

Open Data at the CBU

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Medical Research Council, Cognition & Brain Sciences Unit (CBU)

with thanks to CBU Open Science Committee

Practical Steps at CBU

- **Open Science Committee** (since June 2015)

<http://intranet.mrc-cbu.cam.ac.uk/researchpractice/open-science/>

- **Present:**

- Consent Forms
- CBU Data Repository

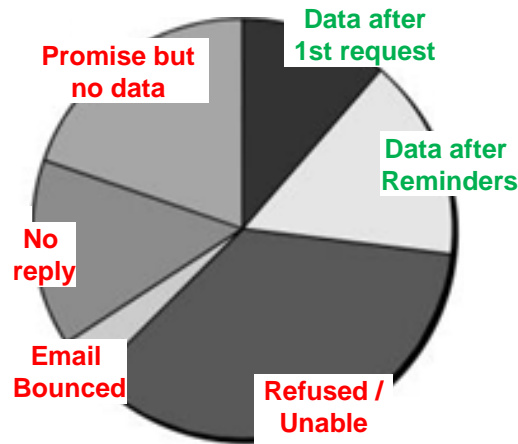
- **Future:**

- Technical Reports?
- Pre-Registration?

Open Data

- Who to maintain?

Importance of DMPs!

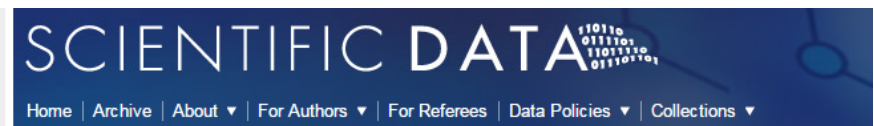


Wichert, Borsboom, Kats & Molenaar (2006). The poor availability of psychological research data for reanalysis. *American Psychologist*, 61(7), 726.

The Open Scoop Challenge

Posted 2014-02-25 by Greg Wilson in Community, Open Science.

- When to make open?
- Incentives for “opening up”



Home > Data Descriptors > Data Descriptor

SCIENTIFIC DATA | DATA DESCRIPTOR OPEN

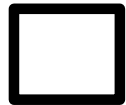


A multi-subject, multi-modal human neuroimaging dataset

Daniel G Wakeman & Richard N Henson

Participant Consent (going forward)

- Default MRI consent forms changed in 2016 from:

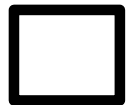


*“I understand that the research data may be accessed by other researchers **approved by the CBU in similar ethically approved studies** but that at all times my personal data will be kept confidential in accordance with data protection guidelines”*

to:



“I understand that my personal data, which link me to the research data, will be kept securely in accordance with data protection guidelines, and only available to the immediate research team.”



*“I understand that the research data, which will be anonymised (not linked to me), may be shared **with others.**”*

Participant Consent (retrospective)

- Retrospective interpretation (CamCAN)

“As discussed, both the University and the MRC have agreed to be pragmatic in our judgement. We have decided that although the wording in the participant information sheets and consent forms is not entirely clear, the underlying intention to disseminate results and share data/results for use in other research is implied hence any risk is very low.”

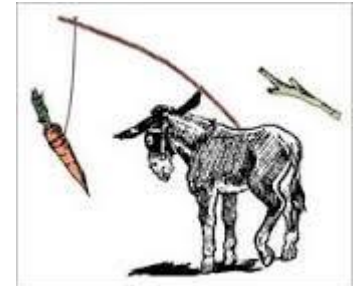
Data Protection Act “research exemption”

Provided data not used for clinical decisions, nor cause harm or distress...

