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From Data to Impact Narrative

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June 2018

What is Researchfish?

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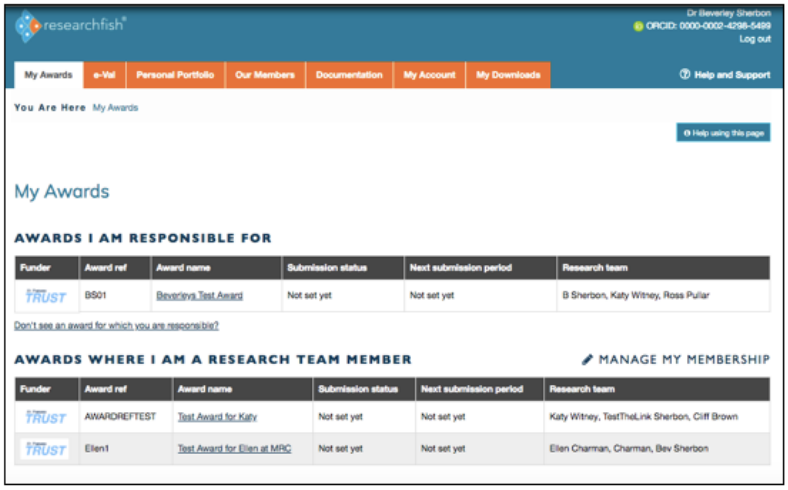
Researchfish is an online system that collects information on the outputs, outcomes and impact of research.



- usability
- simplicity
- openness

Governed by: funders, research orgs & all users

Researchfish is an online system that collects information on the outputs, outcomes and impact of research.
The platform is build with usability, simplicity and openness in mind.
It is governed by the funders and research organisations that subscribe to using the platform, and PI's are involved wherever possible via feedback, focus groups for specific new developments etc.

Basic principles

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- Standard outcome types & questions
- Organisations can add others if needed
- 'Harvest' information where possible

- Dropdowns & check boxes where possible
- Narrative kept to a minimum
- Publication look ups – pubmed, web of science, ISBN, Inspire, CrossRef/DOI

There are some basic principles behind the Researchfish platform…there are standard outcome types, which are used to collect data against all awards in the platform, but organisations can add extra ones if they need to. We aim to harvest information from available sources where possible, but where researchers enter the information it is done with drop downs and check boxes for ease of data entry and clean data. Narrative is kept to a minimum and there are various look up tools for publications.

Standard outcomes types

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Common Outcomes	
Publications	Intellectual Property & Licensing
Collaborations	Medical Products, Interventions and Clinical Trials
Further Funding	Artistic & Creative Products
Next Destination	Software & Technical Products
Engagement Activities	Spin Outs
Influence on Policy	Awards and Recognition
Research Tools & Methods	Other Outputs & Knowledge
Research Databases & Models	Use of Facilities & Resources

The 15 standard outcomes that the system collects information on, there is a subset of 'types' within each. Plus of course there is 'other' which we are finding is used less and less as the rest of the question set matures. The question set is constantly reviewed, with any changes being thoroughly assessed and agreed by all stakeholders.

We connect in to a large number of data sets – either for look ups (WoS, crossref, european patent office), to harvest information from (800 or so repositories through open-air), to provided added value data to users (F1000/altmetric) or to push data back to (pubmed).

Use of the information

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1. Communicate the benefits of funding (advocacy/accountability)

