

A proposal by the
LMU-Chicago Project Group 2007



Student Mentoring

for the LMU Medical School



Authors

Dorothea Greiner
Dr. Carolin Sonne
Philip von der Borch
Konstantinos Dimitriadis
Simon Hohenester
Simon Mucha
Hanno Niess

doro_greiner@yahoo.de
carolinsonne@gmx.de
mentoring@vonderborch.com
kostisd@hotmail.com
shohenester@gmx.de
simonmucha@yahoo.com
hniess@hotmail.com

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1. Premise

1.1. Introduction

Telemachus: Mentor, how am I to go up to the great man? How shall I greet him? Remember that I have had no practice in making speeches; and a young man may well hesitate to cross-examine one so much his senior.

Homer: *Odyssey*, 1.296, ca. 800-600 BC

According to Greek mythology, Mentor was the person entrusted by Odysseus to look after his son, Telemachus, and his entire estate. Mentor helped raise Telemachus and became his teacher, counselor and protector, building a relationship based on affection and trust.

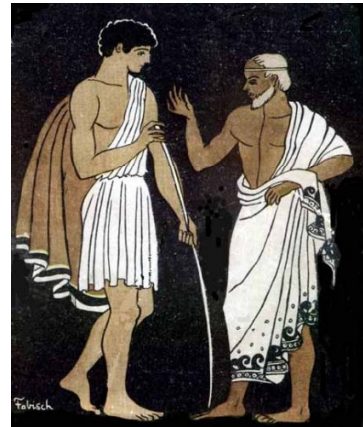


Figure 1
Telemachus and Mentor

Homer's character Mentor thereby coined a term we have come to use to describe similar relationships. Informal mentoring relationships have spontaneously formed throughout history – Alexander the Great and Aristotle, Beethoven and Haydn, Schiller and Goethe. Formal mentoring, however, is a concept that has only been introduced into the business and educational world in the mid-1970s (Berk et al. 2005; Buddeberg-Fischer and Herta 2006).

Since then, mentoring has been defined in very diverse ways and there currently is no consensus on any one definition.

1.2. Definition of a mentor

„Mentoring is a dynamic reciprocal relationship in a work environment between two individuals where often but not always one is an advanced career incumbent and the other is a less experienced person. The relationship is aimed at fostering the development of the less experienced person.“

(Jackson et al. 2003)

On the basis of Berk et al.'s definition (Berk et al. 2005) we further define a mentoring relationship as follows:

An ideal mentoring relationship is personal in nature, long lasting and it involves direct interaction. It consists of three components: emotional and psychological support, direct assistance with career and professional development and role-modeling. It is reciprocal, where both mentor and mentee (a.k.a. protégé) derive emotional and tangible benefits. It emphasizes the mentor's greater experience, influence and achievement within a particular field.

1.3. Forms of mentoring

One-to-one mentoring:

This is a model where each student is allocated a personal mentor.

Group mentoring:

In this model, one mentor interacts with more than one student in a group.

The "Multiple Mentor Experience Model":

In this model, one student is supervised by more than one mentor. The mentors can meet with the student together or individually.

Peer Mentoring:

Upperclassmen take a mentor's role for the purpose of an exchange between equals.

(Buddeberg-Fischer and Herta 2006)

1.4. Benefits of mentoring

The goals of the mentoring program as presented in this proposal include

Benefit for and satisfaction of the students enrolled in the program

1. Students should feel like they have someone to turn to with questions. This person should be genuinely concerned for their future.
2. Mentors should have a positive influence on the students' careers, be it through advice, sharing personal contacts or any other means.
3. Ideally, students will find a role-model in their mentor that will actively help them define and achieve their goals during medical school.
4. Students practice interaction with faculty and possibly gain more perspective on their position in the continuum of medical education.
5. Students network with possible future employers, researchers, faculty or perhaps other mentees.

(Bhagia and Tinsley 2000; Wright 1996; Aagaard and Hauer 2003)

Benefit for and satisfaction of the mentors enrolled in the program

1. Mentors derive satisfaction from the personal relationship with the student(s) while following and fostering their development.
2. Mentors networking with other mentors, the mentee and possibly the mentee's contacts.
3. Formation of research groups is possible, as well as research group exchange or collaboration.
4. Awards for outstanding mentors will increase personal satisfaction and may be valuable for mentor's advancement.
5. Mentors will be financially remunerated.

(Freeman 1997; Rose, Rukstalis, and Schuckit 2005; Pololi and Knight 2005)

Benefit for the faculty of the medical school and the university as a whole

1. Medical graduates achieve a higher quality and performance through
 - a. training and practice in self-reflection, self-presentation and career-planning.

- b. gaining perspective on the whole curriculum that will render medical training more targeted and effective.
2. The medical school and the university will gain reputation for offering wholesome and more comprehensive care of their students' well-being and career advancement.
3. This will be a strong argument in the increasing competition for excellency among German universities.
4. Increase in attractiveness of the medical program of the LMU may lead to the introduction of mentoring into other programs.
5. Profound and beneficial communication between different hierarchical levels at the medical school will be increased. This way, faculty will be much more immediately aware of possible problems in the curriculum or the concerns of individual students and can attend to them more swiftly and individually.
6. Individual mentees with high potential to be recruited by the faculty can be more easily identified and their level of motivation to stay with the university will be increased by the personal relationship they will have formed with individual faculty members.

(Benson et al. 2002)

1.5. Initial considerations when bringing mentoring to the LMU medical school

As evidenced by the definition of a mentor above and the historical mentor-mentee-relationships, a mentor in the truest sense is a very special, unique person in the mentee's life. It implicitly includes a personal connection and motivation for the mentee's advancement.

Experience as well as studies have shown that randomly assigning students to a so-called mentor has a low probability of leading to a fruitful relationship, much less one that meets the definition laid out above (see 1.2). Therefore, allowing free and voluntary formation of mentor-mentee pairs is preferable (Wright 1996).

However, lacking an established self-sustaining culture of mentoring at our institution, these relationships currently have to form spontaneously, which makes them voluntary and free – but rare.

Our goal is to establish a mentoring program at our institution that will increase awareness of the benefits of mentoring as well as facilitate the formation of compatible mentor-mentee pairings. Mentees will always be able to freely choose their mentor, but we will also facilitate their choice by offering a number of motivated and qualified mentors to them if they so choose. By making at least two meetings with these mentors per semester a requirement, we ensure that every student gives the mentoring relationship at least one chance.

