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Benchmarking and improvement opportunities for data management practices in health research

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BACKGROUND

- Research data represents a complex ecosystem with substantial value to scientific enquiry. The estimated value of data to Australia's public research is $1.9 billion and possibly up to $6 billion per annum [1].
- Researchers and their institutions have a responsibility to ensure that research data is well managed. As such, best practice is imperative to higher academic institutions involved in the development of training programs that support researchers.
- In Australia, this is defined by the Code for the Responsible Conduct of Research [2] which recognises that good Research Data Management (RDM) practice includes ownership, storage and retention, and accessibility to data.
- Therefore, understanding researcher RDM practices will help articulate planning strategies for services and support, and highlight areas for future investment and development.

If data are well organised, documented and preserved, it may be invaluable to advancing scientific inquiry and increasing opportunities for learning and innovation.

OBJECTIVE

- This study sought to examine the RDM practices of health and medical researchers from an academic institution in Australia, and identify gaps in skills, needs and competencies that will assist in designing interventions that promote RDM.

METHOD

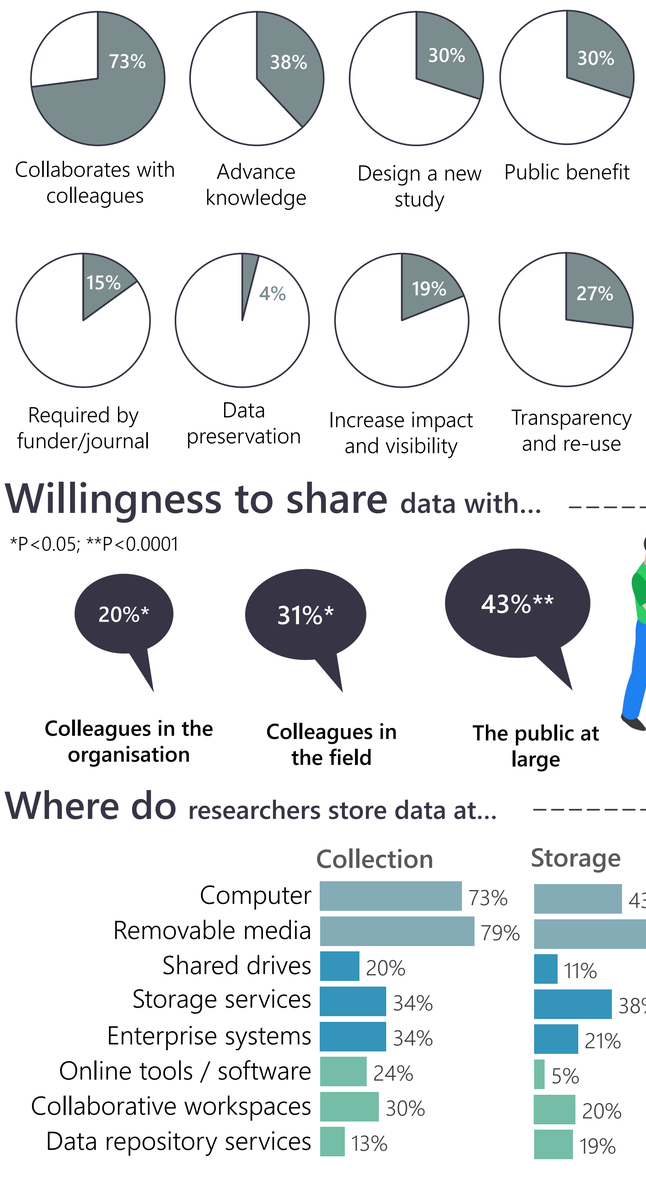
Participants were drawn from a research institute at Griffith University, Australia and invited and invited to complete an online survey about: RDM practices, data storage and retention, data sharing practices and RDM training and development.

Survey Development and Distribution

- A RDM Practices survey was constructed based upon an iterative process between the study investigators, in consultation with research leaders, and a review of the published literature.
- The survey was piloted, and the final version was distributed via LimeSurvey (GmbH, v1.9X, Hamburg Germany).

RESULTS

- A cross-section sample of 81 health and medical researchers, comprising of 68 academic staff and 13 post-graduate students were collected.
- Our evaluation indicates that RDM tasks associated with planning research, data collection, and processing and analysis of data varied greatly and is likely influenced by the level of research experience and RDM tasks practiced within the researcher's immediate team.
- A selection of results are presented below in the research data lifecycle [3].

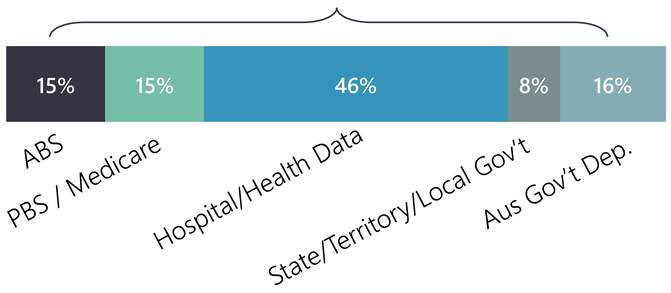


Why do researchers **choose to share their data with others?**

1 in 3 researchers had a DMP

95% "Because it is good practice"

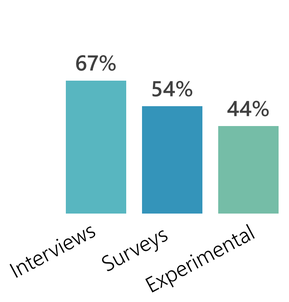
35% of researchers had used existing datasets, accessed databases and/or repositories from...



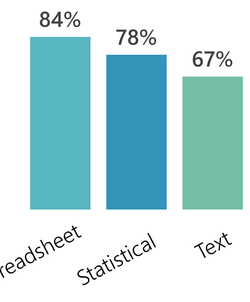
Willingness to share data with...

*P<0.05; **P<0.0001

Top 3 ... Sources of data

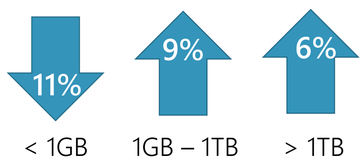


Formats of data



Where do researchers store data at...

Predicted change in the **volume of research data** (+12 months)



Top 3 applications used to analyse/process data

30% **Excel** | 28% **SPSS** | 13% **Prism**

53% **Specific** | 19% **Extended** | 8% **Unspecified**

*according to the NHMRC National Statement of Ethical Conduct in Human Research 2007 (updated May 2015)

CONCLUSION

- Given the growing complexity of data driven research, RDM best practice is of paramount importance to higher academic institutions.
- Evaluating RDM practices as contextualised by tasks associated with the research data lifecycle, is effective in informing RDM services and support.
- Over time targeted RDM strategies will strengthen researcher capacity, instill good research practices, improve digital health skills and research data quality.

References: 1. Houghton, J. & Gruen, N. (2014) *Open research data*. Report to the Australian National Data Service (ANDS), Canberra, November; 2. National Health and Medical Research Council (2018) Australian code for the responsible conduct of research. Available: www.nhmrc.gov.au/about-us/publications/australian-code-responsible-conduct-research-2018; 3. Krahe MA, Toohey J, Wolski M, Scuffham PA and Reilly S (2020). Research data management in practice: Results from a cross-sectional survey of health and medical researchers from an academic institution in Australia. Health Inf Manag 49(2-3): 108-116.

This study was approved by the Griffith University Human Research Ethics Committee (GU/HREC#2017/457)