



UNIVERSITY OF SHEFFIELD GOOD RESEARCH PRACTICE STANDARDS

1. OVERVIEW

1.1 INTRODUCTION

On 16 October 2002 the University of Sheffield's Senate approved the Good Research Practice Principles and Guidelines. The Guidelines were subsequently revised and the revised version approved by Senate on 15 October 2003. The University of Sheffield's [Research Committee](#) and [Directors of Research](#) recommend that all members of the University of Sheffield (the University), both staff and students, conducting or participating in research activities, observe the University's Good Research Practice Principles and GRP Guidelines.

The Good Research Practice (GRP) Principles and Guidelines (GRP Standards) have been developed over a long period of time in close and substantial consultation with senior academics and administrators, from within and across the University. They were prepared with reference to and based upon guidance documents from other higher education and higher education related institutions. The need to establish University GRP Principles and Guidelines was given added momentum by a continuing research sponsor driven trend for higher education institutions to publish their own GRP Standards, as a condition for receiving future funding. The University's approach has been to develop GRP Standards that recognise the University's governance, culture and diversity while supporting the achievement of its collective research objectives.

[The GRP Principles and Guidelines should be read in conjunction with the [University's Procedure on Investigating and Responding to Allegations of Research Misconduct Against University Staff](#), issued by the Department of Human Resources]

Clear benefits to individual researchers, Heads of Department and the University are identifiable as a result of formally establishing University GRP Standards:

- Further embedding of a research culture based upon GRP Principles.
- Reference tool for established and new staff.
- Demonstration of high quality, robust research practices and standards and efficiency at project level.
- Transparency and accountability in research management and research output.
- Greater protection from allegations of research misconduct and greater protection of intellectual property.
- Reduced risk to the University, Departments and individual researchers.
- Affirmation and codification of the excellent research standards at the University.
- Enhanced reputation with external sponsors, auditors and the general public.
- Greater eligibility and quality of research applications.

1.2 REVIEW

The GRP Principles and Guidelines will be kept under regular review by the University's Research Committee.

1.3 DEFINITION OF RESEARCH

Research has been defined using the Research Assessment Exercise definition:

'Research is to be understood as original investigation undertaken in order to gain knowledge and understanding. It includes work of direct relevance to the needs of commerce and industry, as well as to the public and voluntary sectors; scholarship*; the invention and generation of ideas, images, performances and artefacts including design, where these lead to new or substantially improved insights; and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products and processes, including design and construction. It excludes routine testing and analysis of materials, components and processes, e.g. for the maintenance of national standards, as distinct from the development of new analytical techniques. It also excludes the development of teaching materials that do not embody original research.

* Scholarship for the RAE is defined as the creation, development and maintenance of the intellectual infrastructure of subjects and disciplines, in forms such as dictionaries, scholarly editions, catalogues and contributions to major research databases.'

1.4 GRP PRINCIPLES AND GUIDELINES

The GRP Principles and Guidelines are generic and apply to all members of the University, both staff and students, as well as to individuals who are not members but who are working on University premises or using University facilities, conducting or participating in research activities (researchers).

Throughout the lifetime of a research project, researchers are required to conduct research in a manner that accords with the GRP Principles and Guidelines. Adherence to the GRP Principles and Guidelines does not form part of the formal contract of employment for University staff, but it is a condition of employment that employees shall abide by the rules, policies and guidelines made by the University.

Academic freedom is not constrained but is protected by the University's rules, policies and guidelines, being enshrined as a guiding principle in Section 31 of the Statutes, which concerns academic staff.

1.5 GOVERNANCE AND IMPLEMENTATION

With regards to governance and implementation, Heads of Department are responsible for research performed in their Departments and therefore of the application of the GRP Principles and Guidelines by researchers.



UNIVERSITY OF SHEFFIELD GOOD RESEARCH PRACTICE STANDARDS

2. GOOD RESEARCH PRACTICE PRINCIPLES

2.1 INTRODUCTION

The Good Research Practice (GRP) Principles are generic and apply to all members of the University of Sheffield (the University), both staff and students, as well as to individuals who are not members but who are working on University premises or using University facilities, conducting or participating in research activities (researchers).

Throughout the lifetime of a research project, researchers are required to conduct research in a manner that accords with the GRP Principles. Adherence to the GRP Principles does not form part of the formal contract of employment for University staff, but it is a condition of employment that employees shall abide by the rules, policies and guidelines made by the University.

Research Governance:

All researchers, as defined in paragraph 1 above, undertaking 'health care research' (which includes clinical trials) are required to conduct their research in accordance with the Department of Health's 'Research Governance Framework' (the RGFramework). The RGFramework prescribes standards for governing health care research (collectively called research governance standards). The RGFramework defines health care research as:

- concerned with the protection and promotion of public health.
- undertaken in/by the Department of Health, its non-Departmental Bodies and the NHS.
- including clinical and non-clinical research.
- including research undertaken by universities within the health care system that might have an impact on the quality of those services.

All health care research needs to be governed by a 'research governance sponsor'.

To access the University's research governance website go to:

www.shef.ac.uk/researchoffice/gov_ethics_grp/grp.html

Academic freedom is not constrained but is protected by the University's rules, policies and guidelines, being enshrined as a guiding principle in Section 31 of the Statutes, which concerns academic staff.