The obstacles for such a program at the LMU medical school when compared to similar programs at other institutions are:

- Size. We have about 800 students per year in pre-clinical years and 400 during clinical years. Most of the literature on mentoring at medical schools

deals with much smaller programs. Individual matching of mentors and mentees through personal interviews, in-depth evaluations and profiling, as some other programs do, cannot be performed at our institution for logistical reasons.

- High current workload of the prospective mentors. Residents and attendings at our institution are notoriously burdened with balancing patient care, research and teaching responsibilities and it may be difficult to relate the benefit of mentoring to them as it will invariably demand additional time and effort.
- Lack of awareness of the possibility and benefits of mentoring on the side of the student body as well as faculty. Endorsement of mentoring relationships has not yet permeated the culture at our medical school.

Conversely, the size of our institution may also work to our advantage. The large size of our student body and faculty spread over many hospitals and specialties introduces great diversity. And the sheer number of people makes the number of choices for a prospective mentee virtually inexhaustible.

1.6. Goals of our project

We therefore propose the following program that aims to achieve the goals set forth above by

- instilling awareness of the benefits of mentoring into the whole institution
- facilitating the formation of voluntary mentor-mentee relationships
- introducing a minimum requirement of formal mentor-mentee interaction that ensures the mentoring relationship has the maximum chance of evolving into the ideal relationship laid out above (see 1.2)
- creating a minimal amount of mandatory extra work on the side of mentor and mentee as well as administration by using automated processes wherever possible
and
- continuously improving the program through mentor training as well as a constant feedback mechanism using evaluation and research.

2. Status quo – a survey of LMU medical students

2.1. Why this survey?

As stated in the earlier chapters, voluntary participation and motivation is the foundation of a successful mentoring relationship as well as a successful mentoring program on the whole.

We therefore devised and conducted a survey to help us gauge the current demand among the students for personal guidance by members of the faculty.

2.2. Survey design

The survey was conducted between May 29th, 2007 and June 18th, 2007. It was an online questionnaire sent out to all LMU medical students from all semesters by means of the Semesterverteiler, responses were voluntary.

Here is a screenshot of the survey as the participants viewed and answered it:

Figure 2

A screenshot of the survey as seen and filled out by the respondents.

Naturally, the survey was conducted in German. Here is a translation of the questions:

1. Which semester are you in?
2. Are you satisfied with the medical curriculum in general?
3. Are you satisfied with the teaching offered by the medical faculty?
4. Do you feel that the university is promoting your personal development?

5. Do you feel sufficiently supervised and guided in your studies (e. g. choice of classes, career planning, exam preparation)?
6. Do you wish for more individual care through the university?
7. How accessible are members of the faculty in case of questions or problems?
8. How satisfied are you with your performance in your studies?

Additionally, respondents were given the opportunity to voice their opinions in a free text.

Answers to the other questions were possible on a gradient of six choices ranging from “not at all” (“gar nicht”) to “very much” (“sehr”). We specifically gave no possibility of a neutral answer in order to prevent the effect of a “tendency to the middle” that would allow respondents to effectively skip a question. This way, respondents had to reflect and decide upon a tendency.

In all of the correspondence with the respondents and the design of the study, there never was explicit mention of the word “mentoring”. In order not to skew the results by preconceived positive or negative expectations of possible “mentoring programs”, we introduced our survey only as part of a project to “improve the LMU curriculum”.

We carefully weighed the number of questions and the expected amount of participation and deliberately limited the length of the survey in order to maximize the number of answers. We included questions as to the satisfaction with the curriculum as a whole and the teaching per se (questions 2 and 3) in order to be able to relate the answers to these questions to the ones that have bearing on mentoring (questions 4 through 7).

2.3. Survey results

2.3.1. Participation

There were 3.712 recipients on the student e-mail lists at the time the study invitations were sent out, it is unclear however, how many of those addresses were valid. A total of 578 medical students replied to the survey. Estimating the number of students at our institution at 3.200, this is a very high response rate with close to 20% of the total studied population.

The replying students were evenly (and representatively) distributed among the years of medical school,
141 were in the first year,
108 in the second,
80 in the third (and starting the clinical part of studies at the LMU),
83 in the fourth,
85 in the fifth and
80 in the final “practical” year.

2.3.2. Responses

In summary, the answers demonstrated a high level of satisfaction with the teaching, while revealing severe deficits when it comes to personal support of the students.

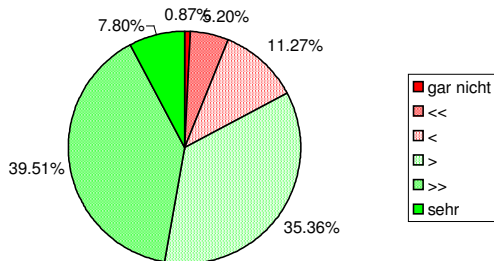


Figure 3
Answers to question 3: Are you satisfied with the teaching offered by the medical faculty?

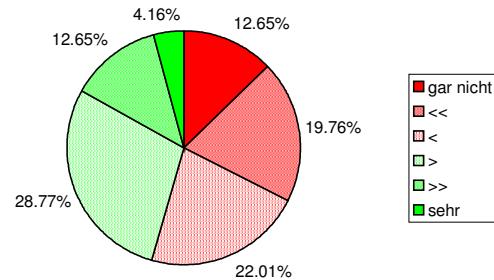


Figure 4
Answers to question 4: Do you feel that the university is promoting your personal development?

More than 80% of students are satisfied or rather satisfied with the teaching they are offered (n=577) but less than 50% feel like the faculty is helping them with their personal development (n=577).

When asked whether they feel sufficiently supported in their studies, 63,5% answer negatively (n=578) and most significantly, more than 85% of respondents answer the question whether they would like more individual care favourably (n=575), more than a third of all students queried even answered “very much”.

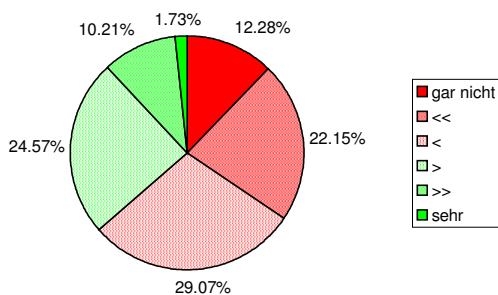


Figure 6
Answers to question 5: Do you feel sufficiently supervised and guided in your studies?

