library.curtin.edu.au/c.php?g=202401&p=1333108) and search “example data management plan” on this page.

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| Outline of the project and contributors |
| Student name  | Jamie Smith.  |
| Contact details | Jamie.Smith@cdu.edu.au 0402 000 000 |
| Lead institution | Charles Darwin University |
| College or unit | College of Health and Human Sciences |
| Date this plan was first completed | 18-3-2018 |
| Dates this plan was revised | 25-5-2018; 27-5-2018 |
| Project start and end dates | 25-3-2018 to 26-3-2019 |
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| Project title | Which microRNAs in the bloodstream are predictors of diabetes in Aboriginal communities in Australia? |
| Aim and method | Although microRNAs have been shown to predict a range of disorders, research has not explored the degree to which these microRNAs are biomarkers of diseases, such as diabetes, in Aboriginal communities in Australia. Yet, research does suggest the prevalence of specific microRNAs might be different in these communities relative to their non-Indigenous counterparts. The aim of this research was to explore which profiles of microRNAs predict changes in diabetes within an Aboriginal community in Australia. This study will also explore the effect of various treatments on the profiles of microRNAs. To achieve this goal, we will analyse the blood serum of diabetes patients before, during, and after treatment with medication. We will explore the association between the expressed miRNA levels and pathological features at various times.  |
| Funding | RTP of $3600 a year |
| Budget | The project will utilize laboratory facilitiesat Charles Darwin University. All dollars are expressed in Australian dollars* miScript miRNA PCR Array Human Cancer PathwayFinder (24 plates): $4197.24
* miRNeasy kit (200 preparation): $5145.68
* miScript II RT Kit (200 reactions): $2525.68
* miScript qPCR arrays (200 reactions): $590.81

Assumes an exchange rate of 1 USD = 1.31 AUD |
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| Primary Supervisor | Dr Simon Dross |
| Contact details of this supervisor | Simon.Dross@cdu.edu.au 0402 000 002 |
| Associate Supervisors | Sahm Gye |
| Partner institutions | The Diabetes Research CentreRoyal Darwin Hospital |

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| Survey of existing data  |
| **Existing datasets** that could assist the research | Medical and pathology records of selected participants from Royal Darwin Hospital  |
| What is the **relationship** of these existing datasets with new data | Once consent is obtained, blood samples will be collected from these selected participants  |
| **Special requirements** for use of third party data | NA |

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| Data to be produced  |
| **Description** of the data | * The microRNA expression data
* Medical and pathological reports of diabetes patients
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| **How** will the data be collected, created, captured, or managed? | MicroRNA expression data* The blood samples are initially stored in a locked fridge
* Real time PCR will identify the microRNA
* The blood samples will then be destroyed safely
* The data will saved in a password-protected spreadsheet.
* Only the student researcher and supervisors can access these file

Medical and pathological reports of diabetes patients * Will include clinical data, diagnostic data, and treatment data
* The data will saved in a password-protected spreadsheet.
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| What **formats** will be used to store the data. Will data formats meet international or national standards? | * The microRNA data will be stored in an Excel file
* The medical and pathological reports will be stored in an SQL file
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| Requirements  | * MS Excel and Access
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| Estimated size of data | * Less than 1 MB
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| Storage, organization, and preservation of data  |
| Who will be **responsible** for storage | The student, supervisors, and research administrator at the Diabetes Research Centre will be jointly responsible |
| How will data **security** be protected. Where will the data be **stored**? Will an archival service be used? | * All computer files will be stored in a One drive file that only the student and supervisors can access
* All paperwork, such as consent forms, will be stored in a locked filing cabinet in a shared office, but only the student can access this cabinet. Only the student and supervisors will retain a key
* The fridge is in a laboratory that is restricted to several members of staff and students.
* The names and contact details of patients will be translated to codes
* A file, stored in another file that only the student and primary supervisor can access, matches the names and details to these codes.
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| What data will be backed up and where? * How often
* Who will be responsible
* How will versions be controlled
* How will sensitive data be managed?
 | * All digital data will be backed up and stored on a password –protected external hard drive.
* That is, as recommended in the NHMRC “Management of data and information in research”, the back-up is external to the computer.
* The data will be backed up once a week while data is collected.
* The student and primary supervisor will be responsible for these procedures
* Each back-up will be assigned a unique name that includes the date
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| Who will manage data in the **long-term** | University’s Records management will manage long-term data |
| What information will be deposited with the data? * Who will be responsible for metadata creation and documentation?
* Which metadata standards will be used
 | Metadata will include* title, date, and location of the creation of data
* key investigators or organizations
* brief description of the data
* who can access the data.

The student and supervisors will create the metadata at the start of this research, before the data is collected. For this project, Darwin Core standard will be applied.   |
| Metadata for wider sharing and accessibility· * Keywords
* Geographical coordinates
* ANZSRC and RFCD field of research codes
* SEO code
 | * Key words: microRNA, Biomarkers, diabetes
* Geographical coordinate: ISO 19115:2003
* ANZSRC and RFCD code: 1112
* SEO code: 9201, 9203
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| Which file naming conventions will be used? | The file name will include the main content type, dates, and initials of person who updated the file.  |

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| Data sharing and re-use  |
| Will the data be **shared**? If not, why not? What **restrictions** will be imposed on this sharing such as* an embargo period
* mediated access only—in which individuals email to seek access
* charges to access
* rights for certain people to be granted first access
 | We will construct a database that is sufficiently de-identified. For example, * we will remove information that is not observed in at least 1% of the population, such as uncommon disorders;
* otherwise, participants may be identified from the data

This de-identified database will be available under open access with no embargo period or cost. The data will be shared on figshare.com.  |
| What are the f**unding** **requirements** to share or restrict the data? | None |
| Who else might be interested in the data? | Organizations that conduct research on diabetes might be interested in the data. We are willing to share the database with researchers in this field including information that about uncommon disorders—but with names and contact details removed.  |
| How will individuals access the data—such as a **permanent link?** | We will create a doi.  |
| What will the storage, access, and sharing of data change if someone leaves the organisation | If the principal supervisor leaves the project, the Assistant Dean of Research in the College will be notified. This person will be asked to facilitate the transition of keys, instructions, and responsibilities to the superseding supervisor.  |

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| Ethics and intellectual property  |
| **Additional requirements** to fulfil, such as requirements from funding bodies |  None |
| **Key ethical issues** relating to human or animal subjects | Risk to patients are very low because the procedure does not entail any changes in medications or treatment procedure. Blood samples are regularly extracted from patients as part of the management of their disease.  |
| How will you receive ethics approval? | We are awaiting ethics approval from the Human Research Ethics Committee of Northern Territory Department of Health and Menzies School of Health Research (HREC 2017-3567). Once approved, the human research ethics application will be submitted to Charles Darwin University Human Research Ethics Committee. |
| **Intellectual property** rights | * The student will own the data
* The partners from the Diabetes Research Centre can freely access, utilize, and transform the data
* The data will not be presented or published without the consent of the Diabetes Research Centre
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| How will the data be destroyed | * Blood samples will be destroyed as soon as the microRNA expression is determined
* The minimum time for data storage in this trial will be 20 years from the date of publication.
* The electronic data will be encrypted first and then deleted after this time
* Hard copy data will be machine crushed within university and disposed.
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