

Supervision; what does it mean (for student and supervisor)?

The daily supervision of an internship may be done by the formal supervisor or by someone else, for example a PhD candidate or an external supervisor (other hospital / institute than Radboudumc in the Netherlands or abroad). The formal supervisor is always a senior scientist or postdoc at Radboudumc.

The daily supervisor provides the means, both materially and intellectually, to enable the student to carry out his/her internship project. Regular meetings are arranged with the daily supervisor to discuss progress. The daily supervisor will support the student by giving feedback and asking the student to reflect on his/her performance in achieving the qualifications that are to be expressed in the report. At the end of the internship, the formal supervisor is also responsible for the assessment of the internship.

Supervision Protocol

It is self-evident that, in supervision, matters of content need to be dealt with. These might relate to topics such as inevitable time constraints, making content choices, mastering the necessary research skills, the availability of materials, etc. Time devoted to supervision by supervisors may vary, but experience learns that a supervisor needs:

- A minimum of about 2 hours for the preparation of a research proposal by the student
- About 2 hours per week for supervising a student with theoretical concepts and practical arrangements
- About 4 hours after the internship for reading and commenting on the report, joining the student's presentation, grading, and evaluating.

During supervision of the final projects, students meet up with their host supervisor on a (at least) weekly basis. It is up to students to take the initiative to arrange supervisory meetings. In addition, students must also make sure that their supervisor receives the relevant information in writing several days prior to the meeting, in order for him/her to be able to prepare for the meeting properly. For this, students can answer the following questions:

- what have I been doing the last week
- what have I accomplished / what are the results of my activities
- what will I be doing next week
- what do I need from my supervisor to be able to do that

After the meeting has taken place, students write a concise report of the major observations, conclusions, and agreements. This report is a memory aid for both students and supervisors. In case of an internship outside Radboudumc, the student should also send a copy of the report to the Radboudumc final supervisor to keep him/her informed of the student's activities at the host institution.

The following delineation of at least twelve supervisory meetings (during a 12-week internship) with six topics is merely a suggestion and does not need to be strictly adhered to. This description is to illustrate to students that they may expect regular supervision and to emphasize that they themselves are expected to carefully plan and prepare supervisory meetings.

Introductory meeting

During their CKO-9 course, students have contacted their internship supervisor to make sure he/she agrees with the process of adjustments during the CKO-9 course. This contact may lead to an introductory meeting. If this is impossible, an introductory meeting should be scheduled at a later time. During this introductory meeting, the following points need to be addressed:

- organizational matters, such as: contracts, the Radboudumc (formal) supervisor, day-to-day supervision at the host institution, facilities at the host institution and time frame. These matters should have been arranged in advance, but need to be checked during this meeting;
- the final products that are to be handed in (report, paper, oral presentation) and any possible additional details, such as the language of the report;
- supervision: what arrangements have been made?;
- personal learning objectives: how can they be achieved?;
- important information on the day-to-day activities at the host institution;
- information about the research topic that is important for students to have in advance. In summary: preparing the research topic.

First topic (meetings in week 1 and 2): the research plan (general learning objectives 1 and 2)

In the very early stages of the internship, the provisional research plan (i.e. the final product of the CKO-9 course) needs to be finalized. First of all, students need to reconsider the motive of their study. What is its relevance? In which medical scientific context does the study fit? If necessary, students need to trace, critically read, and systematically review additional literature. They must re-examine and improve their research question and work towards a fitting study design. This stage is all about writing a sound and detailed research plan, which includes a time frame. Students hand in this plan to their supervisor several days before their supervisory meeting is scheduled.

Topics for discussion during this meeting may include:

- the plan's strong and weak points;
- unfeasible aspects of the plan and suggestions to improve these;
- appointments.

Students write a concise report of this meeting.

Second topic (meetings in week 3 and 4): making the study design more concrete (general learning objectives 2 and 3)

You are in the final stages of developing the study design. The choices you have made previously now need to be justified. New choices have to be made regarding the operationalization of the major variables.

Several days before the meeting is scheduled, students hand in the required information to their supervisor in writing. Topics for discussion at this meeting may include:

- the fit between the study design and the research question; is the design complete?;
- the suitability and quality of the measurement instruments that will be used;
- a data collection strategy;
- organizational aspects of data collection;
- appointments.

Students write a concise report of this meeting.

Third topic (meetings in week 5 and 6): data analysis and description of results (general learning objectives 4, 5, and 6)

Several days before the supervisory meeting is scheduled, students hand in a partial report including data and results. Topics for discussion at this meeting may include:

- data analysis;
- description of the results;
- appointments.

Students write a concise report of this meeting.

Fourth topic (meetings in week 7 and 8) : first draft of the research report (general learning objectives 7 and 8)

Several days before the meeting is scheduled, students hand in a first draft of their report. Topics for discussion at this meeting may include:

- the structure of the report;
- the contents of the report;
- the results and statistics;
- the discussion, conclusions, critical reflection on design and results;
- language: clarity, unambiguousness, reasoning, and style.

