How to run a NITCAR Project

Since its inception in 2014, the National Infection Trainees Collaborative for Audit and Research (NITCAR) has overseen more than 7 large-scale national projects across several infection-related disciplines. Outputs have included publications in high-impact journals and presentations at national and international conferences such as the Federation of Infection Societies (FIS) and the European Congress of Clinical Microbiology and Infectious Diseases (ECCMID).

These projects are undertaken by infection trainees, often with little research background. Projects are typically run by a trainee from a single centre, who coordinates and manages responses from collaborator sites across the country (each with a local project lead). NITCAR provides a network of clinician and medical student infection enthusiasts who can assist with projects – supporting the process from proposal through to publication. This support can take many forms such as; using its extensive network to find collaborators, publicising the work at BIA trainees' meetings (with which it is affiliated), IT support (with dedicated project webpages and email addresses), dedicated statistical support with a HIS appointed statistician and a monthly meeting with the committee to troubleshoot problems.

We have talked to 5 trainees who are in various stages of a NITCAR project, to get their tops tips for anyone considering embarking on this journey:

Dr Shadia Ahmed – CABI project (clinical management of **C**omplicated intra-**Ab**dominal **I**nfection in United Kingdom hospitals). This study was run across 31 hospital sites; enrolling 417 patients; with findings published in the British Journal of Surgery.

Dr Amanda Fitzgerald – NAME Project (**N**ational **A**udit of the Management of **E**ncephalitis). Currently recruiting

Dr Raqib Huq – GPM Project (**G**entamicin **P**rescribing and **M**onitoring multi-centre audit and service evaluation). Currently recruiting

Dr Damien Mawer – HOODINI (**HO**spital **O**nset **D**iarrhoea **IN**vest**I**gation). Ran a study across 32 hospital sites; involving over 4890 patients; with findings published in the Journal of Hospital Infection.

Dr Fiona McGill – NAMM Project (**N**ational **A**udit of the Management of **M**eningitis). Ran an Audit across 64 hospital sites involving 1472 patients

Getting the idea for a NITCAR Project

"Ideas are easy. It's the execution of ideas that really separates the sheep from the goats."
— Sue Grafton

For some, the idea starts from a small-scale project undertaken locally. Current core infection curriculum guidelines require all trainees to undertake audit, service evaluation or quality improvement projects. This focus is set to remain with the introduction of the new curriculum in August 2021. It is not uncommon for a local project to lead to more widespread investigation, as trainees ask the question 'I wonder if this is how things are done elsewhere'. For others, inspiration was found within their own areas of practice or research.

However, not all small-scale studies are reasonable or worthwhile to upscale. Consultants or research leads in your department may provide a useful view on the types of projects that could fruitfully be upscaled. It is especially important to find a mentor early, as writing a first proposal takes considerable time and effort, and the support of a senior colleague who knows your personal circumstance is a great help. For Dr Huq, a piece of counsel that stuck with him was 'The success of any intervention depends on the internal condition of the person undertaking it'. There are many demands on your time as a trainee, Key things to think about include:

- Is this the right project at the right time? Projects typically take a minimum of 2 years from start to the end of data collection, with drafting of manuscripts and finalising outputs taking longer still. Therefore, it is imperative that your topic is one you are passionate about. Think of how running a project will fit into your own timelines in training. It's a marathon not a sprint!

- Who will be my immediate supervisor? Although research experience and prestige may be attractive in choosing a supervisor, will they have the time to support you? It is better to find someone you can have a consistent relationship with, who is as passionate about your project and most importantly, will have the time to help.

- Can I get dedicated time? For the most part these projects are run in time allocated to a trainee's Continuous Profession Development (CPD). However, it has been possible for some trainees to negotiate protected time for their projects (it is always worth liaising with your Training Programme Director).

- Do I need a co-lead? This may be useful if you plan to take time away from the project (perhaps due to exams or parental leave).

Writing a NITCAR Project proposal

Once you have an idea, the next step is to work on a proposal. Proposals are typically heard and voted on by the NITCAR committee at the annual NITCAR Meeting (which usually coincides with the BIA Spring Meeting. However, submissions are accepted all year round. You do not need a finalised proposal in order to get a project accepted. However, it is good to have a rough idea of what it might look like and this can be refined later as the project matures.

Most project leads spoke to had used the outline of a previous project proposal on which to base their own.

> TOP TIP Previous project protocols and proposals are available on the NITCAR website. Take a look to provide inspiration for structure

A project protocol is an extension of the proposal and is key to any project. A robust protocol will ensure a study sticks to its aims, acts as a blueprint of how things should be done and will ensure standardisation across study sites. This is an essential document to get right, and it may take several iterations to perfect.