[The GRP Principles and Guidelines should be read in conjunction with the University's Procedure on Investigating and Responding to Allegations of Research Misconduct Against University Staff, issued by the Department of Human Resources]

2.2 RESEARCH CULTURE

It is the responsibility of every member of the University, both staff, including honorary staff, and students, as well as individuals who are not members of the University but who are conducting or participating in research activities on University premises or using University facilities, to uphold the good reputation of the University, to observe its rules, policies and guidelines and undertake activities in accordance with them. All members of the University and individuals conducting or participating in research activities on

University premises or using University facilities are expected to conduct research with integrity. The preservation of a culture of research integrity is largely dependent on self-regulation.

A research culture conducive to GRP is needed for GRP Principles to be embedded. All members of the University, both staff and students, and individuals who are not members of the University but who are conducting or participating in research activities on University premises or using University facilities, must recognise their collective responsibilities, through their day to day actions and behaviour, in the development and maintenance of a healthy research culture, underpinned by honesty, integrity and openness. However, the development and maintenance of such a research culture is dependent on a climate that supports mutual cooperation between researchers, encouraging them to develop their skills and openly exchange ideas.

2.3 LEADERSHIP AND ACCOUNTABILITIES

The creation and effective embedding of a research climate and culture that promotes and embodies GRP and which, conversely, prevents or reduces the likelihood of incidents of research misconduct, within the University, requires the active leadership and support of individuals at all levels of the University's research community.

2.3.1 SENIOR UNIVERSITY MANAGEMENT

It is the responsibility of senior members of the University (including the Vice-Chancellor, Pro-Vice-Chancellors, Registrar and Secretary, Director of Finance and Divisional Research Directors) to provide direction and leadership for research activities and, through doing so, ensure that a research climate is created and a culture embedded that requires and rewards researchers to conduct research within the principles and guidelines of GRP.

2.3.2 HEADS OF DEPARTMENT AND SENIOR DEPARTMENTAL COLLEAGUES

[This section should be considered in conjunction with the [‘Duties and responsibilities of a Head of an Academic Department’](#) section of the Academic and Academic Related Staff Handbook]

Heads of Department are responsible for ensuring that the research culture, promulgated at the institutional level, is communicated to all Departmental staff and individuals working on Departmental premises or using Departmental facilities, conducting or participating in research activities, and are responsible for ensuring that they are made aware of the GRP Principles and Guidelines.

2.3.3 PRINCIPAL INVESTIGATORS

Principal Investigators, who may also be Supervisors, are responsible for ensuring that the research culture promoted at the institutional and Departmental level is translated into GRP during the conduct of research activities. They should endeavour to advance a research culture of mutual cooperation and GRP in which all members of their research project team (including academic staff, research assistants, research students, clerical and technical staff) are encouraged to develop their skills and openly exchange ideas and in which the proper conduct of research is carefully observed.

Principal Investigators are also responsible for ensuring that members of their research project team are aware of:

- The conditions set by the research project's research funder.
- The GRP Principles and other relevant University rules, policies and guidelines concerning research.

- Guidelines published by relevant scientific and learned societies and other relevant professional bodies where applicable.
- Applicable legal requirements and legislation (e.g. the 1998 Data Protection Act).
- Confidentiality and Intellectual Property Rights agreements applicable to their research.

2.3.4 SUPERVISORS

A Supervisor should work with the research student(s) to establish an effective supervisory relationship, thereby supporting the research student(s). Supervisors, who may also be Principal Investigators, are responsible for ensuring that the research students whom they supervise are aware of:

- The conditions set by the research project's research funder.
- The GRP Principles and other relevant University rules, policies and guidelines concerning research.
- Guidelines published by relevant scientific and learned societies and other professional bodies where applicable.
- Applicable legal requirements and legislation (e.g. the 1998 Data Protection Act).
- Confidentiality and Intellectual Property Rights agreements applicable to their research.

2.3.5 RESEARCH STUDENTS

The research student should work with the supervisor to establish an effective supervisory relationship, tackling the research with a positive commitment, and taking full advantage of the resources and facilities offered by the academic environment. The research student should take note of guidance and feedback offered by the Supervisor and should in particular ensure that s/he has read, understood and complies with the University's '[Code of Practice for Research Degree Programmes](#)' and '[Research Training Programme](#)'.

2.3.6 THE UNIVERSITY'S RESEARCH COMMUNITY IN GENERAL

New, junior and young researchers may not be as aware as more senior researchers as regards the GRP Standards they are expected to attain in the conduct of their research. All members of the research community, but particularly senior members, are responsible for ensuring that, prior to or at the outset of conducting or participating in research new, junior and young researchers are aware of the GRP Principles and Guidelines and understand their implications for research practice.

2.4 HONESTY

Researchers should be honest, both in respect of their own actions in research and in their response to the actions of other researchers. They are required to behave honestly throughout the whole of a research project's lifetime, including but not limited to the stages of applying for funding, experimental and protocol design, generating, recording, analysing and interpreting data, and publishing and exploiting results. Honesty implies that all steps will be taken to avoid or at least declare any potential or real conflicts of interest.