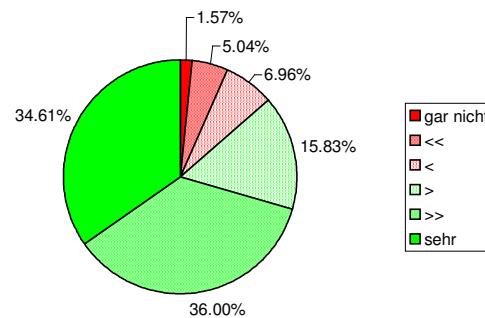


Figure 5
Answers to question 7: Do you wish for more individual care through the university?

There were 93 free text responses. Although there was no mention of the word “mentoring” in the questionnaire, a few responses spontaneously addressed the subject and voiced opinions that concur very well with our ideas:

- „Bei den Vertretern der Fakultät variiert die Zugänglichkeit natürlich - einige sind sehr engagiert und interessieren sich wirklich für Kritik und

nehmen diese ernst, andere wiederum gar nicht. Allgemein ist aber zu sagen, dass die LMU eher ein anonymer Moloch ist, in dem der einzelne oft nur Matrikelnummer ist und nicht Student. Vielleicht würde es helfen, ein festes Tutor-System einzuführen mit mehreren Ebenen. D.h. ältere Studenten betreuen jüngere/Erstis und die Älteren wiederum werden selbst betreut von "Fertig"-Studierten.“

- *„Bis jetzt habe ich noch keinen Kontakt zu Professoren oder sonstigem Lehrpersonal gebraucht; wird sich aber jetzt zeigen, wenn man eine Promotion sucht und da denke ich wird die Betreuung (die sehr wichtig wäre [Karriereplanung]) fehlen; ich fände es schön, wenn es ein Mentorenprogramm gäbe (einige Professoren haben das zu Beginn des Semesters zwar angeboten), aber ein strukturiertes (Mentoren-) Programm würde es leichter machen bzw. es ist in der Vorklinik auch gar keine Zeit, sich um solche Dinge selbst zu kümmern. Muss ja auch nicht gleich ein Professor sein der betreut (aber ausgewählte Betreuer mit vielleicht 10 Studenten, die betreut werden)“*
- *„Eine persönlichere Betreuung wäre mehr als wünschenswert. Vielleicht im Sinne von Mentoren für jedes Semester, so ähnlich wie im Modul zwei, dort sieht man seinen Tutorialleiter im Idealfall 2x pro Woche.“*
- *„Mentoring wäre schön; so etwas gibt's hier leider gar nicht.[...]“*
- *„Schlechte Betreuung, unfreundliche & wenig hilfsbereite Verwaltungsangestellte und so geht das durch die Bank weiter! Kurz gesagt, LMU ist genau das Gegenteil einer "Elite-Universität"!!!!“*
- *„Mangel an Austausch zwischen den Studentengenerationen, gute Lehre müsste mehr anerkannt werden (uniinterne Auszeichnungen für engagierte Dozenten z.B.)[...]“*
- *„[...]Eine eigene Homepage der Fakultät, auf der man innovative Ideen präsentieren kann. Die beste Idee wird monatlich mit 500 Euro belohnt. Mehr Preise und Auszeichnungen, auch schon für Medizinstudenten, wie in den USA.[...]“*

All survey results can be viewed on

<http://mentoring.vonderborch.com/umfragepublish.htm>

A text file containing all 93 unabridged free text answers is on

<http://mentoring.vonderborch.com/freitextantworten.txt>

3. One-to-one mentoring

3.1. Assigning mentors to mentees

3.1.1. The matching process

3.1.1.1. Free choice of mentor

Specific program design features that should facilitate such processes include

(a) allowing individuals to feel as if they have input into the matching process,

(b) creating a sense that program participation is voluntary,

(c) taking steps to increase the opportunity for frequent interaction between mentor and protégé, and

(d) careful consideration of rank and departmental differences when making matches so as to increase the potential for learning, sponsorship, and the development of strong emotional ties.

(Allen, Eby, and Lentz 2006)

Since a voluntary relationship between mentor and mentee is paramount for motivation and success of the program, we will always prefer a mentoring pair that forms spontaneously over one that is assigned by other means (Jackson et al. 328-34).

Therefore, a mentee should always be able to pick their own mentor.

Unfortunately, limits must be set so that particularly popular mentors are not overwhelmed to the point where they cannot effectively mentor students or refuse to do so.

This means, a mentee can only pick a mentor that

1. is part of the program and has not reached their maximum number of three mentees yet.
2. is part of the program, already has the maximum number of mentees but personally accepts this additional mentee.
3. is not yet part of the mentoring program, but LMU-affiliated (please see chapter 3.4.1 for details) and consents to formally accept the mentee as part of the program.

Mentors can have a maximum of three mentees. For details and exceptions, please refer to chapter 3.4.1.

At the end of a semester, both mentor and mentee will be asked whether they would like to continue the mentoring relationship. If either of them decline, the mentee will be matched with another mentor at the beginning of the following semester.

3.1.1.2. Computerized matching

We expect a large number of students that cannot or will not choose their mentor themselves. This could be for a number of reasons, the main obstacle especially for younger students being that they may not know of a person among faculty and physicians that they'd expect a good mentoring relationship with or their main choices may already have their maximum number of mentees.

As we have learned, randomly assigning mentors and mentees is detrimental (Ragins and Cotton 1999). Personal matching is impractical due to the sheer number of cases. In this case, we propose a computer-based matching process seeking to pair off mentors and mentees that are most likely to be compatible judging from a profile that will be collected using the following set of questions.

Questions for mentees	Answer type
In the future, I see myself in patient care.	1-6
In the future, I see myself in research.	1-6
This research would be	clinical experimental undecided
I'm likely to work in a university hospital	1-6
I'm likely to work in a non-university hospital	1-6
I'm likely to go into private practice	1-6
I value practical experience in foreign countries	1-6
I'm seeking to go into	
a) undecided	
b) a specialty	
a. clinical work	
i. operative	
1. (list of subspecialties)	
ii. non-operative	
1. (list of subspecialties)	
b. non-clinical work	
My priorities in medical school are	
exams	1-6
becoming a good physician	1-6
social contacts	1-6
My extracurricular activities include	
volunteer work	hours/wk
sports	hours/wk
music	hours/wk
cultural events	hours/wk

Questions for mentors		Answer type
I am involved in patient care.		1-6
I am involved in research.		1-6
I actively pursue	clinical experimental no	research.
My mentees should seek to work in		
a university hospital		1-6
a non-university hospital		1-6
private practice		1-6
I value practical experience in foreign countries		1-6
My specialty.		
My mentee's priorities in medical school should be		
exams		1-6
becoming a good physician		1-6
social contacts		1-6
My free-time activities include		
volunteer work		hours/wk
sports		hours/wk
music		hours/wk
culture		hours/wk

Answering of these questions will be mandatory for all mentors participating in the program as well as all students entering the clinical part of their training (between 1. Ärztliche Prüfung and Modul I). Students, but not mentors, are largely free to answer as few or as many questions in their profile as they like – the more questions they answer, the more targeted their matching will be. Students and mentors are free to change their profiles at any time, yet the matching process will only take place once per semester.

