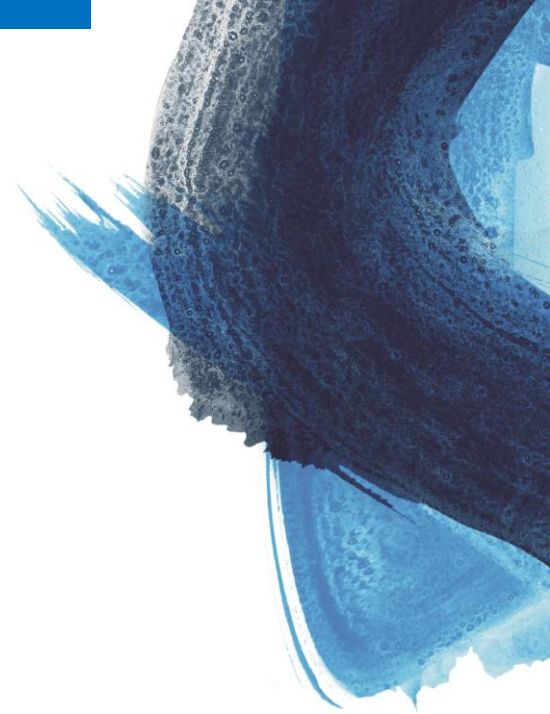




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# How to write a Case Study

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## **Why write (and hopefully publish) a case study?**

Dietitians are highly trained and view clinical issues and problems from a unique angle. Further, dietitians, whether in public, private, industry or other roles regularly encounter interesting cases. But with other commitments, why should a busy dietitian write and hopefully publish) a case study?

1. Advance the field and help colleagues/patients – if your case study is novel and interesting, publishing it will highlight that area. For example, if you encounter an unusual case presentation which can be attributed to a dietary cause, publishing a case study will assist clinical colleagues who may encounter a similar presentation. Similarly, if you treat a dietetics case and there is an interesting outcome, this can also help clinical colleagues. Obviously, both scenarios would be beneficial for patients too!
2. Highlight an area – there may be a specific area of nutrition and dietetics or local/national/international practice which an expert dietitian may feel is underexplored, underappreciated or sub-optimal. Dietitians may have knowledge and experience of a particularly area which may be unique. Publishing a case report relevant to a specific area can highlight a problem which you encounter or can highlight a treatment/outcome. One interesting case study presented at the 2014 American Association of Clinical Endocrinologists meeting reported that consumption of a trendy coffee beverage enriched with fats led to increases in serum lipids<sup>1</sup>. Although this is weak evidence, case studies such as this one can highlight an area.
3. During my PhD, I hypothesised that an intervention we had used in other disorders may prove beneficial in another area (cystic fibrosis). The particular intervention had never been used in CF or even mentioned! I was keen to test my hypothesis in CF and we planned a small scale study(n = ~10). Despite my best efforts and those of my colleagues we could not get 10 children...however, after much effort we did get a single child. We performed a randomized, double-blind, placebo-controlled trial in this single child! However, we observed a remarkable effect and went on to publish the result<sup>2</sup>. It's unlikely we will get to further this ourselves but the case report is there for all to read. Further, if another group decide to test the same hypothesis, our case report will always remain the first published report in that area.
4. Increase chances of future funding – large scale research requires funding...funding for personnel is typically one of the biggest costs! Dietitians are busy and do not always have time to devote to research. Publishing a case report can publicise an area, prove your interest and understanding of that area and highlight that a particularly approach was successful...albeit in a single case. Funding agencies, large or small, will see that you can conduct research and can publish it and are much more likely to fund research for someone with a track record, even if that track record is a single case report. During my PhD I was particularly interested in an area but no-one had done anything like what I was proposing and worse still, we didn't have the funds to try it! So we did a very small, pilot study in which we observed a remarkable effect. We published this case series in one of the most eminent hypertension journals. We then applied for and obtained funding to conduct a larger, more detailed (more expensive) randomised, controlled trial<sup>3</sup>.
5. Experience research – considering a case report with data collection/analysis and eventual publication can allow a dietitian to experience research. Furthermore, this research experience will be on your own terms in an area you possess expertise...who

knows, you might even enjoy it! Instead of dismissing the idea of research forever or blindly rushing to do a full time PhD, publishing a case study can allow you to experience research in a 'risk free' manner.

6. Personal pride and 'publicity' – dietitians do a value job. Presenting your work (at a meeting, publishing etc.) allows your observations, interventions and ideas to reach a worldwide audience. If you write a case report in a topical or specialised area, you may become the published, world leader in that area!

So hopefully you're convinced of the value in a case report...but how can you go about it?

### **Is your 'case' worthy of a case study publication?**

Dietitians tend to be excellent scholars but very busy! We should not be intimidated by attempting to publish a case report! In fact, this can be a great way to 'dip your toe' into peer reviewed research territory. However, caution is warranted, particularly for those who have never published before. One of the most disappointing scenarios is to gather data, do relevant analysis, prepare a paper (or case report) only to be refused by multiple journals.

Although, it is often said that there is a journal for every piece of research, this is not necessarily true....especially if the work isn't novel or isn't detailed enough. Further when you submit your case report to a journal, it can take months for a decision. If it is ultimately rejected months later, you may have lost enthusiasm or your work circumstances may have changed.

Dietitians who are familiar with up to date scientific research in the field should have a grasp of what is publishable and which journal may be interested in their case report. It is imperative to consider if your case is in fact publishable and where it might get accepted. If you do not consider these points, you may waste a lot of time or create more work for yourself!

If you encounter an interesting case presentation or interesting case treatment but are unsure if a case report would be publishable, speak to your colleagues...the relevant medical team, your internal dietetics colleagues, external dietetics colleagues, academics, even email some journal editors and ask them if they might be interested in such a case report.