2.4.1 CONFLICTS OF INTEREST

All researchers should disclose and justify potential or real conflicts of interest in a responsible and appropriate manner in line with the University's official conflicts of interest procedures, as outlined in the [Financial Regulations](#).

The Personnel Service's '[Policy on personal relationships and conflicts of interest in the workplace](#)' should be consulted in tandem with the Financial Regulations.

If a conflict of interest occurs it does not necessarily mean that the particular activity with which an individual may have a conflict of interest must be excluded from the research

project, but the activation of appropriate procedures to safeguard the University and the individual may be necessary. It is expected that the primary responsibility, interest and loyalty of members of staff rests with the University.

2.4.2 RESEARCH MISCONDUCT

The University's '[Procedure on Investigating and Responding to Allegations of Research Misconduct Against University Staff](#)' should be consulted when allegations of research misconduct are against University staff: This procedure defines research misconduct as:

Fabrication, falsification, plagiarism or deception in proposing, carrying out or reporting results of research or deliberate, dangerous or negligent deviations from accepted practices in carrying out research. It includes failure to follow established protocols or adhere to established ethical principles if this failure results in unreasonable risk or harm to humans, other living organisms or the environment and facilitating of misconduct in research by collusion in, or concealment of, such actions by others. It includes intentional, unauthorised use, disclosure or removal of, or damage to, research-related property of another, including apparatus, materials, writings, data, hardware or software or any other substances or devices used in or produced by the conduct of research. It also includes any plan or conspiracy or attempt to do any of the above.

It does **not** include honest error or honest differences in the design, execution, interpretation or judgment in evaluating research methods or results or misconduct unrelated to the research process. Similarly it does **not** include poor research unless this encompasses the intention to deceive.

When allegations of research misconduct are against students the University's Grievance and Disciplinary Procedures should be consulted.

2.5 OPENNESS

Whilst the University recognises the need for researchers to protect their own research interests the University also encourages researchers to be as open as possible in discussing their work with other researchers and with the public. Openness implies that all steps will be taken to avoid or at least declare conflicts of interest.

2.5.1 PROVIDING ACCESS TO RESEARCH EVIDENCE

So long as the provision of research evidence remains consistent with and does not contravene:

- Any conditions set by an appropriate Research Ethics Committee, either located within the University or the NHS, in particular as regards arrangements for obtaining consent.
- The 1998 Data Protection Act and the 2000 Freedom of Information Act.
- Intellectual Property Agreements made that cover research project evidence and results.
- Confidentiality Agreements made that cover research project evidence and results, including the University's Confidentiality Agreement provisions for protecting information in degree theses prepared by research students.

then relevant research evidence should be made available to other researchers on request, prior to or following the publication of results.

However, the University reserves the right to charge a fee to researchers from outside the University, who have requested copies of research evidence, for the costs incurred in copying the research evidence requested.

Third parties and researchers, external to but with a relevant interest in a research project, should be permitted access to research evidence prior to the date of publication of results, provided that all the research project's researchers and collaborators and partners in the research project agree to permit such access and that this conforms with any conditions set by an appropriate Research Ethics Committee, the 1998 Data Protection Act and any Confidentiality and Intellectual Property Agreements.

2.6 OBSERVING OFFICIAL PROCEDURES, GUIDANCE AND LEGISLATION

2.6.1 UNIVERSITY FINANCIAL REGULATIONS

All University staff are required to comply with the University's [Financial Regulations](#) and the GRP Principles and Guidelines are intended to be read in conjunction with and in no way qualify or amend them.

2.6.2 ETHICS REVIEW

To access the University's central research ethics website go to:
www.shef.ac.uk/researchoffice/gov_ethics_grp/grp.html

[The '[University's Ethics Policy for Research Involving Human Participants, Data and Tissue](#)' (the Ethics Policy) should be consulted]

The dignity, rights, safety and well being of human participants (participants) must at all times be considered, respected and safeguarded. Researchers who plan to involve or foresee future involvement of participants and/or use of human data and/or human tissue in their research work must follow the University's Ethics Procedures, contained within the University's Ethics Policy.

Principal Investigators and Supervisors must ensure that the protocol approved by an appropriate Research Ethics Committee is adhered to. Where necessary, depending on the proposed area of research, approval must be obtained from other regulatory bodies, such as the Human Fertilisation and Embryology Authority or the Gene Therapy Advisory Committee.

For research involving animals researchers should consider, at an early stage in the design of any research, the opportunities for reduction, replacement and refinement of animal involvement. Where animal use is unavoidable the proper Home Office legislation must be adhered to.

2.6.3 GUIDANCE FROM PROFESSIONAL BODIES

University researchers should be aware of and are expected to observe the standards of research practice set out in guidelines published by directly relevant scientific and learned societies and other directly relevant professional bodies.

2.6.4 LEGAL REQUIREMENTS AND LEGISLATION

All researchers should be aware of and are expected to observe relevant legislation and legal requirements that apply to, govern and regulate their particular area of research.

