

# Research Data Management Policy

*Edinburgh Imaging, University of Edinburgh*

Dominic Job, Duncan Martin, David Rodriguez.

Version 1.0 March 2015

<http://www.ed.ac.uk/schools-departments/clinical-sciences/edinburgh-imaging/home>

## Background

Currently, most of the University's human brain imaging data is created on MR (Magnetic Resonance) scanners. This data is then processed, linked to non-imaging clinical and biological data, analysed and re-analysed, (often for years after the original collection), using many rapidly changing research tools.

Collecting this data is expensive and hence it is of high value. The university has extensive imaging assets (>100TB, >£100 million), some of them very 'rare', generated and analysed over the past 16-20 years. Curating this data is difficult as it is the responsibility of multiple groups throughout the university which mostly rely on 'human infrastructure' for linking to non-imaging data, provenance support and documentation (Whyte A. et al., 2008, Digital Curation Centre - <http://www.dcc.ac.uk/>).

Due to the difficulties in curating this data, and our reliance on 'Human infrastructure', it is essential that researchers adhere to good data management practices.

## Approach

Edinburgh Imaging and other organisational units support much of the Data Management and Planning process.

Our projects are best approached in two stages, and all data should be recorded at each step. It is essential to follow this division, even if there is a time line overlap between these stages. Stage 1, the *Service Stage*, often involves Person Identifiable Data (PID). Stage 2, the *Analysis Stage*, should not involve PID, unless specifically required and agreed in ethics and consent documents.

For each step in each stage all information should be kept for future reference. It is advisable to maintain an index and catalogue to this information.

- 1) **Service Stage:** Data collection of 'raw data'.
  - a. Application. See figure 1 for a diagram of stage 1.a:
    - i. Formulate idea for study
    - ii. Ethics, R & D approval, IRAS, ERI, funding approval, cost implications, NHS co-/Sponsorship
    - iii. Imaging approval
    - iv. CRF Imaging Core application
    - v. Formal approvals: Ethics/R&D/Sponsor & Imaging CMT
    - vi. Service Level Agreement (SLA)
  - b. Specify Principal Investigators (PI)
    - i. Specify Delegation list - tasks to be done, and individuals/position names to delegate tasks to (as much as is known, maintain and update when available).
    - ii. Consider any essential training requirements; identify Standard Operating Procedures (SOPs), Good Clinical Practice (GCP) etc. Record these in individual's Training Records.
    - iii. On-line Data Management training <http://datalib.edina.ac.uk/mantra/>

- iv. Apply for relevant Research Passports, and honorary NHS contracts.
- c. Now read the university Data Management Policy:
  - i. This policy for managing research data was approved by the University Court on 16 May, 2011. It is an aspirational policy: <http://www.ed.ac.uk/schools-departments/information-services/about/policies-and-regulations/research-data-policy>.
- d. Complete the Data Management Plan (DMP) for your sponsor (e.g. MRC), *or* DCC DMP Online, (see the University of Edinburgh defaults):
  - i. <https://dmponline.dcc.ac.uk/projects>
    1. Data Capture: what data will be collected, imaging/non-imaging?
    2. What data will be generated or reused in this research? Outline the volume, type, format etc.
    3. How much data will be generated?
    4. How will the data be documented to ensure it can be understood?
    5. Where will the data be stored and backed-up?
    6. Integrity: How will you assure the quality of your data?
    7. Confidentiality, PID and IPR: How will you manage any ethical and IPR issues?
    8. How will the data be preserved: Retention & Preservation?
    9. Sharing & Publication: Which data will be shared and how?
    10. Are any restrictions on data sharing required?
  - ii. resources: <http://www.dcc.ac.uk/resources/how-guides/develop-data-plan>
  - iii. check list: [http://www.dcc.ac.uk/sites/default/files/documents/resource/DMP/DMP\\_Checklist\\_2013.pdf](http://www.dcc.ac.uk/sites/default/files/documents/resource/DMP/DMP_Checklist_2013.pdf)
- e. Make sure that consent is given and carefully recorded for:
  - i. Imaging.
  - ii. Other instruments (e.g. cognitive tests, blood pressure measurements)
  - iii. Data linking, Use and Reuse.
- f. Data linking & Quality control.
- g. **De-identification**, IT/data security, confidentiality of Person Identifiable Data (PID).
- h. Are other sites/ departments/ 3rd parties involved? Does the data need to be transferred somewhere else? Is all or part of the data collected off-site, e.g. home visits?
- i. Does this data feedback to patient care in any way?
- j. Review with Data Management team.