2. Strategy/policy development (accountability/allocation)

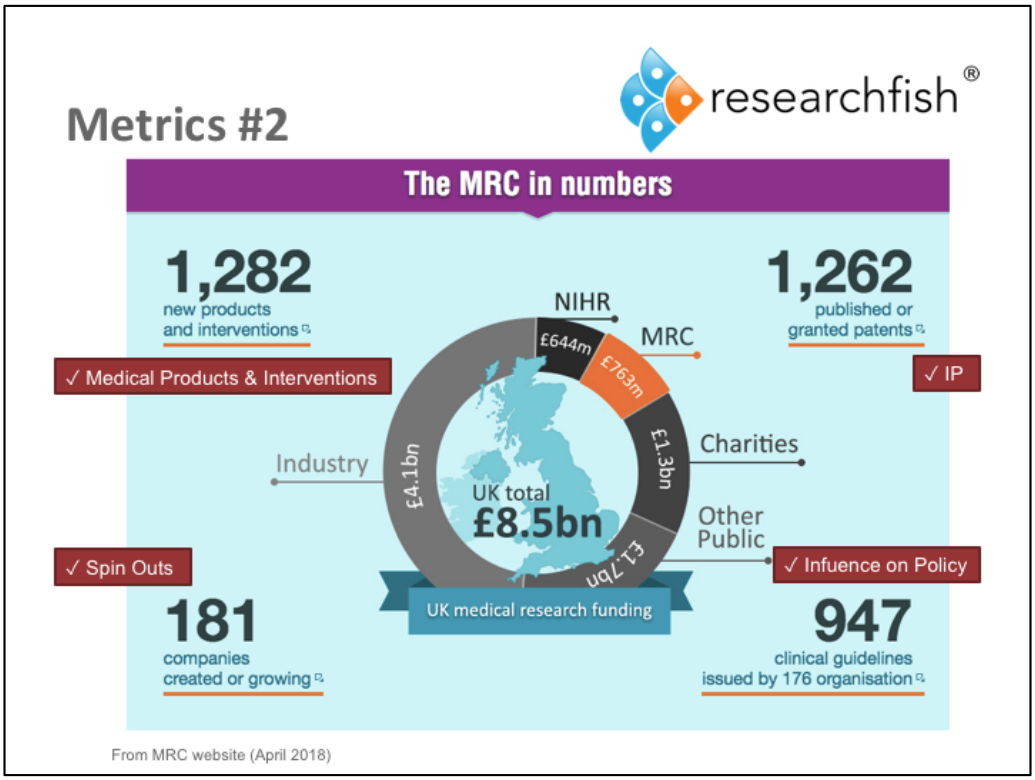
3. Understand better how research leads to impact (analysis)

Both quantitative & qualitative

- metrics/counts
- short narratives
- full case studies

So, once we've got all of this lovely data, what to stakeholders use it for – generally to show the benefits of the funding/research through performance reporting to governing bodies (government, REF etc) and general comms. Its important to remember though that the data is not just for metrics, it also provides the basis for putting together narratives to describe impact.

Examples of metrics – this is from alberta innovates (Canadian government funder) annual impact report, you can see needed to show some high level stats on health improvements and also influence on the economy – the red shows which came from their Researchfish data.



This info graphic is a high level look at UK medical research funding and taken from the MRC website, the information in the 4 corners is from Researchfish data (see red bars indicating which part of the question set). All research councils (UKRI) are expected to report annually against a set of agreed standard metrics, many of which can come directly from their researchfish data.

Examples of narratives: Brief Impacts

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Case Study 4:
Public engagement with the press

Dr Round published part of his work in the journal *Palliative Medicine* in 2015. He also worked with the Marie Curie public relations team to produce a press release, which received significant media coverage. The story appeared in 29 national and regional newspapers.

Commenting on the findings, Dr Round was struck by the limited availability of data on the health and social care needs of people as they near the end of life. This highlights the need for good data to inform policy and practice.

Dr Jeff Round undertook his PhD at the Marie Curie Palliative Care Research Department, University College London focusing on the economics of care for people at the end of their life. Dr Round investigated the cost of providing care to people with lung, breast, colorectal and prostate cancers, using a modelling-based approach to calculate the costs of caring to the NHS and society. It is the first study of its kind to consider the costs of unpaid carers. The findings of his research showed significant costs to society, with a high proportion being borne by unpaid carers.

He said: "Without good data it becomes hard for everyone to plan services in a way that meets the needs of both those who are dying and those who provide such valuable unpaid care."

The study received further acclaim, with Dr Round being awarded Research Paper of the Year in the journal *Palliative Medicine* (pictured), in recognition of the contribution of his research to the field. His study was selected from all papers published in the journal's print editions in 2015. Dr Round is now a lecturer in Health Economics at the University of Bristol.

- ✓ Databases & Models
- ✓ Publications
- ✓ Engagement Activities
- ✓ Award & Recognition

Ref: The Marie Curie 2016 Impact Report

This is a short impact story from a report by Marie Curie. Its about Jeff Round, who did his phd on end of life care – he struggled to get the data he needed so had to collate the data himself, which has subsequently been shared. His work was published in the Palliative Medicine Journal, and also received significant press coverage. All of these individual activities were reported in Researchfish, and put together to form the case study.