CLOSING STATEMENT:

All researchers should pay particular attention to and follow:

- The conditions set by the funder of their research (where applicable).
- The GRP Principles and other relevant University rules, policies and guidelines concerning research.
- Guidelines published by relevant scientific and learned societies and other professional bodies where applicable.
- Legal requirements and legislation applicable to their particular area of research.
- Confidentiality and Intellectual Property Rights Agreements applicable to their research.



UNIVERSITY OF SHEFFIELD GOOD RESEARCH PRACTICE STANDARDS

3. GOOD RESEARCH PRACTICE GUIDELINES

3.1 INTRODUCTION

The Good Research Practice (GRP) Guidelines are not prescriptive about individual approaches taken by researchers to answering specific research questions and solving particular research problems. Researchers themselves will continue to initiate improvements to research practice. It is recognised that not all the issues identified within the GRP Guidelines have an equal level of applicability to each research discipline or division. However, the GRP Guidelines do set minimum targets for GRP, which researchers are expected to meet and encouraged to build upon.

Individual researchers from Departments are expected to seek guidance from their Head of Department on the applicability of different sections of the GRP Guidelines to their own research.

[The GRP Principles and Guidelines should be read in conjunction with the University's Procedure on Investigating and Responding to Allegations of Research Misconduct Against University Staff]

All researchers should pay particular attention to and follow:

- The conditions set by the funder of their research (where applicable).
- The GRP Principles, GRP Guidelines and other relevant University rules, policies and guidelines concerning research.
- Guidelines published by relevant scientific and learned societies and other professional bodies where applicable.
- Applicable legal requirements and legislation (e.g. the 1998 Data Protection Act).
- Confidentiality and Intellectual Property Rights Agreements applicable to their research.

3.2 RESEARCH ETHICS

To access the University's central research ethics website go to:

www.shef.ac.uk/researchoffice/gov_ethics_grp/grp.html

[The '[University's Ethics Policy for Research Involving Human Participants, Data and Tissue](#)' (the Ethics Policy) should be consulted]

The dignity, rights, safety and well being of human participants (participants) must at all times be considered, respected and safeguarded. Researchers who plan to involve or foresee future involvement of participants and/or use of human data and/or human tissue in their research work must the University's Ethics Policy.

Principal Investigators and Supervisors must ensure that the procedures in the protocol approved by an appropriate Research Ethics Committee are adhered to. Where necessary, depending on the proposed area of research, approval must be obtained from

other regulatory bodies, such as the Human Fertilisation and Embryology Authority or the Gene Therapy Advisory Committee.

For research involving animals researchers should consider, at an early stage in the design of any research, the opportunities for reduction, replacement and refinement of animal involvement. Where animal use is unavoidable the proper Home Office legislation must be adhered to.

[DRC is an abbreviation for Divisional Research Committee]

The Arts and Humanities DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.2 in its entirety.

No specific comments on Section 3.2 were received from the Biologies DRC.

3.3 PROTECTING AND EXPLOITING INTELLECTUAL PROPERTY

Prior to the commencement, or at the outset, of a research project there should be clarity as to the ownership of research evidence and research results. The research project contract should have a clause(s) clarifying the intellectual property rights of the:

- Research sponsor.
- Relevant partners.
- Individual researchers.
- The University.

A mutual agreement on publication strategy, which is subject to regular review, should also be included at the outset, as it will facilitate effective management of any unexpected intellectual property rights arising as a result of the collaborative project.

The regular countersigning of a project's research records (generally (laboratory) notebooks), where applicable, is good supervisory practice and can be essential to the protection of intellectual property rights. This is because unlike Europe, where 'first to patent' is the rule, American law operates in respect of 'first to invent'. In a patent litigation situation in the USA the lawyers would examine the research records for proof of invention and time of invention. Given the importance of the US market for any technological exploitation well audited research is therefore critical to success.

Researchers should follow the University's intellectual property rights procedures for exploiting intellectual property and, in the first instance, contact [Sheffield University Enterprises Limited \(SUEL\)](#).

Specific guidance for research students on intellectual property is available in the University's '[Code of Practice for Research Degree Programmes](#)'. A copy of the Code can be obtained from the University's Graduate Research Office.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.3 in its entirety.

The Biologies DRC endorses Section 3.3, subject to the following caveat: The language used for writing research records should be English. It may be that a researcher chooses to keep notes in a non-English, native language but if so such notes should be in addition to the English written research records.

3.4 ACCOUNTABILITIES

3.4.1 PRINCIPAL INVESTIGATORS

The Principal Investigator, who may be classed as Sole Investigator on collaborative projects, is responsible and accountable for ensuring that:

- If applicable, the conditions set by the research funder are complied with.
- If applicable, the research project application goes through the [appropriate ethics review procedure](#) and that the conditions set by the ethics reviewers are complied with and upheld.
- If applicable, the proposed research project adheres to the [Department of Health's Research Governance Framework](#) and, if a [clinical trial](#), also with applicable trial-specific regulation.
- The research project staff are aware of the GRP Guidelines and other relevant University rules, policies and guidelines concerning research, relevant guidelines published by scientific and learned societies and other professional bodies, where applicable, and are aware of applicable legal requirements and legislation.
- If the project involves people the 1998 Data Protection Act is not contravened and that the University's Personal Information Policy, which sets out the legal requirements for members of the University who process personal information for any reason, is adhered to at all times by research project staff.
- If the project involves regulated animals, that the project considers at an early stage in the design of any research the opportunities for reduction, replacement and refinement of animal involvement.
- Where animal use is unavoidable that the proper Home Office licences are obtained and the University's internal procedures are carefully followed.
- The terms of any confidentiality and intellectual property rights agreements are complied with and upheld.
- Research evidence is accurate, complete and secure.
- Research results published have been authorised.