However, if you are familiar with current dietetic research, your opinion of what is publishable can be as valid as anyone else!

### **How to write a case study?**

If you have never published before, consider collaborating with someone who has published. They could be a member of your clinical team, a dietetics colleague or someone else. In my experience, most people are more than willing to help when possible.

Collaborate to help with determining if the case is publishable, what data to gather, what (if any) analysis to do, help with writing and submission. The good/bad news is that your first publication will usually be your hardest...trying to go it alone will make it all the harder.

### **Is the case publishable?**

There are no set rules around what is publishable but a case report should contain either a new or novel case presentation, treatment or outcome. Sometimes all 3 are required!

For example, a case report demonstrating improved body weight after a high calorie, high protein dietetic intervention is not new or novel and would likely be difficult (impossible?) to publish. When you encounter an interesting case presentation, treatment or outcome do consider a case report...even, and perhaps especially, early on in your involvement.

### **Collect relevant data**

A case report should be based on something novel. Therefore you will need to document what is novel with exact details. Better to collect too much data than not enough! Be aware that the typical documentation in medical/dietetic chart notes may not be sufficient for a case report. Remember a journal editor or reviewer will look for what is novel but also the details of what is novel.

Use all the tools at your disposal when appropriate. For example, If your case report refers to body composition in an interesting case, try not to rely solely on body weight measurements. Use other tools such as bioelectrical impedance, waist, hip and arm circumferences etc.

### **Is it ethical?**

Again, there are no set rules. Further, most clinical and academic institutions will be different. However, case reports based on either observation or clinical practice typically do not require ethical approval.

Again, if in doubt about ethics speak to more experienced colleagues as early as possible. An unfortunate situation would be to meticulously gather data, analysis that data before preparing and submitting it to a journal while the journal ask about ethical approval and patient consent. If you did not get ethics and patient consent at the time, it may be very difficult or impossible after the fact e.g. if a patient dies, moves or is not contactable.

Similarly to writing a case report, do not be intimidated by the ethical approval process. You may have experience with ethics in your institute but if not, speak to colleagues who do. The ethical process for a case report, particularly if it's an observation, is typically much more relaxed than for a large intervention trial.

### **Write!**

If you've encountered an interested case, deemed it publishable and gathered sufficient data...get writing!

If you are not already familiar with case reports, read some from the dietetics field. See how they are presented and written. A case report should be novel, detailed and designed to highlight an issue or just something interesting. A case report, although important, will not change practice. Therefore remember to keep the report concise. Busy dietitians like yourself do not have time to read lengthy case reports! Besides, most journals will have style formats and length guidelines available on their website.

### **Which journals accept case reports?**

When you submit a manuscript to a journal, even a case report, it can take months for a decision to be made. If you submit to an inappropriate journal, this can delay publication hugely. A crude example of inappropriate submission would be submitting a diabetic case report to a gastroenterology journal. Another example would be submitting a mildly interesting case report to a major journal such as *Nature*.

Again, if you are familiar with the dietetic literature and particularly your speciality area, you should be knowledgeable about which journals may be interested in case reports in general and in your specific case report. If in doubt ask! Ask your clinical colleagues, external colleagues and even consider contacting journal editors.

### **Is there a cost?**

Peer-reviewed science is big business for many people! Some journals require the author to pay for submission (even if the paper is rejected!). Other journals require for you to pay for publication. However, many journals are still free to submit to. Be aware from the start if there is a submission/publication fee and if you decide to submit, where is that fee going to come from? If the fee is an issue, search for a similar but different journal.

### **Some interesting case reports**

#### **Vitamin D**

A father-son pair presented to the emergency room generally unwell (nausea, vomiting, thirst, acute renal failure etc.) After extensive clinical testing, both were found to have severe hypervitaminosis D - sons 25-hydroxyvitamin D (25OH)D was 3700nmol/L (>50 is considered sufficient with levels above 375nmol considered toxic). Both drank large amounts of sugary tea daily but neither was taking vitamin D supplements. Due to unusual circumstances, the FBI was involved. After extensive testing of products within their home and work environments, it was discovered that their general table sugar contained toxic doses of vitamin D. Both were estimated to have ingested ~2 million international units (IU) per day of vitamin D (RDA in Ireland = 400-800IU/day). Upon investigation, the son had recently had a turbulent time with his partner. Knowing the son's fondness for sugary tea, the partner added toxic amounts of vitamin D. Interestingly, both recovered well with IV fluids, steroids and avoidance of the sugar (and all vitamin D supplements). Finally and even more interestingly, the son and his partner remained a couple!<sup>4</sup> Don't tell me nutrition science is not fascinating!

#### **Atkins diet**

A middle aged male underwent a comprehensive medical screen (including coronary calcium score and routine lipid testing) which revealed no cardiac issue. Due to subsequent weight gain, the person commenced the Atkins diet. The subject complied with the diet and lost 2.2kg in one month. Despite his weight loss, serum lipid increased 'sharply'. About 18 months later he developed erectile dysfunction and commenced relevant pharmacotherapy. A little over 2 years after commencing the Atkins diet, weight loss was maintained but he developed stable angina. Repeat cardiac investigations revealed major stenosis in one location and minor stenosis in two separate locations. A stent was inserted and the Atkins diet was discontinued<sup>5</sup>.

#### **From Ireland and led by a dietitian**

A male teenager with cystic fibrosis presenting with night blindness. Blood tests revealed an undetectable vitamin A level. High dose vitamin A supplementation rapidly reversed the night blindness<sup>6</sup>.

This article was written by Dr. Conor Kerley (PhD, BSc, H. Dip, MINDI) as requested by Fresenius Kabi in June 2017.

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