PEER REVIEW OF DATA
one view from population biomedical science

Paul Burton

D2K – Data to Knowledge Program
University of Leicester – Health Sciences
University of Bristol – Social and Community Medicine

“PREPARDE Project” British Library, 24th June 2013
Connecting data review with data management planning

- All research funders should at least require a “data sharing plan” – with appropriate amendments if needed
  - Standard requirement of major biomedical funders
  - Concept bedding in – sometimes treated as an irritating extra, reviewers often unable to properly judge, quality not always enforced

- Research organisations should manage research data according to recognised standards, avoiding need for extra technical review
  - Major players do this already; but most do not and technical review essential (though often inadequate)
  - *e.g.* IJE Cohort Profiles
Connecting data review with data management planning

- Ensure adequate funding is available within an award to encourage good data management practice
  - Time, resources and funding for this are often significantly underestimated by researchers and funders
  - Still seen as an “added extra” rather than a fundamental aspect of good science and research

- Publishers should refuse to publish papers which do not clearly indicate how underlying data can be accessed, when appropriate
  - Open source publication very much encouraged
  - Journals vary widely in extent to which they assess and enforce data sharing plans
Connecting scientific, technical review and curation

- Articles and their underlying data or metadata (by the same or other authors) should be multi-directionally linked, with appropriate management for data versioning
- Journal editors should check data repository ingest policies and provide further technical review of the data where needed
- Identification and response to specific inadequacies
  - All of these issues recognised as being important but we are, in general, at the start of the journey and it is difficult to comment on progress
Connecting data review with article review

- For all articles where the underlying data is being submitted, authors need to provide adequate methods and software/infrastructure information as part of their article.

Need for a clear data peer review process for authors and referees

  • Absolutely critical
  • Current review in biomedical field is usually generalist and typically inadequate – non-experts firmly believe they know
  • Specialist review widely enacted and accepted for “statistics” so is clearly possible
Connecting data review with article review

- Publishers should provide simple and, where appropriate, discipline-specific data review (technical and scientific) checklists as basic guidance for reviewers.
  - Necessary but not sufficient. A checklist cannot convert a non-expert reviewer into someone who can comprehensively comment on an unfamiliar field. Particularly when reviewers are unwilling to acknowledge their lack of knowledge.

- Authors should clearly state the location of the underlying data.

- For data peer review, the data underpinning the publication, and any tools required to view it, should be fully accessible to a referee.

- Repositories need to provide clear terms and conditions for access, and ensure that datasets have permanent and unique identifiers.
  - All of these essential. Gradually improving. Growing recognition of importance of unique identifiers.

  e.g. BRIF, Researcher ID, BioPIN.
Connecting data review with article review

- In my view, *basic* peer review process is badly broken at present. It is no longer fit for purpose, and needs rethinking – data review needs to be *better*
  - Peer review is a critical professional task
  - It needs proper recognition, resourcing, evaluation, rewards and sanctions
  - From a strategic perspective, peer review as it is currently configured is an ineffective, and potentially counterproductive, way to assess the quality of the key steps in progression of a research program or an individual’s career (grants or papers).
  - Problems exacerbated by a clash of international cultures