

# **Improving the learning outcome of clinical training for students in veterinary dermatology service**

Mette Schjærff

Department of Veterinary Clinical and Animal Sciences, University of Copenhagen

## **Introduction**

In general, veterinary master students have limited training in clinical dermatology at their general clinical course program. This is a challenge as dermatology is a highly frequent area of presentation in veterinary practice. In fact, around 20-30% of all small animal consultations in general practice is rooted in a skin problem (Hill, 2006). At Dermatology Service at the University Hospital of Companion Animals, UCPH, the students often have only one or two days on clinical service as part of their general hospital clinical course. Often the students are perplexed about their role and unsure of the specific Intended Learning Outcomes (ILOs) and do not have enough time to become familiar with practicals during this narrow time frame. This calls for the students to take full advantage of the time and use it in the most optimal way to gain as much knowledge and hands-on experience in dermatology as possible. Thus, implementing a way to emphasize the expectations, including making practicalities more clear as well as having concise ILOs for the students before the rotation starts is key for a more optimal learning outcome, given the short time.

## **Background**

Veterinary students are introduced to their first clinical rotations when they enter their master's degree program as 4<sup>th</sup> year veterinary students. General Clinical Practice for Companion Animals (GCPCA) is a mandatory clinical

course program during the first part of the veterinary master program. Here the students have a scheduled 9 week block structure, which starts with a week of general introduction to the whole course for all 50 students. This is then followed by rotations in general clinical practice, general surgery, case work and externships in private practice, respectively. Each rotation therefore consists of smaller teams of approximately 12-15 students and in their 3-week rotation in general clinical practice, each student have on average 1-2 day(s) of clinical participation in dermatology service.

General clinical practice includes 3 weeks of general practice, where students are gently unleashed and introduced to the life of a practicing veterinarian. They are responsible for performing problem-oriented physical exams of actual live patients with various diseases and practice communication with pet owners. Furthermore, the students will be trained in journal writing using concise medical phrasing and will be evaluated on their ability to combine theoretical knowledge with practical clinical performance.

Although the students get to see dermatology patients in general medicine, Dermatology Service as a specialty service is different from General Medicine in that we introduce dermatology on a more advanced level, including receiving referral cases from private practices. This means less hands-on for the students compared to general medicine, more problem-oriented journal writing, fewer scenarios alone with the owner (unless advised by the teacher) and fewer opportunities to perform paraclinical tests. But there is still time for reflection (when in the student lab) to discuss the patients and come up with differential diagnosis and suggested therapy and plan in conjunction with the responsible vet.

Previous student feedback on dermatology clinical rotations have shown that although the students generally express positive evaluation when the day is over, they often start the day showing some confusion and uncertainty about their role and what is expected from them. This means that the students lose precious teaching time and thus do not maximize their learning from these sparse days. The learning outcomes should therefore be stated more clearly before the rotation. This also includes a list of the expected practicalities and professional skills when they join dermatology service.

## Problem formulation

In this UP development project, the goal was to investigate the student learning outcome (SLO) of clinical dermatology rotations after **implementing a general introduction lecture to dermatology service during the intro week, particularly highlighting ILOs, practicals and important knowledge parameters for assessing the patients in the clinic.** *The aim of this study is to minimize confusion and lack of knowledge from the students about their role in service beforehand and to hopefully advance the gained learning outcome post-clinics.* Furthermore, from a personal point of view, this will hopefully lead to less daily repetition for me as a teacher, thereby strengthening my teaching structure.

## Methods

The conducted study implied launching a one-hour lecture, 'Introduction to clinical dermatology service', during the introduction weeks of the GCPCA course. Data collection was then based on student oral feedback during interviews after completing dermatology service rotations. In total, six students were interviewed:

- Three 4<sup>th</sup> year students currently on general clinical practice rotations, who had *all* participated in the clinical dermatology introduction lecture held four weeks prior.
- One 4<sup>th</sup> year student currently on general clinical practice rotations, who *was absent* from the clinical dermatology introduction lecture and who had not studied the lecture notes in advance.
- Two 5<sup>th</sup> year students, participating in summer school dermatology clinical rotations, who *had not been part* of the implementation of a clinical dermatology introduction lecture, but who had studied the uploaded lecture notes the day before the rotation.