Examples of narratives: Impact Case Studies

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Antimicrobial resistance

Bacteria-eating viruses

AMR BBSRC EPSRC MRC

✓ Publications

✓ Research Materials

✓ Collab & Partnerships

✓ Further Funding

Image: Bacteriophage.
Credit: BlueSci. Cambridge Uni

With the ever-growing threat of antimicrobial resistance, there is a critical need for alternatives to antibiotics. MRC-funded researchers at the University of Leicester are pursuing one such route. A team led by Dr Martha Clokie has isolated bacteriophages — viruses that 'eat' bacteria — targeting the hospital superbug *Clostridium difficile* or *C. difficile*.

Bacteriophages were discovered and used as a therapy for bacterial infections almost 100 years ago, long before the development of antibiotics. Dr Frederick Twort, a British bacteriologist and later recipient of MRC funding, is credited with their initial discovery in 1915. French-Canadian scientist Felix d'Herelle later developed them to treat infections following his independent discovery of them in 1917.

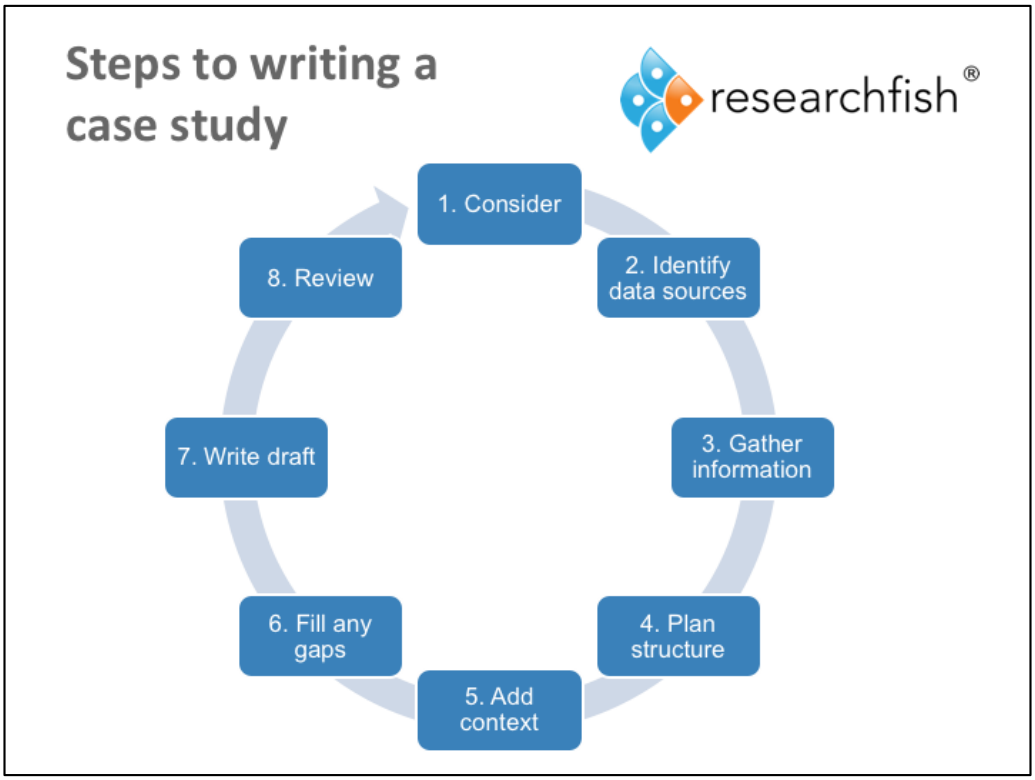
To date however, they are not in widespread use. Although phages did reach commercial production in the 1940s, and have been used to treat several bacterial infections, treatment does not produce consistent results. In the pre-antibiotic area, many aspects of phage biology were not well understood. Doses of phages often did not contain enough viable viruses to be effective, and viruses were used that did not kill the intended bacteria[1]. There were also problems with the production of a stable contaminant-free phage stock. Perhaps the greatest barrier to phage acceptance in the west was the inadequate scientific methods used by researchers, such as the exclusion of placebos in trials[2]. With the advent of the antibiotic dawn, phage research and production were all but shelved, with the exception of Eastern Europe and the former Soviet Union where they continue to be used therapeutically.

