

# WORKING P A P E R

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## Mental Health Retrosight

### Final report on Phase I

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# Executive Summary

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1. This interim report outlines the findings and recommendations of Phase I of a multinational study – Mental Health Retrosight – to investigate the translation and payback from basic, clinical and interventional research into clinical application and community practice. With a particular focus on schizophrenia, the study aims to:
  - Identify the long term payback from mental health research;
  - Explore factors that are associated with the successful translation of research; and
  - Provide insights and policy provocations that will inform future funding policy.
2. Project Retrosight is the signature project of *SOS for Mental Health* – where SOS stands for the Science of Science; a network that convenes funders of mental health research in Canada, the US, the UK and elsewhere, along with mental health scientists, researchers and clinicians, and policy researchers interested in the science of science. The network is developing a ‘living’ portfolio of policy research that will lead to improvements in the effectiveness and efficiency of research funding. The Graham Boeckh Foundation has supported Phase I of Mental Health Retrosight. Phase II of the project, which includes field work, analysis, and reporting, will be supported by a consortium of funders including: the Graham Boeckh Foundation, Canadian Institutes of Health Research’s Institute of Neuroscience, Mental Health and Addiction, Alberta Innovates Health Solutions, the US National Institute of Mental Health, and English National Institute of Health Research. This report is primarily intended for these sponsors and the project advisory group.
3. As noted in our original proposal<sup>1</sup>, there is a perception that over the past 25 years there have been relatively few improvements in the care of schizophrenia patients, despite substantial research investments in both basic and applied research. For this

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<sup>1</sup> Translating mental health research from bench-to-bedside: what works and what doesn’t (2008)

reason we examine research translation from two perspectives. The first involves prospectively tracking the impacts of research undertaken in the mid-1980s to the present day. The second involves retrospectively mapping the antecedents of today's treatment advances

4. The Retrosight approach involves developing case studies around research that has (or has not) translated from bench to bedside. The case studies are carefully selected to enhance generalisability, and are developed in-depth through a range of methods including key informant interviews, document and literature reviews, historiographic analysis and bibliometrics. Once the field work has been completed, the forward-tracing case studies are systematically compared to differentiate between those that are high impact and those that are not. For clarity and succinctness we will refer to these as high and low impact case studies throughout this report, although the methods we use to characterise impact all rely on either proxies of impact or expert opinion. Case studies are then qualitatively coded to identify factors that are associated with high impact, before these factors are tested against analysis of the backward-tracing case studies. Finally, observations emerging from the analysis are developed into policy provocations for research funders.
5. Phase I of Mental Health Retrosight had two aims:
  - To identify candidates for case studies
  - To test the feasibility of the Retrosight approach in the field of mental health research

These two main aims encompassed a series of subtasks:

- Working out the appropriate balance of forward and backward-tracing case studies
- Developing a selection framework for forward and backward-tracing case studies
- Drawing up a shortlist of candidate cases
- Testing the feasibility of the case study approach by carrying out both forward and backward-tracing case studies.

### **Balance of case studies**

6. An important issue that we had to resolve was the balance between the forward and backward-tracing case studies. It should be noted that there is no 'right answer' for this but we recommend undertaking 18 forward-tracing studies and four backward-tracing

ones. The 18 occurs as it needs to be a multiple of three (to ensure equal balance across the three countries). The four backward-tracing reflect the number of clearly definable topics identified across a range of treatment types.

**Selection of forward-tracing case studies and short list of candidate cases**

7. We explored a number of different approaches to identify forward-tracing case studies. We settled on a bibliometric approach which was based on identifying ‘hot research topics’ in the mid/late 1980s. By identifying these we aimed to select research which the scientific community gave some mark of importance to at the time. We identified highly cited research papers (HCPs) that were published between 1985 and 1990 in the three project countries. The HCPs help us identify a body of work – or a research cloud – that forms the unit of analysis for the case studies. The challenge, however, was to ensure that the papers were potentially relevant to schizophrenia (i.e. in scope) and to allocate papers appropriately to different types of research. This latter point is important as we know that different research types (eg. basic research versus applied research) have very different citation patterns; thus without controlling for research type we would bias our case study selection.
  