Students write a concise report of this meeting.

Fifth topic (meetings in week 9 and 10): second draft of the research report (general learning objectives 7, 8, and 9)

Several days before the meeting is scheduled, students hand in the second draft of their report, having processed any remarks made during the previous meeting. Topics for discussion at this meeting may include:

- the processing of remarks made during the previous meeting;
- extra attention has to be paid to the discussion, the conclusion, and placing the conclusions in a wider perspective;
- agreements about finishing the report;
- agreements about the oral presentation to be given at the host institution.

Students write a concise report of this meeting.

Sixth topic (meetings week 11 and 12): final meeting (general learning objectives 7, 8, and 9)

Before this final meeting, the supervisor has examined the final draft of the research report. The oral presentation at the host institution has been given. This final meeting deals with:

- discussion of the oral presentation;
- assessment of the internship, report and oral presentation;
- evaluation of the internship;
- any further positive criticisms relating to the internship, supervision, etc;
- the future: paper or follow-up study.

When the final meeting has taken place, it is the student's responsibility to ensure that the daily supervisor – if not the same person as the formal supervisor – receives a copy of the report in order to be able to assess / grade the internship in consensus with the formal supervisor.

Especially for foreign internships, modification of grades is often required, because foreign grading systems can deviate substantially from the Dutch system.

All reports of students will be evaluated by a second independent assessor. In order for this second assessor to grade the student's (instead of the supervisors') reporting performance, the daily and final supervisors are requested to comment on the preliminary versions of the report in more general terms. They should not correct grammar and text errors and they should not suggest improvements in too much detail. For example: "I think you should spend a little bit of extra time thinking about the weaknesses of the data that you used" instead of "You should also mention that 20% of values were missing in variable X".

The Research Internship Committee (COMOS) does not play a direct role in the actual supervision of an internship; it has a conditional and monitoring role. By making sure that expedient procedures are in place and by spot-checking these procedures, the committee aims to make sure that proper student supervision during the internship is guaranteed. If there are any problems during the internship, the committee is available for mediation and, if necessary, correction.

Confidentiality of internship report

All internship procedures are done via Osiris case. It is not possible to make exceptions to this procedure. ICT and Stip employees can also use this system, but that is only for administrative

purposes. Internship providers can therefore rest assured that internship reports are only read by the evaluators of the internships.

Assessment

Before the end of the internship the *professional attitude and activities* (performance) of the student during the internship will be assessed by the formal supervisor in consensus with the daily supervisor (if not the same person as the formal supervisor).

The student shall produce a *final report* (according to the internship guidelines) that will be assessed by the formal supervisor and the second assessor who will be appointed by the Radboudumc.

The criteria for the overall assessment of the internship according to the learning objectives are provided in the assessments forms and are safeguarded by the Research Internship Committee.

The student also gives a presentation of the internship to the department where the internship was followed (part of performance).

The final grade of the internship is established by the Research Internship Committee Internship, based on the grades of the formal supervisor and second assessor.

General learning objectives

Students can:

1. specify the motive for the study, the interests it serves, and the medical scientific context in which it fits.
2. write a research proposal on the basis of the following skills:
 - a. They can retrieve, critically read, and systematically review relevant literature.
 - b. They can give greater precision or depth to the research question based on literature.
 - c. They can formulate a study design that fits the definitive research question.
3. organize and execute the proposed study.
4. systematically analyse the data they have collected.
5. provide clear descriptions of their results and neat summaries in tables and figures.
6. point out errors of measurement and other limitations in the data they collected.
7. critically reflect on the study design and the results.
8. produce a written report that conforms to requirements:
 - a. In terms of content (justification of the study design, clear description, analysis, critical reflection).
 - b. In terms of form (carefully edited, trim layout, clear language, references).
9. deliver a concise oral presentation of research results to the department where the study was performed and engage in productive discussion of its results.

Personal learning objectives

In addition to the general learning objectives, there may be more specific learning objectives related to a particular type of internship: for one type of internship students will need to compose a questionnaire for data collection purposes, and in another type, they will need to learn how to use a pipette; in one, they will need to recruit participants, in another, they will be working with experimental animals or with laboratory samples that have already been collected.

In addition to these more specific learning objectives the student may also have more personal objectives. For example, the student may want to experience whether lab research is something they would like to do in a later PhD project, or they may want to see how desk research is influencing their mood. Or want to see whether cardiology is really their cup of tea. Also, they may want to learn how to be more organized, to fit in a research group, whatever. There can be hundreds of different personal objectives.

Students have to include two to three specific learning objectives. It is important that students and their supervisors agree on both the general learning objectives as well as the personal learning objectives in advance: which specific skills should a student develop during their internship?