Guidelines on good research practice from the Wellcome trust

The Wellcome Trust expects the researchers it funds to adhere to the highest standards of integrity. To facilitate this it has drawn up these Guidelines on Good Research Practice.

**Integrity**

- Researchers should be honest in respect of their own actions in research and in their responses to the actions of other researchers. This applies to the whole range of research work, including experimental design, generating and analysing data, applying for funding, publishing results, and acknowledging the direct and indirect contribution of colleagues, collaborators and others.
- Plagiarism, deception or the fabrication or falsification of results should be regarded as a serious disciplinary offence.
- Researchers are encouraged to report cases of suspected misconduct and to do so in a responsible and appropriate manner.
- Researchers should declare and manage any real or potential conflicts of interest.

**Openness**

- While recognising the need for scientists to protect their own research interests, the Trust expects the researchers it funds to be as open as possible in discussing their work with other scientists and with the public in order to help foster an informed public climate within which biomedical science can flourish.
- Once results have been published, the Trust expects researchers to make available relevant data and materials to other researchers, on request, provided that this is consistent with any ethics approvals and consents that cover the data and materials and any intellectual property rights in them.
- The Trust recognises that publication of the results of research may need to be delayed for a reasonable period pending protection of intellectual property arising from the research. Any such periods of delay in publication should, however, be kept to a minimum.

**Guidance from professional bodies**

- Where available, the Trust expects researchers to observe the standards of research practice set out in guidelines published by scientific and learned societies, and other relevant professional bodies.
- All researchers should be aware of the legal requirements that regulate their work.

**Leadership and cooperation**

- Heads of institutions and their senior colleagues should ensure that a research climate of mutual cooperation is created in which all members of a research team are encouraged to develop their skills and in which the open exchange of ideas is fostered.

**Supervision**

- Institutions should ensure that they provide an appropriate direction of research and supervision of researchers. Training in supervisory skills should be provided where appropriate.
- A code of responsibilities should be available for supervisors indicating, for example, the frequency of contact, responsibilities regarding scrutiny of primary data, and the broader development needs of research trainees.
- The need should be stressed for supervisors to supervise all stages of the research process, including outlining or drawing up a hypothesis, preparing applications for funding, protocol design, data recording and data analysis.

**Training**

- Institutions should have in place systems that allow students and new researchers to understand and adopt best practice as quickly as possible.
- All researchers should undertake appropriate training, for example in research design, regulatory and ethics approvals and consents, equipment use, confidentiality, data management, record keeping and data protection.
Primary data/samples

- There should be clarity at the outset of the research programme as to the ownership of, where relevant:
  - data and samples used or created in the course of the research
  - the results of the research.
- Researchers should keep clear and accurate records of the procedures followed and the approvals granted during the research process, including records of the interim results obtained as well as of the final research outcomes. This is necessary not only as a means of demonstrating proper research practice, but also in case questions are subsequently asked about either the conduct of the research or the results obtained.
- Data generated in the course of research should be kept securely in paper or electronic format, as appropriate. The Trust considers a minimum of ten years to be an appropriate period, but research based on clinical samples or relating to public health might require longer storage to allow for long-term follow-up to occur.
- Back-up records should always be kept for data stored on a computer.
- Institutions should have guidelines setting out responsibilities and procedures for the storage and disposal of data and samples (including compliance with the requirements of any ethics committee).

Ethical practice

1 Research involving human participants

- Approval is required from an appropriate ethics committee for all Trust-funded research involving human participants or biological samples. Approval should also be sought from other regulatory bodies such as the Human Fertilisation and Embryology Authority or the Gene Therapy Advisory Committee in the UK where necessary.
- Researchers should ensure the confidentiality of personal information relating to the participants in research, and that the research fulfils any legal requirements such as those of the Data Protection Act 1998.

2 Research involving animals

- Research involving animals should have approval through the appropriate ethical review process, and may require Home Office licences for the institution, the investigator and the project.
- Researchers should consider, at an early stage in the design of any research involving animals, the opportunities for reduction, replacement and refinement of animal involvement (the three Rs).

3 Risks of research misuse

- In progressing their scientific investigations, researchers should actively consider any risks that their research will generate outcomes that could be misused for harmful purposes. Where such risks exist, they should seek advice and take active steps to minimise them.
- Institutions should have in place mechanisms to ensure that risks of misuse associated with ongoing research programmes are identified and managed, and to provide advice to the researchers that they employ on these issues.

Publication practice

- Results should be published in an appropriate form, usually as papers in refereed journals.
- Anyone listed as an author on a paper should accept responsibility for ensuring that he/she is familiar with the contents of the paper and can identify his/her contribution to it. The practice of honorary authorship is unacceptable.
- The contributions of formal collaborators and all others who directly assist or indirectly support the research should be properly acknowledged.
- An example of good publication practice can be found in the Committee on Publication Ethics guidelines Good Publication Practice.

Wellcome Trust: www.wellcome.ac.uk