Renewed interest

Now the threat of widespread antimicrobial resistance has sparked a renewed interest in phages. Dr Clokie has been studying phages for 14 years. She says, "As their natural enemy, phages specifically target and kill bacteria. They encode a diverse set of gene products that can potentially be exploited as novel antimicrobials. They have the advantage over antibiotics of being much more specific and, as they can self-replicate at the site of an infection, they are able to clear infections that antibiotics can't reach." Over the past few years, Dr Clokie has isolated and characterised 40 different phages that infect *C. difficile* — the largest known set of these phages. Of these, she has developed a specific mixture that has proved to be effective against 90 per cent of the most clinically relevant *C. difficile* strains seen in the UK. The US pharmaceutical company AmpliPhi are funding the further development of these phages, with the aim of testing them in Phase I and Phase II trials. This will involve optimising phage preparations for maximum effectiveness against *C. difficile* infections and establishing production, storage and delivery systems for the phage mixture. Dr Clokie will evaluate the effectiveness of the therapy and dosing regimes in collaboration with Dr Gill Douce at the University of Glasgow.

Ref: Medical Research Council outputs, outcomes & impacts report, 2015/16

This is a case study taken from the MRC outputs, outcomes and impacts report from a couple of years ago. The research was funded by multiple funders but the story was initially uncovered by MRC through their researchfish data, and they then collaborated with the other funders to produce the case study. It highlights work by Dr Clokie and her team into the use of bacteriophages to treat bacterial infections, as with the marked increased in antimicrobial resistance alternative methods to treatment are key.



There are may ways to put a case study, and these slides will explain just one of those methods, but this is tried and tested by myself and members of my teams for many years. It can be broken down into 8 basic steps as shown in the diagram, we'll now look them in turn.

Considerations before you start

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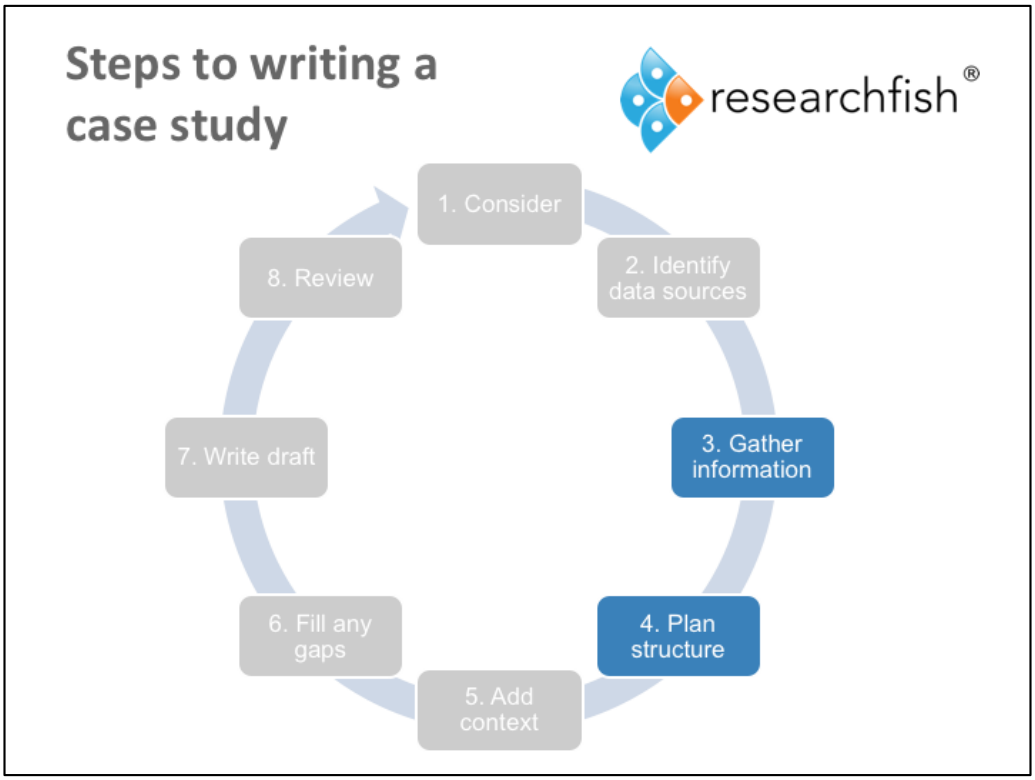
Audience: Who? What are they interested in?