- 2) **Analysis Stage:** Documentation of processing, pipelines, results, publishing and sharing.
- a. Update '1.d Data Management Plan' if necessary.
  - b. Use University of Edinburgh - Versioning services, for code, documents, and wikis.
  - c. Declare and use standard widely used data types, e.g. PDF, txt, csv.
  - d. Standardised provenance templates (e.g. <http://www.sbirc.ed.ac.uk/documents/templateREADME.pdf>).
  - e. Plan your projects area, folder structures, and naming conventions in advance.
  - f. Understand your risks, how does your plan affect data integrity, storage, backup?
  - g. Plan for registration, depositing and retention of research data assets, sharing and publication, e.g. <http://www.ed.ac.uk/schools-departments/information-services/research-support/data-management/data-sharing>  
<http://www.ed.ac.uk/schools-departments/information-services/research-support/data-management/data-storage>
  - h. Check data sharing policies and data use agreements if necessary, e.g. <http://www.mrc.ac.uk/research/research-policy-ethics/data-sharing/policy/>
  - i. Review with Data Management team.

## Acknowledgements

Elizabeth McDowell, Julian Sparrow, WTCRF & CRIC

## References

Whyte A., Job D., Giles S., Lawrie S. Meeting Curation Challenges in a Neuroimaging Group. *International Journal of Digital Curation*. 2008, Vol. 3, No. 1, pp. 171-181

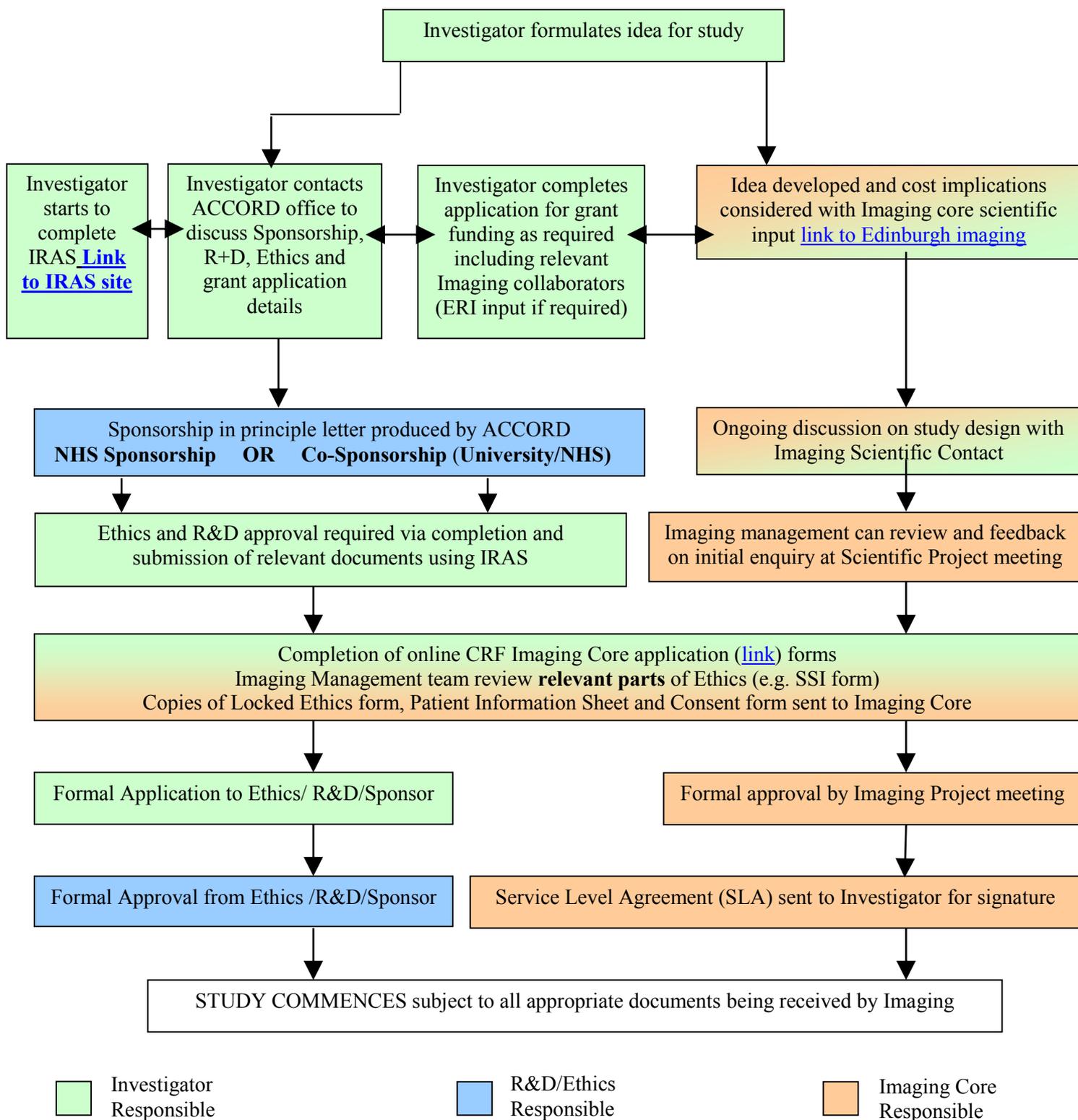


Figure 1, Imaging Core CRF application process 2015.