As a result of the matching process, the student will be presented with a choice of 10 mentor profiles that most accurately fit their own profile and do not have their maximum amount of mentees yet. This list will include the mentor's name, place of birth, medical school, time spent abroad, specialty, research area, selected publications, distinguishing occupations, qualities or achievements and possibly further information (see 3.1.1.3). Students are free to pick their mentor from this list or even change their profiles and re-start the matching process. This has the advantage of requiring an active decision from the student in picking their mentors, which will effectively oppose possible feelings of coercion into a mentoring relationship with any given mentor as compulsory random assignment would.

If the student indicated a preference for clinical vs. non-clinical or operative vs. non-operative specialties, a minimum of five mentors among the ten presented will be the closest matches from that chosen category. If the student indicated a specific specialty, a minimum of three mentors of that specialty will be

presented to the student as long as this many mentors are still available in the field. The rest of the suggestions will be the highest matching physicians irrespective of their specialties.

We realize that successful pairings can in no way be guaranteed by this process but by experience and evaluation over years we will be able to adapt the questionnaires to maximize the likelihood of suitable mentor-mentee pairings. If the mentee is displeased with the mentor chosen in the matching process, they can select another mentor freely or match again during the next semester, giving them a maximum of as many mentor-mentee matchings as they have clinical semesters (eight or more). This may still not be enough to find the perfect mentor but it constitutes a reasonable trade-off between likelihood of success and practicability.

3.1.1.3. Additional information about the mentor

As part of their profile, the mentor should also be given an opportunity to present themselves and what they expect of their future mentees in a free text. A short paragraph may be of great assistance to the mentee in making an informed decision while choosing a mentor out of the ten options they are matched for.

3.2. Guidelines for and contents of the mentor-mentee relationship

3.2.1. Preparation

Mentees will be required to write a free text or essay that their mentors will receive before the first meeting in the semester. Students will be asked to provide this free text during the process of filling out their mentoring profiles online but it will not be used to match students to mentors.

We do not seek to specifically regulate the content of the student's essay but we have devised the following set of questions to guide the written discussion.

- Why did you decide to study medicine?
- Taking stock: where are you in your studies?
- How is your research/thesis?
- Where do you see yourself in 10 years?
- What do you expect from your mentor?

The student will nonetheless be free to discuss any subject they deem appropriate.

Requiring students to send in this written essay as opposed to only orally discussing these topics with the mentor has the following benefits: A person's goals and plans often are vague concepts until they are forced to verbalize and commit them to writing, which requires some reflection which shouldn't be done during the meeting. Also, a mentor can in this way read and reflect upon a mentee's concerns before the actual meeting.

As for the whole mentoring program, we believe that the student's voluntary participation is key to success and forcibly requiring any extended amount of

writing on the part of the student will be ineffective as the quality of self-reflection and effort cannot be enforced.

Therefore, we propose that the amount of mandatory free text should be minimal but of course can be voluntarily extended. The incentives to do this voluntarily could either be the primary motivation of thoroughly reflecting on and actively committing to paper the topics discussed as well as the fact that their mentor will be reading their text before the upcoming meeting. We believe that this should be adequate motivation for the student to make a reasonable effort with the essay. What's more, a student who is not properly motivated by these means will unlikely profit from the added pressure of having to submit a predefined amount of words or answers.

3.2.2. Semester meeting

This meeting is mandatory and should take place in the first two weeks of the semester. Ideally, mentor and mentee will agree on a time and place for the meeting. Particularly busy mentors could suggest fixed time slots in their online profile for each of their maximum amount of mentees. Both parties will be held accountable for making the appointment.

Mentors cannot invite more than one mentee for any of the mandatory meetings.

During the meeting and after getting introduced (if it's the very first meeting of that mentor-mentee pair), the mentor should go over the issues discussed in the essay.

As a mandatory point in the meeting, the mentor should then ask the student for their goals during the upcoming semester. As an example, these may include anything from basic things like good performance in regular studies of the Modul, to additional classes complimenting the Modul, to research/thesis, to extracurricular goals.

The mentor should actively give the student an opportunity to ask any questions they may have.

Suggested topics include

- studies
- research/thesis
- clinical rotations (Famulaturen and PJ), their process, the application, goals during the rotation
- exams (including board exams) and their preparation
- extracurricular activities
- job application (CV, job interview, applicants' networking)
- the mentee's long-term goals and their path towards them
- scholarships (Erasmus, Studienstiftung, Cusanuswerk, "Promotionsstudiengänge", etc.), vhb, other options available to the student

Additionally, mentor and mentee should at this point exchange contact information such as e-mail-addresses, pager or phone numbers as they see fit.

The mentor should encourage the mentee to contact them as they need to. Adequate mentor availability is a prerequisite for participation in the program.

At the end of the meeting, mentor and mentee should decide upon a date and time for any additional appointments, if they so desire. They are required, however, to make definite provisions for the end of semester meeting (see 3.2.4).

3.2.3. Mentor availability

Mentors and mentees are able and encouraged to meet as often as they desire during the semester or semester breaks. The setting of these meetings and the number of mentees the mentor invites to them will not be regulated.

In addition, it is any enrolled mentor's responsibility to make themselves available to their mentees, at the very least prompt replies to e-mails can be expected. We also encourage mentors to show active interest in guiding and assisting mentees and to spontaneously follow-up on their protégé (Rose, Rukstalis, and Schuckit 2005).

3.2.4. End of semester meeting

The end of semester meeting should be similarly structured as the initial semester meeting.

Mandatory topics are the goals that had been set at the beginning of the semester and whether they have been achieved. If not, causes should be discussed and a solution should be searched. Also, the mentor should ask the mentee to define plans and goals for the time between semesters. There is no requirement as to the sophistication of these plans but the student should be encouraged to decide and verbalize them to their mentor to enable follow-up on the next meeting.

