

## Attachment 1: Evaluation concept for CCD

To support the new implementation of (d)CCDs at other faculties, a CCD evaluation concept was developed at LMU Munich and is described here in this supplement (and released for use). Our questionnaires can and should be adapted to the local teaching situation; however, we kindly ask for the appropriate citation of this publication when using the questionnaires in full or in part.

The present evaluation concept was developed at the University Hospital of LMU Munich specifically for the evaluation of CCDs, in a joint effort by the student organisers (moderators of CCD) and members of the working group Curricular Evaluation and Faculty Development of the Institute for Medical Education. The evaluation concept includes different questionnaires, each of which is specifically designed for certain phases of implementation. Like CCDs, the evaluation sheets are also based entirely in English. The sheets are further based on a six-point Likert scale (1 = does not apply at all; 6 = completely applies), with the additional option of 'no response'. For quick recognition of the individual questionnaires and increased user-friendliness, we recommend that the questionnaires be numbered and color-coded accordingly. For the assessment of subjective learning outcomes, we used an additional questionnaire with 10 items on clinical reasoning (van Gessel, Nendaz, Vermeulen, Junod, & Vu, 2003) as part of the summative evaluation.

- **Phase 1a:** New implementation of CCD  
Evaluation focus: general conditions and familiarity with the teaching format (e.g. an institution implements CCD for the first time and would like to know whether students are sufficiently familiar with the CCD format after one or two introductory sessions)
- **Phase 1b:** Formative evaluation of the CCD roles  
Evaluation focus: moderator, presenter, clinician (e.g. students evaluate different aspects of the performance of a new moderator, presenter, or clinician)
- **Phase 2:** Summative evaluation of the course  
Evaluation focus: reasons for participation; assessment of the performance of the moderators, presenters, and clinicians; moderation of the discussion; assessment of usefulness with regard to internationalisation; open questions about the fulfillment of dCCD expectations, suggestions for improvement, and positive aspects of CCDs (e.g. standard teaching evaluation of CCD at the end of the semester)

### *Evaluation sheet 1a (GREEN)*

Evaluation sheet 1a (17 items) is particularly suitable in cases where CCD is newly implemented. Since neither moderators, clinicians, nor discussants have experience with the prototypical process and the specifics of CCD in this scenario, an evaluation of formal aspects is important in order to ensure process quality at this stage. This evaluation sheet helps to optimise the surrounding conditions, if necessary, before the focus of the evaluation in subsequent phases is shifted to the individual roles or the learning outcomes of the participants. Formal aspects relevant to the process include the adherence to the CCD rules of conduct (see Koenemann, Lenzer, Zottmann, Fischer, & Weidenbusch, 2020), a structured patient presentation up to the admission note, an atmosphere conducive to learning and discussion, the active participation of the students, an intermediate level of difficulty, and a subjective assessment of the participants as to how effectively participation in CCD promoted their clinical reasoning and diagnostic skills. Since CCDs are conducted in English, we further recommend to evaluate the participants' competence in the English language.

### *Evaluation sheet 1b (YELLOW)*

Evaluation sheet 1b (21 items) is designed to formatively assess the performance of a (new) moderator, presenter, or clinician. For dCCD, we also used this sheet to evaluate student moderators who were experienced in face-to-face CCD (since they had no experience with the specific moderation of dCCDs). This evaluation sheet focuses, in particular, on the moderator's explanations and support of the clinical reasoning process as well as on the clinician's constructive feedback on the reasoning process.

### *Evaluation sheet 2 (BLUE)*

Evaluation sheet 2 (35 items + 4 open questions) takes up various items from the two sheets described above, supplements them, and is suitable for the overall evaluation of CCDs (e.g. at the end of the semester). The focus of the summative evaluation is not only on reasons for participating in CCDs and assessing the performance of the individual roles, but also on the aspect of internationalisation (i.e., to what extent do the students feel that their participation in CCDs effectively prepared them for medical practice in English-speaking countries).

Evaluation sheet 1a GREEN Clinical Case Discussions

1. Number of clinical semesters: \_\_\_\_\_
2. Gender: ( m / f / d )
3. Native speaker of English: ( yes / no )
4. Previous CCD participation: ( yes / no )

Please choose, to which extent the following statements apply to you.	Does not apply at all	Does not apply	Generally does not apply	Generally applies	Applies	Completely applies	No response
1. I know the "rules of conduct" of clinical case discussions (CCDs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The rules of conduct were followed today	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am familiar with the structure of CCDs (e.g. Chief Complaint, HPI, PMHx, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The structure of CCDs was applied today	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The moderator structured the CCD in a clear and helpful manner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The learning atmosphere of the CCD was friendly and encouraging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The peer-teaching format of the CCD was suitable for my learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The use of English as the predominant language did not hinder my learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I enjoyed participating in the CCD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I actively participated in the CCD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The difficulty level of the CCD was appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. CCD is an effective way to foster my <i>clinical reasoning skills</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. CCD is an effective way to foster my <i>diagnostic skills</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you very much for your participation and feedback!

