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Ihde S.

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Research in Context

Developing a study question

Ihde S. Dr. med.dent, PhD
Gommiswald Dental Clinic
CH-8737 Gommiswald/SG
Switzerland
dr.ihde@implant.com

Background: As practicing implantologists, it is important to consider contributing to the current body of implant literature. There are many questions that have either been answered inappropriately or have yet to be answered. Research should not be reserved for universities only. Practicing implantologists have the best ideas and access to patients

This Research in Context series will provide clear and simple guidance on how to go about doing your own study and publishing your results. Though research takes time, it doesn't need to be a second job. With some careful planning, you should be able to publish research out of your own office practice.

The first step in publishing your research is: DEVELOPING YOUR STUDY QUESTION!

Developing a study question that is destined for success is based on three important phases:

1) Defining the study question(s)

2) Refining the study question(s)

3) Determining if answering that question is doable

Defining the Study Question

The first phase in defining a study question is to take an initial idea and narrow it down to an answerable or testable question. In determining if your initial research question is answerable, you might consider bouncing ideas off mentors and colleagues through brainstorming and group discussions.

Start with discussing your ideas with colleagues

- ❖ Do your colleagues share the same ideas?
- ❖ What new ideas do they suggest?

Refining the Study Question

Once a study idea has been defined, it needs to be refined. There are four main factors to consider that will help you further refine your study question. A simple way to help you frame a clinical question is to put your idea on paper using the acronym PICO (Patients, Intervention, Comparison, and Outcome).

Let's assume that you want to know whether it is better to use an immediate loading implant versus a delayed loading implant.

Using the PICO method, you fill in the following table:

Patients	• Adults ages 18 to 75 years old. • Partially edentulous patients with periodontal disease
Intervention or procedure	• Immediate load implant
Comparison	• Delayed load implant
Outcomes	• Implant survival • Quality of life

From the table, you formulate your study question:

"Does an immediate loading implant lead to better outcomes (increased survival and better quality of life) compared with delayed loading in adults with periodontal disease?

Determining if Answering the Question is Doable

Once you put your idea on paper, you can now consider whether your study question is:

- Novel
- Feasible
- Ethical

Is your study novel?

In order to determine if your study is novel, you will need to do a systematic search of the literature, read the latest journals, and talk to colleagues. . There are several sources you can access to see if your study question has already been answered:

Is your study feasible?

Do you have access to patient medical records with good record keeping? Is there missing data? If so, a retrospective study may not be feasible. What about a prospective study? Do you see enough patients that would be willing to participate? Do you have colleagues you can collaborate with?

Is this study ethical?

Several ethical considerations should be made in the early stages of developing your study question. For a randomized control trial, several obvious questions should be asked including:

✓ Is there reason to believe that the treatment under study will be more effective compared with standard care, yet reasonably uncertain to justify the study?

✓ Is it ethical to randomize patients to their treatment, or are there other considerations that should play a role in their treatment choice?

✓ Is it ethical to blind a patient or health care provider from his/her treatment?

Less obvious ethical questions exist for observational studies. As with all studies, it is important to protect the privacy of the study participants with respect to health records. The number of study staff accessing personal identifying information should be kept to a minimum.

As the study begins to develop and a more concrete study plan takes form, a formal application will need to be submitted to the Institutional Review Board (IRB) at your institution. The IRB exists to protect participants involved in research.

In the next edition of Implant Directions, we will discuss converting your study question to specific aims that will help you determine the appropriate study design and write your study plan.