3.4.2 SUPERVISORS

[The University's '[Code of Practice for Research Degree Programmes](#)' issued by the Graduate Research Office should be consulted]

The Supervisor is responsible and accountable for:

- The research student(s) to whom s/he is Supervisor:
 - Working with them to establish an effective supervisory relationship, thereby supporting them
 - Advising them in the choice of Research Training Programme units to be studied and ensuring that they have a thorough understanding of them and their benefits as set out in the 'Research Training Programme Handbook for Research Students and Supervisors'
 - Ensuring that they have a clear understanding in general terms of the main aspects of graduate research, the concept of originality, the different kinds of research, the form and structure of the thesis, the necessary standards to be achieved, the importance of planning and time management, and the procedures for monitoring and reporting progress

The Arts and Humanities DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.4 in its entirety.

The Biologies DRC endorses Section 3.4, subject to the following caveat relating to Sub-Section 3.4.2: It should therefore normally not be possible for a student to submit a PhD thesis if the Supervisor judges the thesis to be inappropriate.

3.5 TRAINING AND SUPERVISION

3.5.1 TRAINING

All researchers should, if they have not already done so, undertake appropriate training, for example in research design, regulatory and ethics approvals and consents, equipment use, confidentiality, data management, record keeping, data protection and supervision. Where necessary research staff should make use of appropriate guidance and resources held by and accessible from the [University's Staff Development Unit \(SDU\)](#) and attend one or more of its training courses.

3.5.2 SUPERVISORS AND RESEARCH STUDENTS

[The '[Code of Practice for Research Degree Programmes](#)', which sets out the responsibilities of a Supervisor within the context of a code of conduct and operational framework for supervising research students, and the '[Research Training Programme](#)', both of which are issued by the University's Graduate Research Office, should be consulted]

All research students have at least one Supervisor. Proper supervision of research students is necessary to ensure they conduct research in accordance with GRP. It is the responsibility of Supervisors to supervise all stages of the research process. Where appropriate, Supervisors should, if they have not already done so, seek appropriate guidance and / or undertake appropriate training in supervisory skills. Supervisors should underline the importance to researchers over whom they have supervision of maintaining accurate, contemporary, clear, complete, durable and legible records of research activities and evidence.

The ratio between research students and Supervisors should be small enough to encourage and enable close and frequent interactions concerning all aspects of research undertaken by research students and to ensure that the Supervisor can monitor their research effectively.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.5 in its entirety.

3.6 CALIBRATION, MAINTENANCE AND USE OF EQUIPMENT

Equipment used to generate data should be appropriately located, safe, suitable for the purpose, of appropriate design, and of adequate capacity. It should be calibrated and serviced regularly by trained staff to ensure optimal performance and to strengthen the validity of research results. Accurate and complete research records should be developed, maintained and secured of calibration, servicing, faults, breakdowns and misuse of equipment used to generate data.

Where appropriate, risk assessments complying with the regulations on control of substances hazardous to health should be prepared prior to research work being undertaken. Waste should be disposed of and recorded in accordance with these practices.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.6 in its entirety.

3.7 COLLECTING, RECORDING, STORING, RETAINING, AND ARCHIVING RESEARCH EVIDENCE

Depending on the discipline-specific methodology employed, accurate and complete linear audit trails of research evidence, be it quantitative (i.e. data) or documentary (i.e. reports), in paper and / or electronic format, should be developed, maintained and secured.

3.7.1 COLLECTING AND RECORDING RESEARCH EVIDENCE

3.7.1.1 RAW DATA (QUANTITATIVE RESEARCH EVIDENCE)

Personal data relating to participants should remain anonymous as early as possible after collection, as far as possible, and consistent with the needs of the research. [The ethics fact sheet: '[Principles of Anonymity, Confidentiality and Data Protection](#)' should be consulted]

When raw data are being recorded in handwriting, whether by researchers or participants (research patients, subjects or volunteers), they should be recorded promptly using an indelible instrument, preferably on the day they are obtained, to reduce the risk of error resulting from the poor practice of recording data long after the date on which data has been created. Unless the use of erasable implements, like pencils, is a standard accepted practice and norm in a researcher's particular research discipline, they should not be used when entering data. Written records must be accurate, contemporary, clear, complete, durable and legible. When a researcher is recording data in handwriting the researcher should sign and indicate the date in the written record.

Depending on the nature of the research activity, the Principal Investigator should at regular intervals review the main written record of research evidence associated with the project (e.g. a (laboratory) notebook, file), and countersign and date it to signify that the entered data are accurate and complete. Any queries related to data entered in a (laboratory) notebook or file should be discussed immediately with the researcher who entered the data. Both the Principal Investigator and the researcher concerned should sign any resultant modifications to the recorded data (See Section 3.7.1.5).