3.3. Motivation and evaluation

3.3.1. Motivation of the mentor

Ideally, mentors will have as primary motivation the satisfaction from the positive development and success of their mentees. This is why the recruitment and evaluation of mentors should be geared towards selecting individuals with a maximum amount of primary motivation for mentoring.

Additionally, there are three principal ways of rewarding good mentorship (Ramani, Gruppen, and Kachur 2006):

1. recognition
2. promotion
3. money

As symbolic recognition of their efforts, any physician mentoring a mentee should receive a sum of €100 per mentee and per semester.

Positive evaluations can be recognized in the form of awards or financial benefits.

In addition, mentors could be rewarded by free textbooks or access to conferences or courses and we believe awards along the lines of “mentor of the year” for mentors with most positive evaluations would be a cost-effective reinforcement of excellent mentoring efforts. As these become increasingly well known, they may also factor into the advancement of an individual’s career (Benson et al. 2002). The award could also be associated with a monetary or itemized prize sponsored by any company willing to do so (and have the award be named after them in return, Schindler, Winchester, and Sherman 2002).

Apart from excluding a poor mentor, there is limited benefit to the program from sanctioning, since being a good mentor to someone cannot be forced. Therefore, the emphasis should be on rewarding excellent mentors.

However, consequences of negative evaluations could range from encouragement or additional training of the mentor in question to a formal reprimand up to exclusion from the program (with the subsequent obligation of their department heads to find a replacement mentor from their staff). This may have an indirect effect on a poorly performing mentor’s ability to professionally advance.

3.3.2. Evaluation of the mentor

The quality of mentoring provided can be measured in two ways.

1. the number of mentees that choose to stay with the mentor for another semester
2. direct evaluations by the mentees, performed through brief online questionnaires at the end of each semester

The questionnaires should contain the following questions:

Questions for mentees	Answer type
I find the mentoring program a good idea.	1-6
My mentor was available to me.	1-6
My mentor was motivated.	1-6
My mentor was punctual and reliable.	1-6
The mentor actively gave me new incentives.	1-6
I have profited from the mentoring program.	1-6
Overall, I’m satisfied with my mentor.	1-6
I would recommend my mentor to others.	1-6
I would nominate my mentor for an award.	1-6
I will keep my mentor during the next semester.	yes/no.
Was there anything missing?	free text.

Anonymity of these answers will be extremely important for many reasons, not the least of which are that the student may very well meet a potentially badly evaluated mentor again in a class, in an exam or as a future employer. Therefore, especially in cases where mentors have a very small number of evaluations due to having few mentees or being new to the program, extreme care should be taken with action on the side of program management in response to negative evaluations (Djerassi 1999).

This may mean that management will have to wait for a sufficient number of evaluations to come in before taking action, in order to be reasonably sure a mentor cannot trace back individual evaluations to their authors among the mentees. But such a number of evaluations will likely be necessary to give an accurate report of a mentor's overall performance in the first place as there will always be incompatible pairings with no particular part of it to blame.

3.3.3. Motivation of the mentee

We do not anticipate a great need for additional means of motivating students to participate in this program.

Especially after a very recent survey among LMU medical students showed that the majority wishes to get more supervision and support, the advantages for the mentees within this program are quite obvious.

Nonetheless, advantages should be emphasized in an initiation lecture and a small information booklet. These will explain the goals of this program and what is expected of its participants. The mentees should be made aware of the fact that this program was created for them, not against them.

Another fact that will increase motivation is the possibility to arrange each meeting with the mentor the way both like it the most. There is no requirement for a specific setting, time, place or activity.

3.3.4. Evaluation of the mentee

As the student mentees are exposed to various written and oral examinations during their curriculum, we decided not to stress the mentor-mentee-relationship by another evaluation.

However, the drawing up of a decent portfolio and the discussion of its content and layout with the mentor at the end of each Modul will lead to a kind of evaluation of the mentee not only by his mentor but also by himself.

(For more information about the portfolio, please see the exposé on portfolios.)

3.3.5. Evaluation of the program

There are two primary reasons for well-organized and thorough evaluations of the acceptance and benefit of the program as well as the satisfaction of the students.

Firstly, the mentoring office will conduct these evaluations in order to continuously improve the mentor matching process, to optimise administration

and to react to opportunities for other improvement as brought up by mentees and mentors.

Additionally, we have found only very limited literature on this subject and none of the publications we have found show data about a program with such a large student body as we have at our institution. Therefore, it should be envisaged to perform structured pre- and post introduction surveys of students for scientific evaluation.

This, together with a description of our working mentoring program could then be published in order to share our experiences and serve as a model for other institutions.

3.4. Organisational considerations

3.4.1. Recruitment of mentors

Clinical departments will be asked to provide a number of mentors that is proportional to their amount of teaching staff. The overall number of mentors from these departments alone must be sufficient to theoretically provide mentoring to all students in clinical semesters.

We have made an exemplary calculation based on the most current and accurate numbers of physician employees of the LMU's departments as shown in the LMU annual report or relayed to us from department heads. These numbers do specifically **not** include employees working on research grants or any other personnel. The calculation can be found in chapter 6.2 below.

As a rule, priority should be given to employees that have the highest intrinsic motivation for mentoring students but the allotted quota of mentors must nevertheless be met.

We specifically encourage pre-clinical departments (such as anatomy, physiology, biochemistry), physicians in university-affiliated teaching hospitals as well as private practice physicians enrolled by the LMU in a "Lehrpraxis" to volunteer for the program.

Physicians will always be welcome to join the mentoring program no matter what their department or subspecialty and irrespective of whether their department quota has been met.

However, all mentors must be physicians or research personnel in a LMU hospital, pre-clinical or clinical institute of the LMU, LMU-affiliated teaching hospital or LMU-affiliated private practice.

If mentees appoint a qualifying mentor that is not yet part of the mentoring program, they will be enrolled, but not automatically asked to take on more than that student. Naturally, they may choose to be included in the matching process and provide a profile to this end.

“Quota” mentors enrolled in the program will be expected to accept up to three mentees. If there is high demand for any particular mentor, they can voluntarily accept additional students (see 3.1.1.1). Mentors choosing to do this do not automatically increase their maximum number of mentees. If a mentor has exceeded their maximum number of mentees by taking on more, these additional students will automatically fill up “spots” left open by other mentees leaving that mentor’s care. This means that if a mentor has 3/3 mentees, then takes on another, they will be regarded as having 4/3. Even if one of the original three mentees leaves, the mentor will be back at their maximum number and an additional “spot” does **not** free up.