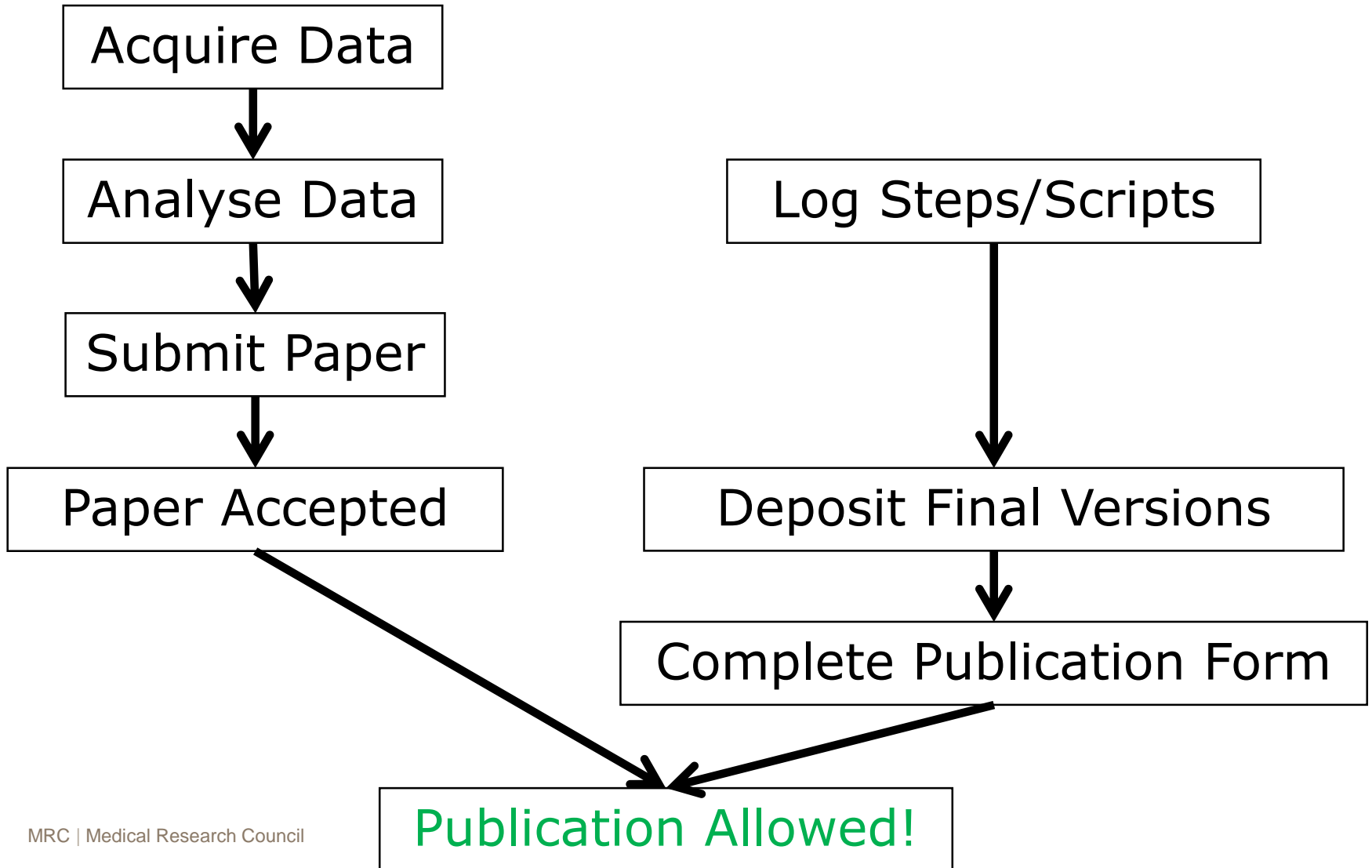
“if the data were collected with research participants understanding ... that their data would be used to address a fairly specific research question, you can re-use the data to address aligned research questions.”

CBU Data Repository

- UMC approved (Sep 2016):
 - From now on, all CBU papers will need their data and scripts deposited in the “CBU Data Repository”
 - Deposit happens at point of paper acceptance, and is checked by Information Officer (Kevin) before publication fees / copyright released (stick)
 - Future internal use of data will be facilitated, eg if postdoc departs (carrot)
 - Information Officer can deal with external requests for data



CBU Data Repository



Publication Form

- <http://intranet.mrc-cbu.cam.ac.uk/library>

Data Repository

- [\\cbsu\data\Repository](#)

Repository Contents

- README.txt
- Raw data if small (eg behavioural)
- Links to raw data if large (eg on /mridata/cbu)

- PID vs non-PID
- Defacing MRIs

Scripts

- Ideally from raw data (eg /mridata/cbu) to figures in paper
- AA - <http://imaging.mrc-cbu.cam.ac.uk/imaging/AA> - useful here...
- Specify versions of software (ideally use of "Docker/Singularity"
<http://biorxiv.org/content/early/2016/10/04/079145.abstract>)
- If cannot script, can be a text "recipe" of what buttons pressed
- Can link to intermediate files (eg in your /imaging space) – though danger that path might be changed by mistake in future

Future: External Access to Data Repository

- Truly Open Access to data?

<http://www.mrc-cbu.cam.ac.uk/publications>

- Requested Access (just example; not real yet):

<http://intranet.mrc-cbu.cam.ac.uk/opendata/pub-7830>

- Managed Access (~90 requests within first week!!!):

<https://camcan-archive.mrc-cbu.cam.ac.uk/dataaccess>



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- **Future:**

- Technical Reports?
- Pre-Registration?

Open Evaluation: An ideal system?



- Continuous evaluation
- Signed, Linked (anon ID) and Unsigned reviews
- Reviewer statistics (when signed/ID)
- Paper summary scores (no binary accept)
- Usage statistics (impact, eg media)
- Pre-registration
- Run by public, trusted, non-profit, organisation (eg MRC?)

“Publish First, Then Filter!”