The practice of countersigning a project's main written record of research evidence at regular intervals has positive benefits for a project and for the University:

- Assists in the protection of Intellectual Property Rights (See Section 3.3).
- Safeguards researchers and the University from allegations of research misconduct.
- Demonstrates GRP.
- Assures auditors and research funders that robust academic supervision is in place.

Where possible and appropriate, written records of research evidence should be sequentially entered into a bound hard-backed, indexed notebook, in which the pages have been numbered consecutively. Where the nature of data collection precludes the above, then well-kept, ordered and precise files (appropriately and regularly signed off) could prove acceptable.

3.7.1.2 ELECTRONIC DATA (QUANTITATIVE RESEARCH EVIDENCE)

A back up copy of electronic data should be maintained in two separate locations in a format appropriate to the task (e.g. CD-ROM, disc, tape) and the exact location of electronic data recorded on an index document. If possible, when data are recorded electronically, computer and / or instrument printouts should be affixed to the correct notebooks in appropriate order. (See Section 3.7.2.1).

Copies of relevant software, particularly the versions used to process electronic data, should be retained to ensure access, in the short-term, to the electronic data. Further guidance on how to preserve electronic data and ensure continued access in the medium to long-term can be obtained from the University's 'Records Management Service' <http://www.shef.ac.uk/records-management/> a discrete section of Corporate Information and Computing Services (CiCS).

3.7.1.3 MATERIALS / SAMPLES

In this context the term 'material' embraces both quantitative and documentary research evidence to include, for example, autoradiographs, chart recordings, machine print outs, photographs, questionnaires and tapes.

Materials / samples should always be labelled by date and by an identifier number that is cross-referenced to the research project's main written record of research evidence. This cross-referenced identifier number should be recorded clearly in the appropriate main written record, along with other relevant details, preferably on the date that the materials / samples are obtained. Where research evidence and / or results are recorded on audio or videotape (e.g. interviews) the tape housing should be labelled.

Wherever possible, materials / samples should be affixed to the main written record of research evidence. The subsequent removal of affixed materials / samples should be avoided. If it is likely that they will need to be removed at a future date then two copies of the particular material / sample should be made at the time they are generated. If making copies is not practicable, then the reason for removing the original affixed material / sample should be recorded in the appropriate main written record and its exact location recorded on and specified by an index document.

If affixing materials/ samples to the main written record of research evidence is not feasible, due to the size or volume of materials / samples, they should be maintained in a secure location and their exact location recorded on an index document.

3.7.1.4 DOCUMENTARY RESEARCH EVIDENCE [e.g. MINUTES, REPORTS]

Written records should be compiled and maintained on the research methodology and procedures followed, approvals granted, decisions taken and the analysis and interpretation of results, including interim results, to create a transparent, linear audit trail of the research decision-making process.

3.7.1.5 MODIFICATIONS TO RESEARCH EVIDENCE

The pages of the main written record of research evidence should never be removed.

Any modifications that are made at a later date to research evidence should be clearly noted as such in the project's main written record of research evidence (e.g. a (laboratory) notebook or file), the date of the modification stated, and entered note signed by the researcher who made the modification and countersigned by the Principal Investigator. The rationale for the modifications should also be clearly stated, legibly and in full.

3.7.2 STORING RESEARCH EVIDENCE

3.7.2.1 SECURITY

An index document, paper- or electronic-based, showing the exact location of individual research project records (quantitative and documentary) should be maintained and updated.

Original research evidence, both electronic- and / or paper-based, should be securely stored for an appropriate time period (See Section 3.7.3).

If necessary, researchers must be able to retrieve or reproduce lost data. Therefore back up records should be made at regular intervals and kept securely for electronic data stored on a computer. An individual member of the research project staff should be assigned responsibility for this. If possible, for particularly important data a hard copy should be made, stored in a secure location, and cross-referenced to the original.

Both quantitative and documentary research evidence should, wherever possible, be stored in or close to the research location from which they were generated.

3.7.2.2 ACCESS TO DATA

Third parties and researchers, external to but with a relevant interest in a research project, should be permitted access to research evidence prior to the date of publication of results, provided that: all the research project's researchers and collaborators and partners in the research project agree to permit such access, and that this conforms with any conditions set by an ethics reviewers, the 1998 Data Protection Act and any intellectual property agreements.

Consent forms should be kept securely with the research evidence on and / or relating to participants, human data or tissue.

3.7.3 RETAINING RESEARCH EVIDENCE

Publication of research results does not negate the need to retain original records of research evidence generated during the lifetime of the research project.

The parent Department of a research project is responsible for providing the project with adequate facilities and resources and, where appropriate, for retaining the project's original records of research evidence. The responsibility for regulating access to such records, during the lifetime of a research project, lies with the Principal Investigator. Ownership of such records rests with the project's parent Department. University staff and students are not permitted to remove such records when leaving the University unless they have obtained the express permission of their Head of Department in writing.

All supporting evidence for research undertaken, including publications, must be retained securely in a durable form and for a period of time to be determined by the conditions set by the particular research sponsor. Further guidance can be obtained from the University's [Records Management Service](#).

It is recommended good practice that evidence for research based on clinical samples or relating to public health be retained for twenty years.