In effect, this should lead to a competition among those students that are highly motivated for mentoring to earn “spots” with the mentors they seek most. But even if this has to be a first-come-first-serve kind of competition, students that fail to procure a mentoring relationship through these means are free to contact their desired mentor and arrange for them to additionally take them on if both sides agree.

3.4.2. Mentor training

In order to make mentoring more effective for both mentor and mentee and to enable mentors to support their mentees adequately, mentors should be trained and prepared not only before entering the mentor-mentee-relationship, but also for the duration of the relationship until the mentee’s graduation (Freeman 1997;Eckenfels, Blacklow, and Gotterer 1984).

1. Therefore, mentors should be provided with
 - a. general information about the goals of mentoring for the Medical Faculty of the LMU, the benefits of the program for mentors themselves, the matching process, the organisational structure of the program and the topics they are expected to deal with when meeting their student mentee. They should know what it means to be a mentor and contemplate their role in the mentoring relationship.
 - b. a revised version of the exposé should be part of a booklet that the mentor is handed out when entering the program. This guidebook should help the mentors to improve their knowledge about the mentoring process: its elements, stages of development and their role in it. It should give them practical guidance for nurturing rewarding relationships with the students and address topics like constructive and productive feedback, how to foster networks, how to deal with problems etc. In addition, it should contain helpful information about scholarships, organisation of clerkship or scientific research abroad, the structure of the medical curriculum at the LMU and possibly the results of a survey among the students, addressing their needs in the graduation process.
2. To ensure that every mentor gets a minimum of training, mentors will be obliged to attend an introductory lecture or weekend seminar for the program. This is also necessary to make the faculty aware of this new program.
3. Furthermore, mentors should take part in workshops, organized by members of the medical faculty or other departments of the LMU. Cooperation with the

faculty of psychology or the teacher's training college could be considered. Alternatively, third-party workshops, with topics such as career advising for example, could be offered to selected highly-motivated mentors or mentoring appointees.

4. We are aware of the fact that not every mentor can or is willing to receive this amount of training. Therefore, each department of the medical faculty should nominate a mentoring appointee who will be offered this special training and then pass on insights and training to the other mentors of his department.

3.4.3. Organisational infrastructure

There is a definite need for a central organizing office for a project of this magnitude.

We propose a head of the mentoring program, with expertise in and dedication to mentoring. This could be an educationalist specialized in adult education for example.

Additionally, at least one assistant and/or student aids will be required to handle the workload.

The main tasks of the office will be:

- oversight and control over the mentor quotas and their fulfilment by the departments
- oversight and control over the timely and proper completion of matching profiles
- contact for mentors' questions
- preparing and circulating mentor training materials (see 3.4.2)
- organizing mentor training workshops (see 3.4.2)
- handling mentor remuneration
- processing of mentor/mentee evaluations and organizing awards
- adaptation of the matching profile questionnaire according to measured success of mentoring pairings
- mediating and resolving difficulties in cases of irreconcilable differences in individual mentor-mentee pairings

The office will also be responsible for oversight and support of the societies as outlined below (see 4).

Any department required to fulfil a quota of mentors will be asked to name a mentoring appointee for their institution that the mentoring office will be in contact with. This appointed person will be responsible for recruitment of mentors among their peers. This has the advantage that the mentoring appointee has more detailed knowledge about his co-workers and their timetables and will be able to collect the required amount of mentors more effectively.

Mentoring appointees can be offered specialized mentoring-related training and workshops by the office (see 3.4.2.4).

Proper programming of the website and underlying server that will be running the matching process is crucial. Initial programming should be performed by a task force consisting of experienced programmers and members of the faculty intimately familiar with the details of the proposed mentoring program. After the software has been set-up and has passed initial testing, experienced IT personnel should be assigned to and responsible for the maintenance of the system.

3.4.4. Initiation of the program

In order to successfully implement this program, a lot of diligent preparation will be necessary (Schatz et al. 2003).

After official approval of the program, funding needs to be secured, tuition fees could be used.

The mentoring office needs to be staffed.

Most prominently, the software for the online matching process will have to be written and thoroughly alpha-tested.

Department heads should be invited to an official introduction lecture of the program and be made aware of the new requirement to find a mentoring appointee among their staff who will have to send a list of a defined amount of mentors to the mentoring office.

The prospective mentors will then be required to fill out their online profiles and mentor training should at this point be offered.

As soon as the mentor quota has been met, the student body can be invited to join the program.

Participation could for example be mandatory for all prospective Modul I students who will be required to fill out their profiles before the beginning of clinical studies. At this point, participation could be on a voluntary basis for all students already in higher clinical semesters. This would likely lead to a more highly motivated "first wave" of mentor-mentee pairings.

Nevertheless, the program should be introduced to all students in clinical semesters through introductory lectures.

4. Peer to peer mentoring and the society model

In addition to the one-to-one mentoring for students in the clinical years, we propose a peer-to-peer mentoring format for the pre-clinical years. Peer-to-peer mentoring and co-mentoring formats offer a unique vehicle for teaching students the value of mentorship whether serving as the mentor or as the protégé (Scott 2005). The central goals of the mentorship liaison are to establish a support system for junior students entering medical school and to give the senior students an experience of nurturing, leading, and advising younger students (Kram and Isabella 1985).

4.1. The peer to peer concept

Traditional mentoring programs in academic institutions have largely been dependent on motivated faculty members serving as mentors to the student body. We presume, however, that first and second year medical students may benefit most from mentoring, counseling, and support with issues closely related to day to day demands of medical school and the transition from high school to university. The concept of peer-to-peer mentoring is to establish a support system of equals for the medical students of the LMU. We believe that providing students with easy access to mentors/counselors that have just recently been through the same experiences may be the most promising approach to help our first year students to get a successful start into their academic life at the LMU.

4.2. Advantages of peer to peer mentoring

4.2.1. "First year problems"

Many of the questions and problems first year students face are best answered by those who have just recently been in a similar situation. Peers with more experience are likely to be able to give much more concrete advice to entering students than faculty members who are further beyond their own student days and may not know the exact demands of the constantly evolving MeCuM curriculum.

4.2.2. Inherent equality among peers

- Peers may feel more comfortable sharing personal information with each other, and less inhibited when discussing topics beyond a professional or academic nature.
- Among equals, feedback is likely to be more personal and direct than in traditional mentoring relationships.
- Because peers are of similar professional rank and stature, peer relationships are more flexible in everything from determining time and place of meetings to defining goals and expectations for the relationship.
- Due to the reciprocity of the relationship both mentor and mentee can make valuable contributions and all participants will gain from this program (Woessner et al. 2000; Bussey-Jones et al. 2006; Pololi et al. 2002).

