# Benefits of managing and sharing your data

Research Data Management Support Services
UK Data Service
University of Essex

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# Overview

- Introduction to the UK Data Archive

- What is data management?

- Why share research data?

- Research funders and journals

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# UK Data Service

- Curator of the largest collection of digital data in the social sciences and humanities in the UK
- Experience of supporting researchers and data creators of social science data and related disciplines
- We do data sharing for the ESRC Data Policy (since 1995)
- Our best practice approaches to making data shareable are based on:
  - challenges faced by researchers to share data
  - archiving research data – quantitative and qualitative

ukdataservice.ac.uk

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# Data management: everything but analysis

- Organising
    - file naming and formatting
    - data formats and software
    - file transfers, file sharing and remote access
    - version control

- Administering
    - back-ups
    - documentation and metadata
    - access controls
    - security

- Storing and sharing

- Ethical and legal aspects of data handling and data ownership

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# Benefits of good data management

- efficiency – makes your own research easier

- safety – protect valuable data

- quality – better research data = better research

- reputation – enhances research visibility

- compliance – with ethical codes, data protection laws, journal requirements, funder policies

# Benefits of data sharing

To researchers

- increases visibility of scholarly work
- may enhance researchers' reputation
- may increase citations
- archiving provides long-term safe storage for data
- assists in implementing publishers' data access policies
- enable collaborations on related themes and new topics
- establish links to next generation of researchers

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# Benefits of data sharing

## To funders

- make optimal use of publicly funded research
- avoid duplication of data collection
- maximise return on investment

## To the scholarly community

- maintain professional standards of open inquiry
- maximise transparency where appropriate
- quality improvement from verification, replication and trust
- documentation for research design and teaching
- promote innovation through unintended, new uses of data
- develop long time series of data

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# Benefits of data sharing

To research participants

- allow maximum use of their contributed data/information
- minimise data collection on the hard-to-reach (e.g. ill, elites)

To the public

- production of high quality research with social value
- advance science to the benefit of society
- compliance with laws and regulations
- adoption of emerging norms – 'open access' publishing
- to be, and appear to be, open and accountable

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# Research Councils UK - access policy

Research Councils UK Policy on Open Access to Research Outputs (July 2012)

- peer reviewed research papers published in journals that are compliant with Research Council policy on Open Access
- include statement on *how the underlying research materials such as data, samples or models can be accessed*
- for publications submitted for publication from 1 April 2013
- www.rcuk.ac.uk/research/outputs/

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# Research Councils UK -  data policy

### Research Councils UK Common Principles on Data Policy (May 2011)

> *Publicly funded research data are a public good, produced in the public interest, that should be made openly available with as few restrictions as possible in a timely and responsible manner that does not harm intellectual property.*

- in accordance with relevant standards and community best practice

- metadata to make research data discoverable

- legal, ethical, commercial constraints on release of research data

- recognition for collecting & analysing data; limited privileged use

- acknowledge sources of data, intellectual contributions, terms & conditions

- use public funds to support the management and sharing of publicly-funded research data

- www.rcuk.ac.uk/research/datapolicy/

# Research Councils UK - Summary

Research Councils:

- data sharing policy mandating or encouraging data sharing

- data management planning required

- award holders responsible for managing & sharing data, except EPSRC (institutions instead)

- fund data sharing support services and infrastructure

  e.g. UK Data Service (ESRC)

  NERC data centres (NERC)

  MRC Data Support Service (MRC)

  Atlas Petabyte Storage (STFC)

  Archaeology Data Service (AHRC)