### Structure of the lecture:

- Listing of the ILOs for dermatology service rotations.
- Clear list of expected student role and practicals during a typical day in service.
- Repetition of common clinical presentations and medical descriptions
- Brush-up on dermatological paraclinical tests.

- Interactive case-based learning (common dermatological cases presented to the students).

**Student ILOs.** Students are expected to show the following when in on clinics:

- Part I: Demonstrate an understanding of the daily structure of dermatology service by preparing in advance for the scheduled patients of the day, by taking terms as responsible for writing the record, by assisting in the physical examination, by preparing lab samples if comfortable with this and by drafting an instruction letter to the client post-consult.
- Part II: Demonstrate knowledge of the nomenclature for typical clinical dermatological presentations and commonly used paraclinical tests.
- Part III: When patients are discussed in plenum, the students should be able to describe differential diagnosis to common clinical presentations in dermatology.

## Results and discussion

### Ad 1 – general confidence prior to clinics

In general, the students felt somewhat prepared for the rotation immediately after the intro-lecture, but did still express uncertainty when they reached clinical rotations.

Student 1 (4<sup>th</sup> year): *‘I remember the lecture as being very good and inspiring, but because the clinical rotation wasn’t until four weeks after the intro-lecture, my memory of it had faded and I certainly felt it necessary to have a recap at the beginning of the day, when we started [the clinical rotation]’.*

Student 2 (4<sup>th</sup> year): *‘Immediately after the lecture, I felt confident that I was prepared for clinical service in dermatology, and so I didn’t actually study the notes the day of attending service. Although, I did remember certain highlights from the lecture, I was very happy for the information we received in the morning of the rotation, because I realized I had forgotten a lot’.*

Interestingly, the two 5<sup>th</sup> year students felt more confident about their role on service despite only having had access to lecture notes, compared to the 4<sup>th</sup> year students who had also received the actual lecture.

Student 3 (5<sup>th</sup> year): *'I had studied the notes the evening before clinics and so I felt pretty confident about my role and what was expected of me when I started the service.'*

The student who had not attended the lecture and not studied the notes in advance was overall not certain about her role and what was expected of her prior to attending service, but quickly felt assured after the morning run-through of the daily schedule.

Basically, giving the students a structural outline for their clinical service rotation was very well received by all, but the time-lack between the given information (the lecture) and the time when they actually needed this (the day of clinical service) turned out to be too large. The ability to retrieve and use this stored information in a confident manner prior to service was truly diminished when too much time had passed between the actual lecture and the service rotation. This is in line with how fast the memory retention declines over time for students, where basically 40% of new knowledge is lost after only one day without reinforcement, followed by 60% loss on the second day Ebbinghaus, 1885–1913; Loftus, 1985. However, repeating notes and highlights immediately leading up to a clinical rotation, will help regain this knowledge. Thus, studying the lecture notes prior to clinical rotations will be highly beneficial.

## **Ad 2 – Assessment of listing ILOs prior to clinics**

In general, the presented ILOs in the intro-lecture were well received by the students in that they felt that these were stated in an explicit and concise manner.

Student 1 (4<sup>th</sup> year): *'I think the ILOs regarding the daily structure of the service rotation were stated clearly, which I do think helps us [the students] be more focused when on clinics.'*

Student 2 (4<sup>th</sup> year): *'I agree. The days in dermatology service are really few, so having ILOs listed as a sort of 'guideline' is a great help for improving our learning and knowing what is expected from us. However, being familiar with the correct nomenclature and various differential diagnosis is hard to achieve as a student in such a short time. It takes experience. So basically, an increase in the number of days attending dermatology service would be helpful for this part of the ILOs.'*