Evaluation sheet 1b YELLOW Clinical Case Discussions

1. Number of clinical semesters: \_\_\_\_\_
2. Gender: ( m / f / d )
3. Native speaker of English: ( yes / no )
4. Date of the CCD course that you attended:
5. Name of your moderator:

Please choose, to which extent the following statements apply to you.	Does not apply at all	Does not apply	Generally does not apply	Generally applies	Applies	Completely applies	No response
1. I know the "rules of conduct" of clinical case discussions (CCDs).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The rules of conduct were followed today.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am familiar with the structure of CCDs (e.g. Chief Complaint, HPI, PMHx, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The structure of CCDs was applied today.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The moderator structured the CCD in a clear and helpful manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The explanations of the moderator were clear and helpful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The moderator's comments on the group reasoning during the CCD were helpful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The moderator activated my prior knowledge by his questions and cues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The moderator facilitated a lively discussion by all participants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The power point presentation of the case was adequately structured.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The presenter chose meaningful teaching points on the case.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The clinician gave enough space for the peer teaching process to occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. The clinician contributed adequately to my clinical knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. The clinician ensured a scientific standard of discussions during the CCD.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>15.</b> The clinician motivated participants to come up with the clinical diagnoses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>16.</b> The feedback of the clinician was constructive and adequate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Thank you very much for your participation and feedback!*

Evaluation sheet 2 BLUE Clinical Case Discussions

1. Number of clinical semesters: \_\_\_\_\_
2. Gender: ( m / f / d )
3. Native speaker of English: ( yes / no )
4. Previous CCD participation: ( yes / no )

Reasons for participation in the CCD							
Please choose, to which extent the following statements apply to you.	Does not apply at all	Does not apply	Generally does not apply	Generally applies	Applies	Completely applies	No response
1. I participated in CCD because it was recommended to me by fellow students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I participated in CCD because I find the learning and teaching contents interesting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I participated in CCD because I can profit from the contents in my future capacity as a medical professional.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The atmosphere was pleasant during CCD.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Participating in CCD proved effective for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I would recommend the course to a fellow student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior knowledge and case discussions							
Please choose, to which extent the following statements apply to you.	Does not apply at all	Does not apply	Generally does not apply	Generally applies	Applies	Completely applies	No response
1. I find it useful when students with different levels of prior knowledge discuss cases together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I experienced the case discussions as constructive.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The discussions stimulated me to repeatedly scrutinize my hypotheses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. By participating in CCD, I feel more at ease deducing further diagnostic steps from current results.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. By participating in CCD, I feel more at ease extracting relevant information from a case.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. By participating in CCD, I can critically evaluate my level of knowledge more easily.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Knowledge acquired during CCD was readily shared in the group.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Prior knowledge and case discussions</b>							
<b>Please choose, to which extent the following statements apply to you.</b>	<b>Does not apply at all</b>	<b>Does not apply</b>	<b>Generally does not apply</b>	<b>Generally applies</b>	<b>Applies</b>	<b>Completely applies</b>	<b>No response</b>
8. At CCD, I learned how to develop differential diagnoses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I had the opportunity to make clinical decisions at CCD.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. CCD taught me the structure of a patient presentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Moderator, Presenter, Clinician</b>							
<b>Please choose, to which extent the following statements apply to you.</b>	<b>Does not apply at all</b>	<b>Does not apply</b>	<b>Generally does not apply</b>	<b>Generally applies</b>	<b>Applies</b>	<b>Completely applies</b>	<b>No response</b>
1. The moderators structured the CCDs clearly and usefully.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The presentations/explanations of the moderators were easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The group's discussions of the case were appropriately examined by the moderators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My prior knowledge was activated by helpful questions and comments by the moderators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The moderators stimulated the discussion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The presenters created a clearly structured power point presentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The presenters visualized the teaching points by embedding multimedia formats.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The clinicians competently chaperoned the peer education process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>9.</b> The clinicians contributed their knowledge at the right time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>10.</b> The clinicians ensured the scientific standard of the discussions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>11.</b> The clinicians stimulated the discussants to make their own diagnoses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>12.</b> The clinicians' feedback was constructive and appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



International Aspects of CCD							
Please choose, to which extent the following statements apply to you.	Does not apply at all	Does not apply	Generally does not apply	Generally applies	Applies	Completely applies	No response
1. I had a keen interest in attaining medical experience (Famulatur, PJ, Residency) in an English-speaking country before I attended CCD.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. After having participated in CCD, I am more interested in attaining medical education in an English-speaking country.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. CCD effectively prepared me for important aspects of medical practice in English-speaking countries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**General evaluation of the course:**

**1. Were your expectations of CCD fulfilled?**

**If not, what was missing in your opinion? (bullet points)**

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**2. What else do you wish for at CCD for you to feel better prepared for your clinical work?**

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**3. What did you like/dislike most about the student-organized format of the course and why? (bullet points)**

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**4. Is there anything else you would like to mention, which was not already mentioned above?**

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*Thank you very much for your participation and feedback!*