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**Overview of UK research funders with data sharing policies and their requirements for data management and sharing plans›**

| Funder | Plan required? | Required at application | Data topics in DMP |
|---|---|---|---|
| Arts and Humanities Research Council (AHRC) | Yes | Technical plan | Standards, preservation, continued access and use |
| Biotechnology and Biological Sciences Research Council (BBSRC) | Yes | Data management and sharing plan | Type, format, standards, sharing methods, restrictions, sharing timeframe |
| Cancer Research UK (CRUK) | Yes | Data sharing plan | Volume, format, standards, metadata, documentation, sharing method, timescale, preservation, restrictions |
| Department for International Development (DFID) | Yes | Access and data management plan | Repositories, limits, timescale, responsibilities, resources, access strategy |
| Engineering and Physical Sciences Research Council (EPSRC) | No | Policy framework at institutional level (from 2015) | |
| Economic and Social Research Council (ESRC) | Yes | Data management plan | Volume, type, quality, archiving plans, difficulties sharing, consent sharing, IPR, responsibilities |
| Medical Research Council (MRC) | Yes | Data management plan | Collection methods, documentation, standards, preservation, curation, security, confidentiality, sharing and access, timescale, responsibilities |
| Natural Environment Research Council (NERC) | Yes | Outline data management plan | Data management procedures, created data |
| Science and Technology Facilities Council (STFC) | Yes | Data management plan | Type, preservation, metadata, value, sharing, timescale, resources needed |
| Wellcome Trust | Yes | Data management and sharing plan | What data, when share, where share, how access, limits, how preserve, what resources |

Digital Curation Centre-http://www.dcc.ac.uk/resources/policy-and-legal/overview-funders-data-policies

# EPSRC Policy Framework on research data

Research organisations receiving EPSRC funding responsible

- publish metadata online, with DOI (digital object identifier)
- maintain data securely for 10 years
- roadmap for compliance May 2012
- institutional policy implemented May 2015
- papers to include statements on access to supporting data
- expectations follow RCUK principles

Influenced by Freedom of Information Act

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# International Funder policies

- Largely based on the [OECD Principles and Guidelines for Access to Research Data from Public Funding](#)

- UK: variety of models
  - Data management plans and recommendation only
  - Dedicated data centres
  - Institutions taking responsibility

- Europe (European Research Council/Horizon 2020)
  - [pilot on open access to research data](#)
  - [data management guidelines](#) for Horizon 2020 (~ policies)
  - [communication & recommendation on access to / preservation of scientific information](#) (publications, data)

- USA data management plans, e.g NSF and NIH

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# Journal / Publisher Data Policies

- Many science journals (Science, Nature, PLOS ONE etc.) have data policies relating to data sharing

  *"PLOS ONE will not consider a study if the conclusions depend solely on the analysis of proprietary data" … "the paper must include an analysis of public data that validates the conclusions so others can reproduce the analysis."*

- e.g. BioMed Central open data statement

- Data underpinning publication accessible
  - upon request from author
  - as supplement with publication
  - in public repository
  - in mandated repository (e.g. PANGAEA – Elsevier)

- Citation via unique DOIs

- JORD project: survey of journal policies

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# Data sharing – a shared responsibility

- Funders: provide policies, mandates and some infrastructure funding (e.g. ESRC support the UK Data Service)

- Funded researchers:  create, manage and use data

- Departments/centres: provide local support and some infrastructure

- Institutions: provide a supporting framework
  - grant-application and funding support
  - research integrity framework
  - IT and data storage facilities
  - Data management guidance and training

- Clarify roles and responsibilities early on

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Home > Use data > Data in use > Case Study

## Case study - research

### Ethnic health inequalities: Are they carried forward across generations?

**Author:** Neil Smith, Queen Mary University of London, in collaboration with Yvonne Kelly, University College London and James Nazroo, University of Manchester

**Date:** 28 February 2013

**Type of case study:** Research

#### About the research

Previous research strongly suggests that ethnic minorities are more likely to suffer a poorer health profile compared to the overall population. Trends have emerged to suggest that certain social factors such as socioeconomic status and health behaviours are not fixed across generations and have a role to play in these health inequalities.

This study draws on the Health Survey for England to investigate the differences in health between the first and second generation immigrants, and determines the extent to which intergenerational changes in socioeconomic status and health behavioural factors might explain variations.