Student 3 and 4 (5<sup>th</sup> year): *'We felt that the ILOs were quite concrete and detailed. Not too fluffy. We both liked that they were written in the notes on a separate slide. It made it easy to comprehend.'*

From a teaching activity point, stating the ILOs is a helpful way of keeping a focused plan for the clinical teaching (Biggs & Tang, 2007), which can be challenging at times due to the lack of control of how the day in clinics will proceed (Irby, 1995). However, it is still the teacher's responsibility to make sure that all the highlighted ILOs were touched upon during clinical rotation by continuously asking questions to the students and engaging them in patients, while juggling the time schedule. This is generally one of the challenges when teaching medicine in clinics as the day can be rather unpredictable and harder to plan sufficiently (Irby, 1995; McGee & Irby, 1997). However, having ILOs highlighted in the intro-lecture will hopefully keep a better alignment of the teaching/learning activities (TLAs) when on clinics.

### **Ad 3 – Repetition of parts of the teaching material**

This part of the intro-lecture was a repetition of nomenclature and paraclinical skills from the annual dermatology lectures held 6 months prior for the students. The rationale for including material of repetition was to prepare the students better for the clinical service, where they are expected to use correct nomenclature in their journal writing. By experience, the use of concise clinical nomenclature as well as showing a general concept of common paraclinical skills is quite poor among first year master students and so I included this in the lecture to hopefully improve their memory of it. It seems that repetition can be a powerful method for memorizing knowledge (Biggs & Tang, 2007; Dudai et al., 2015). Also, the idea was for them to look at the notes using this as their teaching material when doing record writing and preparing in the lab.

Student 1 (5<sup>th</sup> year student): *'I had looked at the nomenclature in the notes when preparing for the service rotation, but I still don't feel confident with the use of this from the top of my head. So, I was happy to have the notes to look at during the day. That helped'.*

Student 2 (4<sup>th</sup> year student): *'I remembered a few clinical dermatological descriptions myself, but was generally happy to have the notes to look at'.*

Student 3 (5<sup>th</sup> year student): *'I like having the notes. I think they are very useful. Soon, we will be graduated veterinarians and I think I will be grateful for the notes there, too'.*

Overall, it takes experience to be familiar with the correct medical descriptions. Therefore, the students all found the notes quite helpful and

didn't mind that they were part of repeated teaching material. When asked if looking through the annual lecture notes would have been equally sufficient, they expressed that the annual lecture notes have too much additional information, which makes this less ideal when preparing for clinical rotations. The concept of the various paraclinical skills is also not strong among the students before attending clinical service, but this improved quickly during the day as they practiced these lab routines. Thus, although teaching by using repetitive learning material can be a two-edged sword, the students were generally positive about this in the intro-lecture. They found it helpful and a useful reference.

#### **Ad 4 – Assessing clinical cases founded on case-based learning.**

Comprehending the skill of patient assessment and listing differential diagnosis is typically a challenging skill for the students as this is closely linked to clinical experience and overview. However, this is probably one of the most valuable skills to learn in the field of medicine Irby, 1995; McGee and Irby, 1997. In dermatology, many skin presentations look similar and can be hard to differentiate. Therefore, it is useful to be very categorical in the diagnostic work-up. Being familiar with some of the most common dermatological presentations and diagnosis is a great part of the TLAs for clinical dermatology. Thus, in the introduction lecture, cases of common skin diseases were discussed in plenum with the students to practice this skill (Rienecker et al., 2015). Students who had attended the lecture seem to have benefitted from this, in that they had a good memory of the cases and could even apply this when seeing real patients.

Student 1 (4<sup>th</sup> year): *'I remembered one of the cases you presented at the lecture and felt that it was similar to one of the cases we saw in the clinic. That made me come up with the right differential diagnosis for the case'*.

Student 2 (4<sup>th</sup> year): *'I generally like case-based learning a lot. I think it makes me remember diagnoses better'*.

However, for the two 5<sup>th</sup> year students who had only studied the notes and never had the intro-lecture, the cases were not overly helpful.