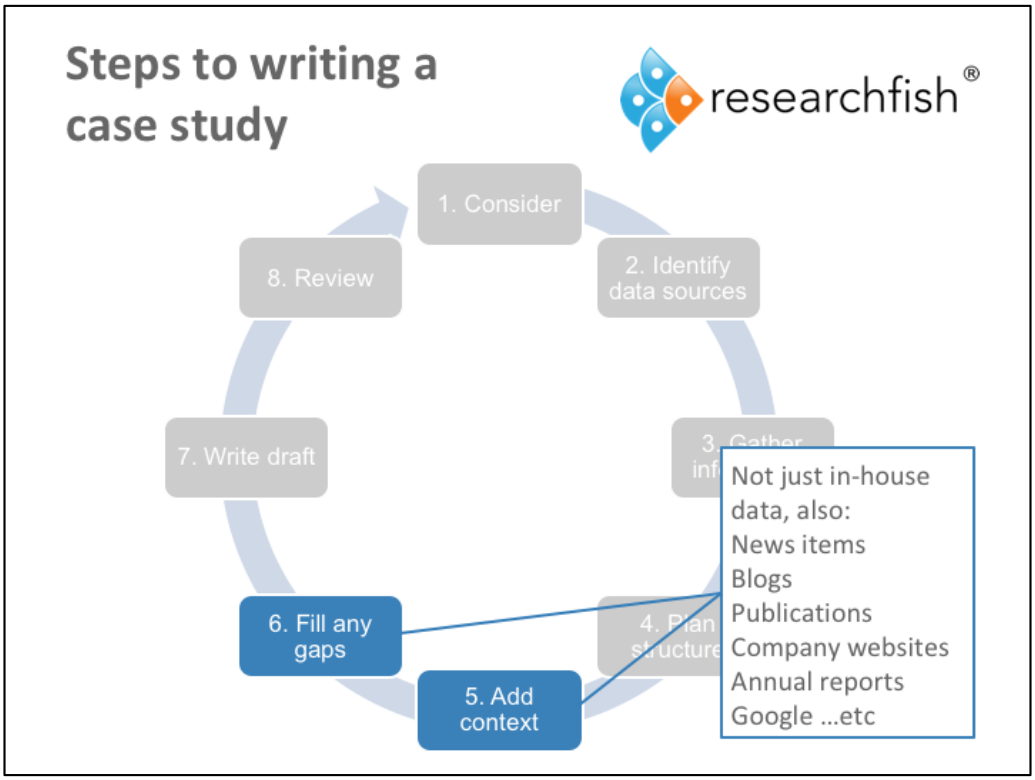
Strategic areas/priorities: What are the research priorities of your organisation?

Particular researchers: to concentrate on, or to avoid?

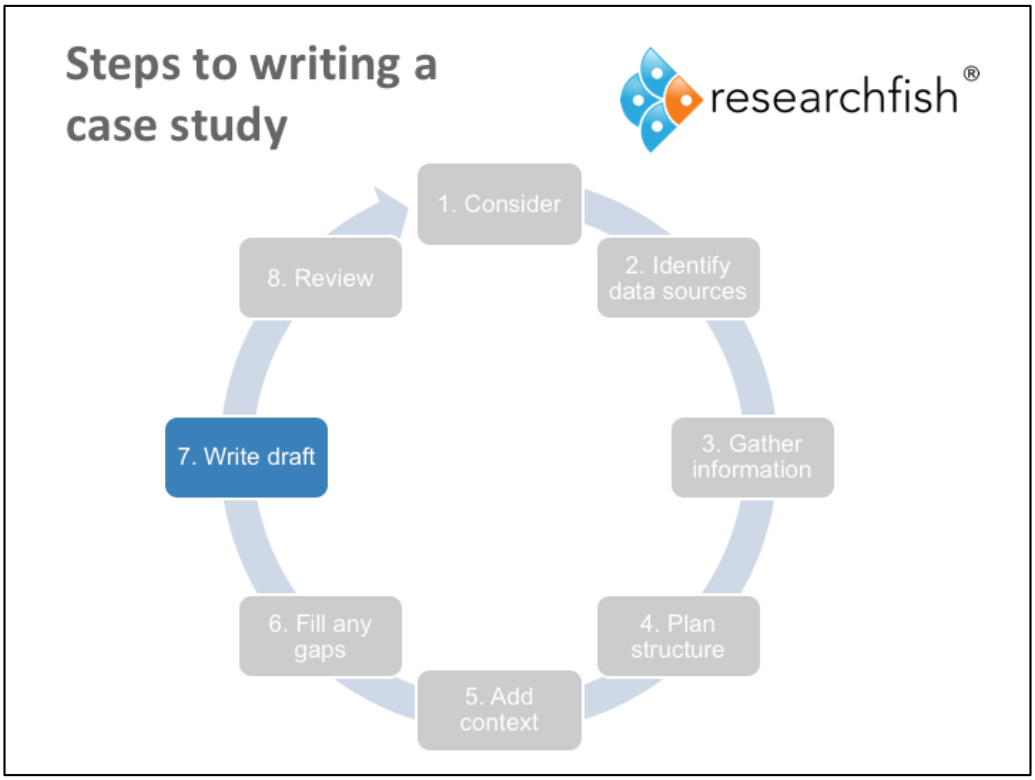
Types/strength of impact: policy, health, economic, societal vs research impact etc