Feedback is key but it is important to not fall into the "Goldilocks dilemma". Asking too few people for opinions may lead to things being missed down the line. Conversely too many inputs and

suggestions can be overwhelming and unworkable. For Dr Huq he found getting opinions from a few select sources helped him strike the right balance. He chose people from his local hospital (who could give objective advice on timelines and workability), a clinical expert in the field (in his case a professor in therapeutic drug monitoring) and members of the NITCAR committee who had previously been involved with NITCAR projects

<u>Manage your Data</u>

"You can have data without information, but you cannot have information without data"

— Daniel Keys Moran

The study protocol should include a comprehensive plan on what data you plan to collect and what you intend to do with it. Collecting the right amount of data to answer your question(s) is crucial: too little data and you will not be able to answer your question meaningfully; too much and your project may risk being inefficient and unnecessarily complicated. For Dr McGill, working on a national audit, it was key that every piece of data collected pertained to an audit standard. Although it is tempting to collect more data 'just for interest' it is important to stay focused on the fundamental question(s) you are trying to answer.

Think about your collaborators and how straightforward it will be to collect the data. This may vary by hospital trusts (i.e., paper versus electronic notes systems). Also be mindful that some data (i.e., timing of antibiotics delivery) may differ in its accuracy across trusts.

Given you might be dealing with hundreds to thousands of data points, spending effort getting the data collection tool as slick as possible can save time and effort in the long run. Try and make data entry fields as unambiguous as possible and avoid free text if possible. Think of the pros and cons of various data entry tools. Excel is a popular way to manage large data sets with features such as data locking to help with clean data entry, but, it can be cumbersome when trying to amalgamate multiple responses. Online data entry tools such as REDCAP or Open Clinica can be an accessible way to collate data entry from multiple sites simultaneously but ensure your hospital IT team will be willing to install it on your work computer and provide IT support for troubleshooting.

Be aware of data governance issues and how to securely store the data. Ensure your project has been approved by your local Caldicott guardian. Bear in mind some responsibility for data governance will lie with the project lead at each site and, although you can act in an advisory capacity, it is up to each local project lead to ensure that data governance issues are addressed at their individual site. For the case of service evaluation and audit, it is the responsibility of the local lead to ensure the project is appropriately registered with their local Clinical Effectiveness Unit (CEU) or similar.

"A stitch in time saves nine"

— Proverb

Clean your data as soon as possible from receiving it so that it is fresh in the minds of yourselves and the collaborator. Several months down the line, your collaborator may have moved trusts making them that much harder to contact and potentially harder for your collaborator to accurately review any queries.

"You can't fix by analysis what you bungled by design"

— Richard J Light.

Have an idea of how you will interpret the data before a single data point has even been collected. For trainees this is often the most daunting part. Many trainees have experience in managing smaller datasets for local audit, but limited experience in manipulating large data sets. Consider familiarising yourself with some basic statistical software such as R. If your hospital is affiliated to a university, they often provide courses for this. Also, try and involve a statistician early in the process (ideally prior to data collection). If your hospital is aligned with a university, it may be worth enquiring if there are any statisticians who are willing to get involved. Often the topic may align with their own research interest, and with the appropriate publication credit, the exchange can be mutually beneficial. It is possible that funding can be allocated for a paid statistician. The NITCAR committee have in the past been able to connect people with appropriate statistical help and currently have a HIS appointed statistician to assist in this regard.

Communicating results and beyond

Be clear from the outset what the roles and responsibilities of local project leads are. NITCAR has an established authorship policy which is available on its website. Some local leads may be interested in further analysis of local data as part of their local commitments from registering the work with their CEU. Be clear from the outset whose responsibility this is (if required). When it comes to writing up your manuscript and getting input from collaborators, allow plenty of time to maximise responses. Dr Ahmed found for any given email to collaborators, she could expect a significant number of out-of-office replies! Given the pace most projects take, anticipate that some collaborators may move on from the trust at which they did the work and be sure to keep an up-to-date email address for them.

Be prepared for the writeup of the work (and inevitable revisions!) to be undertaken alongside clinical duties. Trainees have run a NITCAR project during dedicated research time but this the exception rather than the rule. There are often many demands on a trainee's CPD time and good time management skills are essential. If you know that you have limited time as a project lead, it is useful to think of how the project might be handed over. For Dr Fitzgerald, keeping a communications log with sites was helpful. She knew she only had a limited time to dedicate to the project and keeping an accurate log allowed her successor to understand which sites were priorities to chase up etc.

Almost invariably timelines may slide 'Research always takes longer than you think' says Dr McGill. It is important to keep up good communication with collaborator sites in order to keep momentum going. For several trainees, the impact of Covid meant that research priorities changed and

collaborating sites needed extensions to certain deadlines; try not to be disheartened and stay adaptable.

<u>Presenting the work</u>

NITCAR as a BIA affiliated organisation has protected slots at major infection conferences such as the BIA annual meeting. This is a great way to present early data from your findings and can act to generate interest for subsequent manuscripts. When writing your manuscript, you should ideally have a journal in mind. However, you may find that the work can throw up unexpected avenues that are worth exploring. For Dr Ahmed, the data generated from the CABI project was able to inform a clinical risk prediction model. Given the collaborative nature of the work, think outside the box as the work may be better suited outside of the traditional infection journals.

<u>Final Thoughts</u>

Although it can be a lot of work, the satisfaction of seeing your idea through and getting results on a national scale can be extremely rewarding. The process itself can be very educational and all the interviewees found they gained additional skills whether it be through learning new software, public speaking, academic writing or general project management. These skills can be invaluable for later consultant posts or developing your research career. For more information on NITCAR see www.nitcollaborative.org.uk.