4.2.2.1. Particular advantages regarding peer mentoring at the LMU

- Given the great number of students entering the LMU medical program each year, there is a lack of suitable faculty members to provide every student with one to one mentoring beginning in the first year.
- Positive mentor experience in the first years will motivate students to take full advantage of the mandatory mentoring program introduced in the clinical years of medical school.
- By instituting peer-to-peer mentor structure we hope to introduce a culture of mentoring and teaching that LMU students will take with them into their professional careers (Bussey-Jones et al. 2006).

4.2.2.2. Weakness

Because members of peer mentoring groups usually have less professional experience, peer to peer mentors may be more limited in their advisory role than senior faculty mentors would be. A more traditional mentor, by virtue of their seniority, may be in a better position to facilitate some important tasks and difficult issues (Bussey-Jones et al. 2006). Thus, alongside motivated students, senior faculty members should also be actively involved to provide assistance where greater knowledge and experience are needed.

We therefore propose a society model in which students and faculty of all levels work together to provide structure and support to the LMU medical student body.

4.3. The society model

The model we advocate is a “vertical advising” program, that integrates both students and faculty of all stages of their medical training. We propose a pyramidal model of 5 societies with 4 levels. On the first level: the students of the first 2 years, and those who have yet to pass the Physikum, on the second level: the students of the clinical semesters, on the third level residents and junior faculty, on the fourth level one senior faculty member that will serve as head of the society. This way, the large number of students is broken down into smaller, cohesive groups. The society will function as an individualized support for the medical students of our institution, overcoming the shortage of available one-to-one faculty mentors.

4.3.1. Goals of the society system

Most importantly, the societies create an environment where mutual mentor-mentee relationships can naturally occur.

Furthermore this system will

- allow sharing of information important to all students
- enhance student-student and student-faculty communication
- provide a support system for academic, social, fiscal and other student problems
- encourage the development of students' team building-, problem solving- and leadership skills
- strengthen the students' identification with our University and thereby valuably contributes to the LMU corporate identity (Pololi and Knight 2005)

The society model is being proposed by the Chicago group 2007 because we believe that the elements mentioned above are essential components of a successful educational experience.

4.3.2. Structure of the societies

4.3.2.1. Five Societies

The incoming class of 800 students every year needs to be divided into groups of sizes that are appropriately small, yet large enough to best take advantage of the society structure. The division into five groups is adopted from the grouping of students into five groups in the first year anatomy course. As students who took this course and also participated as course tutors in later semesters, it is our experience that students already identify with the group they are in, and that strong bonds of friendship and camaraderie form during this course. We hope to capitalize on using this pre-existing structure and integrate students easily into a society, and give each member of a particular society the feeling of truly belonging to this group of people.

4.3.2.2. Students of all semesters

160 new first year students will enter one of the five societies every fall. The students will remain in their respective society until the end of their studies at the LMU.

Thus, each society will have approximately 320 students from the first two pre-clinical years and about 40 students of each of the clinical semesters (one-fifth of the average number of 200 students in any clinical semester).

4.3.2.3. Student representatives and selected peer advisors

In every society, every semester/year should select one student to represent their semester within the society.

Of the semester representatives, one should be elected student president of the society.

From each clinical semester students can apply and three applicants will be chosen to be official peer advisors for the students of the lower semesters.

4.3.2.4. Faculty Members

Every society will have one senior faculty member as head of the society.

An additional five to ten residents/junior faculty members will also be part of each society.

The selection of faculty members for positions in a society will be discussed below.

4.3.2.5. Activities

To encourage and increase personal contact the societies will organize different events each year. Every society will have to organize some kind of activity for its members once every semester. One of the five societies will be responsible of organizing a big event that will take place once a year, where all five societies will participate, in a rotating manner. These events could be associated to guest

lectures, sports, excursions, culture, music, fundraising for charities or just socializing. The organization of these events will be the sole responsibility of the group, they will only be obliged to announce their plans to the mentoring office four weeks after the beginning of each semester. The mentoring office will be authorized to support the societies financially if necessary, at least for the big event of the year. During these activities, students will have the opportunity to network with other members, get to know them better and have a kind of informal meeting where they can discuss their concerns.

4.3.2.6. Society web page

Recent literature supports giving mentorship programs a more flexible structure through use of the internet for communication and exchange (Cavallaro and Tan, 2006). Our goal is to enable easy communication within the society through e-mail and forums on a society web page.

Access to the society web pages will be password protected.

Every member should have a profile on this web page that is accessible to other society members. This profile could include a picture and a small text describing each member.

In addition to the member profiles, all members should have access to the contact information of the members of their own semester, semester representatives and peer advisors.

Peer advisors and representatives should also be given the contact information of the faculty members of the society.

This is to encourage students to work with other students and the peer advisors to answer questions and solve problems together, as well as to protect faculty members of the societies from being contacted too frequently, and unnecessarily.

4.3.2.7. Responsibility of the society

The main function of the societies is to create an environment through informal meetings and group activities that promotes networking and the formation of spontaneous mentoring relationships.

Furthermore, the societies will be a source of information and guidance to the medical students of the LMU.

4.3.2.8. The backbone of the societies

The faculty society members are going to be selected among the medical school's most distinguished clinician-educators. All should be active, respected clinicians who have been recognized for their teaching skills and have devoted much of their academic careers to medical education.

For the selection of the heads of the societies (fourth level), a committee will be formed by the mentoring office, the deans, the representatives of each Modul and students' representatives. The committee's task will be to find the most appropriate individuals that will be assigned with this prestigious title.

For selecting the third level society members, the same committee will set criteria to evaluate the applications of the faculty members. Every clinician working at any LMU hospital and every member of the pre-clinical departments will be allowed to apply. The application should include a letter of motivation, a CV, a recommendation letter and the application form that can be found at the mentoring office or at the mentoring web page.

Peer advisors will also be selected by means of an application. After passing the Physikum, the 400 students that continue studying at the LMU will have the opportunity to apply for these distinguished positions. Their application will have to include the application form provided by the mentoring office, the CV, a letter of motivation and a statement of three other members of the society recommending them. These can also be students but not all of them can be in the same semester.

Each one of the members that have an advisor role in the society will have to confirm after the end of each semester that they wish to continue with their tasks. In case they don't, the senior members of the society in collaboration with the Mentoring Office will be responsible for replacing them by using the same acceptance criteria.