Student 3 (5<sup>th</sup> year): *'I didn't really benefit from the cases in the notes based on the pictures and the listed diagnosis only. I think, that I would have gained more if I had been worked through this during a lecture'*.

Thus, case-based and problem-based learning (PBL) had the best outcome when the students were present at the intro-lecture, which states the

importance of walking through this step-by-step with the students to maximize their learning from this.

## Conclusion

In conclusion, the intro-lecture in clinical dermatology was beneficial for the students and helped them have a better understanding of their role, when on clinics in dermatology. Emphasizing the ILOs and specific practicals for the course only seem to strengthen the students' learning. Also, the fact that the lecture addressed some repetition to regain previous knowledge and was case-based had an additional positive effect. However, the students did not gain anything valuable if the lecture was given too far in advance before actually attending the clinics. Therefore, it is crucial to minimize this time-gap if possible. In particular, studying the lecture notes seem to add great learning value and thus should be stated as a mandatory prerequisite before attending clinical dermatology service.

## Future actions

In the following, future acts for improving the learning outcome of clinical dermatology rotations are listed in bullet form:

- The lecture should be given close to the clinical rotation (time gap between lecture and clinical rotation should be minimized).
- Notes should be mandatory to read the day before attending service.
- If possible, the patients could be discussed briefly with the responsible vet in dermatology service the day before the actual service attendance to prepare the students better for the cases.
- Student distribution for dermatology rotations should be planned a week ahead. Could be a schedule in the common student area (call center) where the students could fill in their name for a particular day.
- In order to avoid too much repetition from the annual lectures, more e-learning sessions could be available (e.g. videos of how to perform various paraclinical tests).
- E-learning cases of common skin diseases (here students could get cases online, which would practice their clinical assessment).
- More training in clinical record writing – particularly in how to perform assessment writing and to write more concise.



- Last, but not least; Increase the number of days in dermatology service for the students!

## References

- Biggs, J., & Tang, C. (2007). *Teaching for quality learning at University* (3rd ed.).
- Dudai, Y., Karni, A., & Born, J. (2015). The consolidation and transformation of memory. *Neuron*, *Oct*, *7*;88(1):20-32.
- Ebbinghaus. (1885–1913). Memory: A contribution to experimental psychology. URL:
- Hill, P. (2006). Survey of the prevalence, diagnosis and treatment of dermatological conditions in small animals in general practice. *Vet Rec*, *158*(16), 533–539.
- Irby, D. (1995). *Teaching and learning in ambulatory care settings: A thematic review of the literature*. *Academic Medicine*, *70*:898–931.
- Loftus, G. (1985). Evaluating forgetting curves. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *11*(2), 397–406.
- McGee, S., & Irby, D. (1997). Teaching in the outpatient clinic. *Practical Tips. Journal of General Internal Medicine*, *Apr*, *12*(Suppl 2), 34–40.
- Rienecker, L., Jørgensen, P. S., Dolin, J., & Ingerslev, G. H. (2015). *University teaching and learning* (L. Rienecker, P. S. Jørgensen, J. Dolin, & G. H. Ingerslev, Eds.). Samfundslitteratur.

## A Questions for interviews

The questions were open-ended and the students were interviewed in groups. The questions were:

- 1) *Did you overall feel prepared and confident about your role as a student when attending clinical dermatology rotations?*
  - a. *Specify which part you particularly felt prepared for.*
  - b. *Which part did you feel less confident about?*
- 2) *Do you feel that the ILOs for dermatology rotation listed during the lecture were helpful and that they generally are fulfilled during the teaching activity? (please specify)*

- 3) *How do you value the fact that the lecture contained a repetition of nomenclature for common dermatological clinical presentations and various paraclinical tests? (useful, partly useful, not useful at all, please specify your answer)*
- 4) *How do you value your ability to describe differential diagnosis during the service participation? Was the case-based teaching in the lecture helpful for this? (please specify your answer).*
- 5) *What suggestions do you have for future improvements for the intro-lecture and the clinical rotation in dermatology?*