3.7.4 ARCHIVING RESEARCH EVIDENCE

Following the completion of a research project, the research project's records should be stored in a secure environment that enables continued access to the required records. Further guidance can be obtained from the University's [Records Management Service](#).

The Arts and Humanities DRC, Clinical and Non-Clinical Sciences DRC and Social Sciences DRC endorse Section 3.7 in its entirety.

No specific comments on Section 3.7 were received from the Biologies DRC.

The Engineering and Physical Sciences DRC endorses Section 3.7, subject to the following two caveats:

Sub-Section 3.7.1.1 – Depending on the nature of research, it may not be feasible for a Principal Investigator to countersign and date a project's main written record of research evidence to signify that the entered data are accurate and complete. This may be particularly the case where a Principal Investigator has not conducted the experiment and is therefore not able to verify that the experiment's data are accurate and complete.

Sub-Section 3.7.1.3 – During certain research experiments 'material' is produced and subsequently consumed. In such experiments it is not possible to retain material. However, it should be possible to reconstruct such experiments based on the quantitative and documentary research evidence collected, recorded, stored, retained and archived.

3.8 MAINTAINING AUDIT TRAILS

Research evidence should be maintained and located in a way that permits the appropriate audit processes to be effective. A member of the research project should be assigned responsibility for maintaining the paper- and / or electronic-based audit trails.

A project's documentary research evidence should be able to provide a clear understanding of a research project's development.

The importance of having an accurate and complete audit trail cannot be overstated as it:

- Demonstrates GRP and strengthens the reliability of research evidence.
- Safeguards researchers and the University from allegations of research misconduct.
- Protects Intellectual Property Rights.
- Demonstrates robust practices to internal and external auditors and research funders.

Records should contain sufficient detail to provide clear answers to questions concerning the validity of data or the conduct of research activities. Such questions may arise following the recording of research evidence, and the existence of accurate, contemporary, clear, complete, durable and legible records is invaluable should this occur. Errors detected following the publication of results could be mistaken for research misconduct if a researcher could not subsequently provide valid corroborative research evidence.

In line with the University's Financial Directives and Procedures, records for the current and immediately preceding financial year should be retained in an immediately accessible area so as to be readily available to external and internal auditors. To comply with accounting requirements under the Companies Acts and the requirements of the Inland Revenue and Customs and Excise, financial records shall be retained for the current accounting year and for the six previous years. This requirement relates to all forms of business records including purchase and sales invoices, orders, delivery notes, petty cash vouchers and supporting accounting records, together with the central accounting records held by the Finance Department.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.8 in its entirety.

3.9 MONITORING

Records of research evidence should be monitored at regular intervals to ensure their accuracy and completeness. The progress of a research project towards meeting its research sponsor conditions should be monitored at regular intervals. The Principal Investigator or his / her nominated member of the research project staff should be assigned responsibility for these tasks.

3.9.1 TIMESHEETS

If the completion of timesheets is a mandatory condition of the project's research sponsor then the research project's staff should complete standard timesheets, which provide details of their research activities on a daily basis. If timesheets are mandatory then a research project's Principal Investigator should countersign the timesheets of research project staff at regular intervals. Signed timesheets should be filed together sequentially.

Timesheets should not be completed retrospectively.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.9 in its entirety.

3.10 REVIEWING PROGRESS

There should be regular communication and formal opportunities for communication within a research project to encourage the open exchange of ideas, development of skills, peer review and to review progress.

Regular meetings should take place, at intervals appropriate to the nature and length of the particular research project, between research project staff. Meetings should provide research project staff with the opportunity to present, discuss and scrutinise the progress of research activity. A written summary of the discussions and decisions reached at meetings should be made (e.g. minutes, notes) and the record filed sequentially. The written records of research project staff meetings should be available to all members of the research project.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.10 in its entirety.

3.11 PUBLICATION OF RESEARCH RESULTS

3.11.1 RESPONSIBILITIES

The researcher leading or directing the research project, typically the Principal Investigator, is responsible for authorising the publication of research results. Authorisation should cover both the content of the research paper and the intended place of publication.

Heads of Department / Centres have responsibility for ensuring that staff in their Departments / Centres are not engaged in the publication of research that is not authentic. In practice Principal Investigators are responsible for ensuring this on their behalf.

Research findings that are likely to attract strong public interest should be drawn to the attention of the University's Public Relations Office and the Research Office before publication.

3.11.2 QUESTIONING DATA, INTERIM RESULTS AND OUTCOMES / RESULTS

Researchers should always be prepared to question the data, interim results and outcomes / results of their research. While acknowledging the pressures, especially on time and resources, under which researchers often have to work, it is nonetheless expected that research data and interim results will be methodically checked prior to being made public and that outcomes / results will be methodically checked before being publicised.

3.11.3 AUTHORSHIP AND ACKNOWLEDGEMENTS

Any individual listed as an author on a published research paper should accept responsibility for ensuring that s/he is familiar with the contents of the paper and can identify his / her contribution to it. The practice of honorary authorship, where an individual is named on a research project's publication, even though s/he did not contribute towards the research project or to its publication, is unacceptable.