5. Acknowledgements

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6. Appendix

6.1. References

- Aagaard, E. M. and K. E. Hauer. "A cross-sectional descriptive study of mentoring relationships formed by medical students." *J.Gen.Intern.Med.* 18.4 (2003): 298-302.
- Allen, T. D., L. T. Eby, and E. Lentz. "Mentorship behaviors and mentorship quality associated with formal mentoring programs: closing the gap between research and practice." *J.Appl.Psychol.* 91.3 (2006): 567-78.
- Benson, C. A. et al. "Effective faculty preceptoring and mentoring during reorganization of an academic medical center." *Med.Teach.* 24.5 (2002): 550-57.
- Berk, R. A. et al. "Measuring the effectiveness of faculty mentoring relationships." *Acad.Med.* 80.1 (2005): 66-71.
- Bhagia, J. and J. A. Tinsley. "The mentoring partnership." *Mayo Clin.Proc.* 75.5 (2000): 535-37.
- Buddeberg-Fischer, B. and K. D. Herta. "Formal mentoring programmes for medical students and doctors--a review of the Medline literature." *Med.Teach.* 28.3 (2006): 248-57.
- Bussey-Jones, J. et al. "Repaving the road to academic success: the IMeRGE approach to peer mentoring." *Acad.Med.* 81.7 (2006): 674-79.
- Djerassi, C. "Who will mentor the mentors?" *Nature* 397.6717 (1999): 291.
- Eckenfels, E. J., R. S. Blacklow, and G. S. Gotterer. "Medical student counseling: the Rush Medical College Adviser Program." *J.Med.Educ.* 59.7 (1984): 573-81.
- Freeman, R. "Towards effective mentoring in general practice." *Br.J.Gen.Pract.* 47.420 (1997): 457-60.
- Jackson, V. A. et al. "'Having the right chemistry": a qualitative study of mentoring in academic medicine." *Acad.Med.* 78.3 (2003): 328-34.
- Pololi, L. and S. Knight. "Mentoring faculty in academic medicine. A new paradigm?" *J.Gen.Intern.Med.* 20.9 (2005): 866-70.
- Pololi, L. H. et al. "Helping medical school faculty realize their dreams: an innovative, collaborative mentoring program." *Acad.Med.* 77.5 (2002): 377-84.
- Ragins, B. R. and J. L. Cotton. "Mentor functions and outcomes: a comparison of men and women in formal and informal mentoring relationships." *J.Appl.Psychol.* 84.4 (1999): 529-50.
- Ramani, S., L. Gruppen, and E. K. Kachur. "Twelve tips for developing effective mentors." *Med.Teach.* 28.5 (2006): 404-08.
- Rose, G. L., M. R. Rukstalis, and M. A. Schuckit. "Informal mentoring between faculty and medical students." *Acad.Med.* 80.4 (2005): 344-48.
- Schatz, P. E. et al. "California's Professional Mentoring Program: how to develop a statewide mentoring program." *J.Am.Diet.Assoc.* 103.1 (2003): 73-76.
- Schindler, N., D. P. Winchester, and H. Sherman. "Recognizing clinical faculty's contributions in education." *Acad.Med.* 77.9 (2002): 940-41.
- Scott, E. S. "Peer-to-peer mentoring: teaching collegiality." *Nurse Educ.* 30.2 (2005): 52-56.
- Woessner, R. et al. "Support and faculty mentoring programmes for medical students in Germany, Switzerland and Austria." *Med.Educ.* 34.6 (2000): 480-82.
- Wright, S. "Examining what residents look for in their role models." *Acad.Med.* 71.3 (1996): 290-92.

6.2. Mentor Quotas

Institutions	Medical Personnel	Mentee Spots	Mentors
Klinik für Anaesthesiologie	188	206	69
Kinderklinik und Kinderpoliklinik im Dr. von Haunerschen Kinderspital	146	160	53
Klinik und Poliklinik für Psychiatrie und Psychotherapie	71	78	26
Medizinische Poliklinik Innenstadt	70	76	25
Chirurgische Klinik und Poliklinik GH	66	72	24
Chirurgische Klinik und Poliklinik INN	64	70	23
Medizinische Klinik und Poliklinik III	54	59	20
Institut für Klinische Radiologie	53	58	19
Klinik und Poliklinik für Frauenheilkunde und Geburtshilfe GH	52	57	19
Medizinische Klinik Innenstadt	56	61	20
Neurologische Klinik und Poliklinik	52	57	19
Klinik und Poliklinik für Frauenheilkunde und Geburtshilfe INN	51	56	19
Klinik und Poliklinik für Dermatologie und Allergologie	50	55	18
Augenklinik und Poliklinik	48	52	17
Medizinische Klinik und Poliklinik I	48	52	17
Medizinische Klinik und Poliklinik II	41	45	15
Others:			
Klinik und Poliklinik für Hals- Nasen- und Ohrenheilkunde	39	43	14
Herzchirurgische Klinik und Poliklinik	31	34	11
Orthopädische Klinik und Poliklinik	31	34	11
Institut für Klinische Chemie	29	32	11
Urologische Klinik und Poliklinik	28	31	10
Neurochirurgische Klinik und Poliklinik	26	28	9
Kinderchirurgische Klinik und Poliklinik im Dr. von Haunerschen Kinderspital	23	25	8
Klinik und Poliklinik für Physikalische Medizin und Rehabilitation	24	26	9
Klinik und Poliklinik für Strahlentherapie und Radioonkologie	21	23	8
Klinik und Poliklinik für Nuklearmedizin	18	20	7
Abteilung für Klinische Chemie und Klinische Biochemie	12	13	4
Abteilung für Kinderkardiologie und Pädiatrische Intensivmedizin	10	11	4
Institut für Chirurgische Forschung	8	9	3
Abteilung für Neuroradiologie	9	10	3
Institut und Poliklinik für Arbeits- und Umweltmedizin	8	9	3
Abteilung für Transfusionsmedizin	8	9	3
Abteilung für Infektions- und Tropenmedizin	7	8	3
Institut für Prophylaxe und Epidemiologie der Kreislaufkrankheiten	6	7	2
Institut für Klinische Neuroimmunologie	5	5	2
Institut für Humangenetik	3	3	1
Institut und Poliklinik für Kinder- und Jugendpsychiatrie und Psychotherapie	3	3	1
Abteilung für Klinische Pharmakologie	3	3	1
Institut für Notfallmedizin und Medizinmanagement	2	2	1
Total	1463	1600	533