The research findings suggest that strong upward intergenerational socioeconomic mobility did not improve health profiles among ethnic minorities. Health behaviours worsened across generations, although the degree of change was highly specific to each ethnic group studied. Findings showed that both the social and economic contexts and the cultural identities and behaviours of ethnic minorities differ across generations, but ultimately their opposing influences on health result in stable overall patterns of health inequality.

In short, this study illustrates that ethnic minorities in England report consistent rates of fair to poor health across generations, despite the health benefits resulting from upward social mobility. These health inequalities are unaffected by changes in health behaviours. Understanding these intergenerational pathways will have important public health policy implications as immigrant populations not only mature, but also have children of their own.

#### About the data

This research uses data from the Health Survey for England, a series of annual surveys about the health of people living in England. The survey is sponsored by the Department of Health to provide better and more reliable information about various aspects of people's health and to monitor selected health targets.
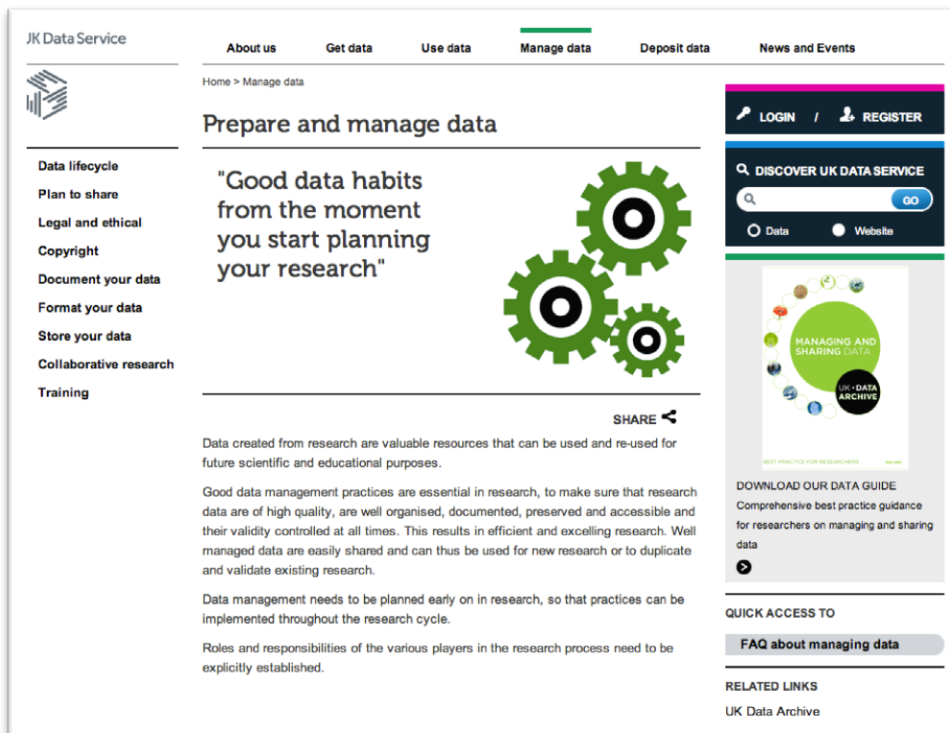
The survey began in 1991 and has been carried out annually since then. A number of core questions are included every year, but the survey also focuses on a particular

- Advice and training
- Guides
- **Data in use**
  - Case studies
  - Publications
- Citing data
- Teaching with data

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# Our managing and sharing data resources

- Online best practice guidance: ukdataservice.ac.uk/manage-data.aspx

- Managing and Sharing Research Data – a Guide to Good Practice: www.uk.sagepub.com/books/9781446267264 (SAGE Publications Ltd)

- Helpdesk for all queries: ukdataservice.ac.uk/help/get-in-touch.aspx

- Training programme

# OTHER RESOURCES

- Research Data Management Training MANTRA (Edinburgh) – online learning units datalib.edina.ac.uk/mantra/

- Digital Curation Centre:

  - Data management planning www.dcc.ac.uk/resources/data-management-plans
  - Data management training / courses www.dcc.ac.uk/training/data-management-courses-and-training

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# Contacts

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