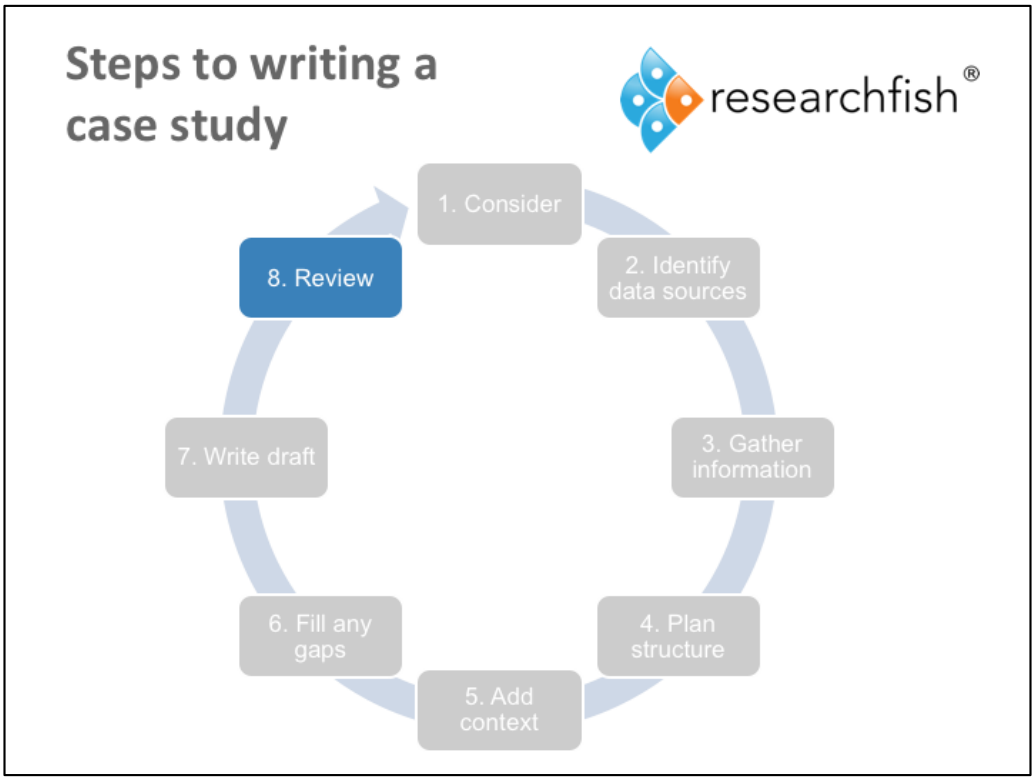
Start to gather the information together, and as you do you can begin to piece together the story to give the case study a structure. Personally I either use mind maps to do this or good old fashioned post-its, as then its easy to move them around as you add further information, and piece build the story.



Think carefully about any background so you can set the scene and give the necessary context, and as the story starts to unfold be wary of any gaps, and also of anywhere you might want to back up what you're saying with some evidence. There are lots of other sources of information on the internet that might also be useful.



Put your first draft together, if you're unsure about it then get a rough draft looked at by some colleagues before you spend too much time on it.



In my experience its also really good to go back to the researcher or researchers whose work you're writing about, generally they're really pleased to know the information they've provided is being used, and that an interest is being show in their research.

Summary of things to remember:

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Put the story into context - background to disease area, what the problem is, numbers affected, cost/savings to economy.

Link up different output types by reviewing what the researcher/team/uni/disease area has reported in other output types.

Contact the researcher directly – they're generally happy to have a discussion about their research.

Context, look across the different outcome types that you have data on and link them up, speak to the researchers.

Lots of examples on the internet to give you some ideas – these are a few of the reports on the researchfish website, but of course you can also look at all of the case studies submitted to the last REF.

Questions?

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