Future: CBU Technical Reports?

- Second category of publication on our Bibliography
 - Purchase DOIs (<https://www.doi.org>)
 - MRC/government/nonprofit/CBU “stamp of approval” (light review?)
- CBU “cover journal”
 - Use bio-archive (<http://biorxiv.org>) for DOIs, but associate reviews / commentaries / BLOGs / extra information (eg, stimuli) / supplementary (or even later) analyses, etc

Future: CBU Pre-registration?

- Third category of publication on our Bibliography?
- Compulsory (for good science)? Or too Draconian (pilot studies?)
- Not required for every experiment – exploratory science fine – but once a “parameter space” and “analysis pipeline” established, then pre-registration required if seek to replicate and then report to world...?

Next Steps for Open Science?

- Evolution not revolution

- eg Kitemark “nudges”

- Incentives for Sharing

- Open Data papers
- Citeable reviews (CV)
- Citing papers from open sites (“pulls”)
- MRC guidance (“pushes”)...!



Open Data Badge

- A URL, doi, or other permanent path for accessing the data in a public, open-access repository
- Sufficient information for an independent researcher to reproduce the reported results



Open Materials Badge

- A URL, doi, or other permanent path for accessing the materials in a public, open-access repository
- Sufficient information for an independent researcher to reproduce the reported methodology



Preregistration Badge*

- <http://www.rcuk.ac.uk/documents/documents/concordatonopenresearchdata-pdf>

What follows are additional reference slides...

The Problems

Science | Wed Mar 28, 2012 7:09pm BST

In cancer science, many "discoveries" don't hold up

NEW YORK | BY SHARON BEGLEY



53 landmark papers on cancer
47 did not replicate

STANFORD GRADUATE
BUSINESS SCHOOL OF

Education



Discredited "Mozart Effect" Remains Music to American Ears

For a comedian's recent perspective:

<https://www.facebook.com/LastWeekTonight/>

Open Publication

- Open Access
 - <http://biorxiv.org> (preprints)
 - Unit Tech Reports? (<https://www.doi.org>)
- Open Evaluation
 - <https://www.ncbi.nlm.nih.gov/pubmedcommons/>
 - <https://f1000research.com/>
 - <http://journal.frontiersin.org/article/10.3389/fncom.2012.00094/full>

Open Data

- Truly unconstrained
 - <https://openfmri.org/dataset/ds000117> (public repository)

- Constrained (managed) access
 - <https://camcan-archive.mrc-cbu.cam.ac.uk/dataaccess>

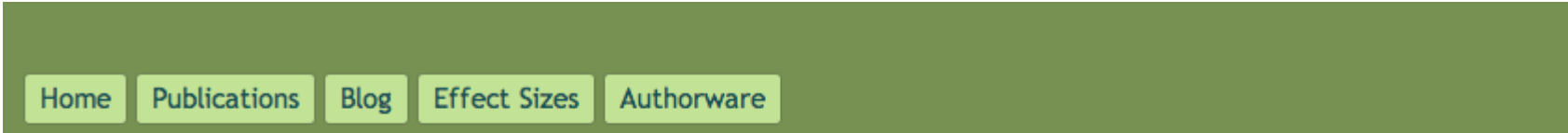
Though not everything should be open...

- Personally-Identifiable Data (PID)
 - (Must already be stored in locked cabinets, or secure directories)
 - Triangulation (“97-year female in Cambridge”, “Rare patient R.H. with selective Habenula lesion”)
 - De-faced MRI
- Data with Intellectual Property (IP) / Commercial Value to MRC

Other Useful Links

- <https://cos.io/> (Center for Open Science)
- <http://www.ncbi.nlm.nih.gov/pubmedcommons/> (PubMed open evaluation)
- <http://www.mrc.ac.uk/research/research-policy-ethics/data-sharing/data-sharing-population-and-patient-studies/> (MRC guidance on data sharing)
- <http://www.mrc.ac.uk/publications/browse/personal-information-in-medical-research/> (NHS guidance)
- <http://www.mrc.ac.uk/research/facilities/mrc-research-data-gateway/>
defunct (now cohort directory) – but centralise or keep at unit level?
- <http://www.data-archive.ac.uk/> (Essex)
- <http://www.ucl.ac.uk/whitehallIII/data-sharing> (MRC example)
- <https://www.ukdataservice.ac.uk/> (Government?)
- <http://www.ddalliance.org/> (Tools)
- http://www.nature.com/nature/journal/v533/n7602_suppl/533S71a.html
(News: Canadian Neuro Centre Opens all data)

Other Related “Buzz”



[Blog](#)

How a Twitter HIBAR ends up as a published letter to the editor

posted Feb 16, 2014, 10:53 PM by Daniel Lakens [updated Feb 17, 2014, 12:05 AM]



Had I Been A Reviewer



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