8. We addressed the issue of scope by combining pre-existing journal sets for neuroscience and mental health and adding other journals and papers based on keywords as indexed under MESH headings. This resulted in a database of c250k papers. These papers were then reduced in number through a series of filters – based on, for example, citation percentiles, keywords, country of corresponding author. The mid-list of papers was reviewed to ensure that they were in scope and to allocate them to various research types. From this process we identified a short list of 203 highly cited papers, distributed across the below matrix:

		Canada	UK	US
<b>Basic</b>		2	6	8
<b>Clinical</b>		10	27	116
<b>Interventional</b>	<b>Biological</b>	1	2	23
	<b>Psychosocial</b>	0	1	4
	<b>Health services/service delivery</b>	0	1	2

**Table 1. Forward-tracing case study selection matrix**

9. The first task of Phase II will be to collate the 203 papers and, working with the project advisory group, decide on the final selection of papers/case studies. This will involve some subjective judgement as we will wish to ensure that we have a suitable variety of scientific topics to focus on.

#### **Selection of backward-tracing case studies and short list of candidate cases**

10. The aim of the proposed backward-tracing case studies will be to explore how treatment advances have come about and the research and other factors that facilitated or hindered their development; therefore we wish to identify a list of interventions that were considered to be among the most significant. We used two approaches to identify our proposed list of four case studies. The first was a Delphi-like survey to gauge opinion from participants and others at the May 2010 *SOS Workshop*, hosted by the Graham Boeckh Foundation. The second was a review of clinical guidelines published in Canada, the UK and the US. The meshing of these two data sources results in the provisional selection of the following case studies:

- Cognitive behavioural therapy
- Early intervention
- One community-based psychosocial intervention
- Antipsychotic drugs

It should be noted that we anticipate the workload across these four case studies to be asymmetric. That is, we will need to spend more time and effort on the antipsychotic drugs case study (as a particularly broad topic, we anticipate this taking the equivalent effort of three ‘standard’ case studies), and less time on CBT and early intervention (which were part of our pilot).

11. We will work with the project advisory group at the start of Phase II to finalise the selection.

#### **Pilot case studies**

12. As summarised in Table 2, we undertook four pilot case studies (two forward and two backward) to test:

- Whether the case study approach and payback model could be applied in the mental health research arena. This included determining an appropriate unit of analysis.
- How best to structure and present backward-tracing case studies
- Some aspects of the case study selection process

Type	Case Study	Reasons for selection
Forward-tracing	Kilpatrick: Identification of type 3 serotonin receptors in the brain	To test if we could carry out case studies on industry research To test use of 'research cloud' To test recall of PIs for research published 20-25 years ago
	Richardson: Identification of a growth factor for glial cells	To test tracking of very basic research To test use of 'research cloud' To test recall of PIs for research published 20-25 years ago
Backward-tracing	Cognitive behavioural therapy	To test method of backward-tracing case studies
	Early intervention	To test where a less well defined intervention could be examined through case study

**Table 2. Pilot case studies**

13. Both forward and backward-tracing case studies proved tractable. Key lessons were:

- The two forward-tracing case studies demonstrated that it is feasible to define 'research clouds', and in these two cases it was relatively easy to do so.
- The Kilpatrick case demonstrated the feasibility of carrying out case studies on research that was carried out in industry.
- In the full study we need to add more quantitative measures, such as bibliometric tracing and network analysis to the cases.
- Initially the Early Intervention case study proved challenging because of the variety of alternative definitions, but this was resolved through interviews with a number of experts in the field. Showing the importance of the exploratory stage in defining the strands that are considered part of any intervention.
- The key challenge is likely to be driving the backward-tracing case studies back far enough to get at details of the funding and decisions that were made around the research. The, more complete, CBT case study manages this in some instances, but we would work to add more depth in this area in Phase II case studies.
- In line with our expectations the backward-tracing case studies proved to be slightly more resource intensive than the forward-tracing ones, however, they were not drastically more so.