Where there are two or more co-authors involved it is recommended that one author take responsibility for the scientific accuracy of the entire publication. This senior author should, wherever possible and practical, verify that each co-author has reviewed the publication and is able to confirm that their area of expertise is accurate to the best of their knowledge. Depending on the nature of the discipline, there should be an explicit statement of the respective responsibility of each of the co-authors as regards the content of a publication.

The contributions of formal collaborators and all others who directly assist or indirectly support the research should be properly acknowledged.

Where researchers have relied on the accuracy and credibility of reports of research conducted elsewhere they should indicate this in order to show that they are only responsible for regarding these reports as reliable.

3.11.4 RESEARCH STUDENTS' RESEARCH DEGREE THESES

Prior to submitting a thesis a research student must complete an 'Access to Theses Form' and bind this in the front of it. The form gives a research student the right to request that his / her thesis be withheld from loan, consultation or reproduction for a period of five years, in order to protect the confidentiality of information, or alternatively to agree to make the thesis immediately available for loan or consultation.

3.11.5 MINIMISING THE PERIOD OF DELAY IN PUBLICATION

The publication of research results may need to be delayed for a reasonable period pending the protection of intellectual property arising from research. However, such periods of delay in publication should be kept to a minimum and a written explanation of the reasons for the delay recorded and filed. The publication of results should not be hindered or delayed under the pretext that the results may be unexpected or unwanted.

3.11.6 METHODS

Research results should normally be published as a coherent entity and in an appropriate form, usually as papers in peer-reviewed journals or in other equally reputable publications.

3.11.7 CORRECTION OF ERRORS AND RETRACTION OF PUBLISHED FINDINGS

If an error is discovered that devalues the worth of published findings, the principal author on the research paper should promptly discuss the issue with his / her immediate superior,

with the aim of notifying co-authors and publishing a correction, as soon as possible, explaining the basis of the reservations regarding the published findings. Where published findings are found to be in serious doubt a retraction should be published as soon as possible.

The Arts and Humanities DRC, Biologies DRC, Clinical and Non-Clinical Sciences DRC, Engineering and Physical Sciences DRC and Social Sciences DRC endorse Section 3.11 in its entirety.



UNIVERSITY OF SHEFFIELD GOOD RESEARCH PRACTICE STANDARDS

4. REFERENCE LIST

The GRP Principles and Guidelines were prepared with reference to and based upon guidance documents from other higher education and higher education related institutions.

- (i) International Conference on Harmonisation Guideline on Good Clinical Practice ('ICH-GCP') (www.emea.eu.int/pdfs/human/ich/013595en.pdf)
- (ii) Yale University, USA (1997) '*Guidelines for the responsible conduct of research at Yale University School of Medicine*'
- (iii) Scottish Higher Education Funding Council, Scottish University research policy consortium (1997) – '*University research in Scotland – Developing a policy framework*'
- (iv) The Danish Committee on Scientific Dishonesty, Denmark (March 1998) '*Guidelines for good scientific practice*' (<http://www.forsk.dk/eng/uvvu/index.htm>)
- (v) The Research Councils (December 1998) '*Safeguarding good scientific practice – a joint statement by the Director General of the Research Councils and the Chief Executives of the UK Research Council*'
- (vi) Biotechnology and Biological Sciences Research Council (1998) '*Safeguarding good scientific practice*'
- (vii) Engineering and Physical Sciences Research Council (EPSRC) (February 1999) '*Good practice in scientific and engineering research*'
- (viii) The University of Manchester (October 2000) '*Notes to be read in conjunction with the code of practice for dealing with allegations of misconduct in research*'
- (ix) Office of Research Integrity, US Department of Health and Human Services (December 2000) '*PHS policy on instruction in the responsible conduct of research (RCR)*' (<http://ori.dhhs.gov/html/programs/finalpolicy.asp>)
- (x) Medical Research Council (December 2000) '*Good research practice*'
- (xi) The House of Commons (January 2001) '*The Royal Liverpool Children's inquiry – Summary and recommendations*'
- (xii) Department of Health (May 2001) '*Research governance framework for health and social care*' (<http://www.doh.gov.uk/research/rd3/nhsrandd/researchgovernance/govhome.htm>)
- (xiii) Imperial College (July 2001) '*Guidelines for proper scientific conduct in research*' (http://www.publications.ad.ic.ac.uk/research/app_II.htm)

- (xiv) The Wellcome Trust (January 2002) '*Guidelines on good research practice*' (<http://www.wellcome.ac.uk/en/1/awtvispolgrp.html>)
- (xv) General Medical Council (February 2002) '*Guidance on good practice*' and in particular the section titled '*the role and responsibilities of doctors: Good practice in research*'
- (xvi) Cornell University, USA (2002) '*Ethics in research*' (<http://trochim.human.cornell.edu/kb/ethics.htm>)
- (xvii) The Trent Research Information Access Gateway (2002) '*Ethics*'
- (xviii) Josephson Institute of Ethics, USA (2002) '*The making of an ethical decision*' (<http://www.josephsoninstitute.org/MED/MED-making.htm>)
- (xix) The Online Ethics Centre for Engineering and Science at CASE Western Reserve University, USA (2002) (<http://onlineethics.org/>)