

# Identifying Barriers and Enablers to Sharing Data Among Researchers: Designing Effective Behaviour Change Interventions

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## INTRODUCTION

It is well accepted that sharing data presents new opportunities across the spectrum of research and is vital towards science that is open; where data is easily accessible, intelligible, reproducible, replicable, and verifiable. Despite this, data sharing among researchers is yet to become common practice. Global efforts are underway to develop practical guidance for implementation of data sharing and open access resources, however evidence-based interventions are currently lacking [1].

The use of a theoretical framework in the design and evaluation of interventions has been increasingly highlighted by implementation researchers [2-5] and for the first time, has been applied to understand data sharing behaviours of health and medical researchers.

In this study we identify the barriers that limit, and the enablers that promote data sharing among researchers, using the theoretical domains framework (TDF) and the COM-B model (capability, opportunity, motivation and behaviour). These outcomes will be used as an evidence-base to inform the design of interventions that promote data sharing among researchers.

## METHOD

Data was drawn from a survey designed to evaluate research data management practices of health and medical researchers [6]. This study employed a cross-sectional, observational design and sampling technique. The main outcome measures for this presentation were derived from questions about researcher's current data sharing practice, willingness and responses to statements designed to explore behavioural aspects of data sharing.

Participants were drawn from a Research Institute at Griffith University, Australia and invited by several internal broadcast emails to complete an online survey. Participation in the study was voluntary and approved by the Human Research Ethics Committee (2017/457) of Griffith University.

## RESULTS

The behaviours, motivation and willingness to share data are described for 81 researchers.

Data mapped onto the TDF and COM-B model identified 10 behavioural themes; four enablers and six barriers. The primary barrier was related to the belief about consequence of data sharing (i.e. reflective motivation), where researchers wanted to protect the confidentiality of their data and were concerned about the ethics of data sharing. The primary enabler was related to the social influence (i.e. social opportunity), where researcher would be more open to data sharing if they knew it had public/patient benefit.

The intervention functions, or 'active ingredients', were identified for each of the 10 behaviours (Table 1). From this table, it is possible to see how one intervention function may serve to influence more than one target behaviour. These intervention functions will be used to design a package of interventions that specifically address the barriers and enablers of data sharing behaviours.

**Table 1.** Behavioural diagnosis of health and medical researchers mapped to intervention functions.

Behavioural Statement	Intervention Function								
	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental Restructuring	Modelling	Enablement
Researchers want to protect the confidentiality of their data and are concerned about the ethical implications of sharing it	✓	✓	✓	✓					
Researchers, who lack an understanding of the data sharing process, are less inclined to share data	✓				✓				✓
Researchers are concerned about their research or IP being stolen, misinterpreted or misused	✓	✓	✓	✓					
Researchers lack the time and resources to prepare their data for sharing						✓	✓		✓
Researchers do not know how to share their data, where to share their data, or who to share it with					✓				✓
Researchers don't know whether it is their responsibility to share data	✓	✓	✓	✓					
Researchers are more willing to share their data if they knew it had public/patient benefit						✓	✓		✓
Researchers are more willing to share their data if they trust the person requesting it	✓	✓	✓	✓					
Researchers are more willing to share their data if they were guaranteed credit for its use and it increased the impact and visibility of their research		✓	✓	✓			✓	✓	✓
Researchers are more likely to share their data if it is a funding, institutional or journal requirement						✓	✓		✓

## CONCLUSION

This study offers a behavioural diagnosis to help us better understand the data sharing practices of health and medical researchers. The results provide a theoretical and evidence-based approach to inform the development of effective interventions to improve data sharing among the broader research community.

## REFERENCES

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