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INTERNATIONAL JOURNAL OF CLINICAL SKILLS



A Peer Reviewed International Journal for the Advancement of Clinical Skills
– ‘docendo ac discendo’ – ‘by teaching and learning’



C.O.M.E.T. – A novel educational method in clinical skills

From simulation to reality

Shibboleths of incompetence

Development of a clinical skills bus: making simulation mobile

“See one, do one, teach one!” – the uphill struggle for clinical skills acquisition

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The International Journal of Clinical Skills looks forward to contributing positively towards the training of all members of the healthcare profession.

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Mission Statement

The clinical skills arena is an ever expanding field with an increasing wealth of knowledge; however there is no central resource for the sharing of evidence based research and information. The International Journal of Clinical Skills (IJOCS) is a peer reviewed International Journal, which will promote the sharing of information and evidence based research, as well as bringing together the clinical skills community.

The Journal aims to develop and maintain standards in research and practice, lay a platform for discussion and debate, and provide opportunity to present evidence based medicine and critical appraisal of research. Provision of this much needed resource for both students, teachers and healthcare professionals, will ultimately enhance patient care.

The IJOCS will be a regular publication, three times a year in the first instance, both online and in print. The implementation of the IJOCS website will provide a continual resource for daily use. Also, in conjunction with the 'Clinical Skills Lab', the IJOCS will allow access to an online database on over 200 clinical skills – launching in 2008.

A diverse range of reviewers support the Editorial Board, all of whom are leaders in their respective fields and the IJOCS prides itself on the quality of content. Contribution of original ideas, research, audit, policy, reviews, case reports and 'Letters to the Editor' are welcome from all those involved in this multidisciplinary field. Submissions are not limited to these specific publication types and your novel suggestions will be considered.

I wish to thank all those involved in the development of this unique venture – a Journal whose remit is highly significant to today's needs.

Dr Humayun Ayub

Editor-in-Chief

International Journal of Clinical Skills

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Foreword

International Journal of Clinical Skills – An exciting forum for clinical skills

There has been an explosion in the volume of medical information related to clinical skills, which are essential in our efforts to maintain optimal patient care. The International Journal of Clinical Skills (IJOCS) aims to disseminate this knowledge in an easily accessible form. This will not only enhance our attempts to provide a quality health service, possibly with some standardisation, but also provide a vehicle for teaching and learning, hence the Journal's motto – 'docendo ac discendo' (by teaching and by learning).

The IJOCS will not only serve as an avenue for publication of research papers, but will also act as a means of communication between clinical skills professionals at an international level. Consequently, those involved in the clinical skills field, can keep those in other countries informed of their activities, as well as offering best practice guidance.

Alongside this valuable publication, a continually evolving online database ('Clinical Skills Lab') will become available for students and teachers to access – this will hold extensive information on over 200 clinical skills. The Clinical Skills Lab will be regularly updated by all those involved in this field and provide a platform for discussion and debate.

The IJOCS also aims to present comment on items of specialist interest. For example, the current issue contains a paper by Professor Harold Ellis CBE, on 'Medico-legal consequences in surgery due to inadequate training in anatomy', and explores the potential niche for anatomical clinical skills training within the newly developed medical Foundation Years (F1 & F2). It is hoped readers will make use of the Journal to comment on matters such as this – and on others relating to the subject of clinical skills – by means of 'Letters to the Editor', research based evidence and shared practice.

In order for IJOCS to become an exciting forum for clinical skills, the Journal welcomes submission of innovative research, papers, reviews and case reports. Of course, submissions are not only limited to these specific publication types and your innovative ideas would be greatly welcome by the Editor.

I am confident that IJOCS will be appreciated by a variety of health care professionals, at an international level. It promises to be representative of an ever expanding field, and with the support of all those able to contribute, it will, without doubt become increasingly influential.

I wish those responsible for the production of the International Journal of Clinical Skills, the success which their initiative deserves.



Professor The Lord McColl of Dulwich CBE
September 2007

COMET: Clinically Observed Medical Education Tutorial – a novel educational method in clinical skills

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Introduction

Tomorrow's doctors need to be competent in core clinical skills which include history and examination, data interpretation, treatment planning, radiological diagnosis and communication skills for common clinical problems. While it is necessary to develop self directed learning, very often medical students faced by the overwhelming amount of information are often confused, leading to students often qualifying without having developed core competencies. Deficiencies have been demonstrated in medical students clinical skills, communication skills and professionalism that may jeopardize quality of practise and patient safety.¹

Studies have shown positive results utilizing the OSCE for evaluating the areas most critical to performance of health care professionals, such as the ability to obtain and interpret data, problem-solve, teach, communicate, and handle unpredictable patient behaviours^{2,3}.

Investigation into the use of the OSCE in undergraduate and postgraduate training has discovered that well over 70% of the study participants rated the OSCE as an above average or outstanding educational method².

Another study exploring clinical performance of Pre-registration House Officers (PRHO) found the OSCE and its components were more consistent and showed positive associations with consultant ratings across the board³ when compared to traditional "long-case" final examinations.

The OSCE was introduced because previous examination techniques were considered to be subject to bias as a result of variability in patients and examiners. Also these traditional examinations failed to ensure that each student was being tested on similar material. Therefore, the OSCE seems to be the most reliable form of assessing clinical competence in medical undergraduates.

Medical schools across Britain revised its undergraduate medical curriculum during the 1990s, following the publication of the General Medical Council's (GMC)⁴ document "Tomorrow's Doctors". As part of this process the end of final year "long case" assessment was changed to the OSCE format. The OSCE fulfils the recommendations in "Tomorrow's Doctors" more accurately than is possible with traditional assessment.

"... assessments must allow students to demonstrate the breadth and depth of their knowledge, and to show what they can do. Professional attitudes and behaviour must also be assessed."

Learning the skills of physical diagnosis and treatment of common problems is a critical part of the medical school curriculum. While there is consensus on what skills should be learned there are divergent views on how these skills should be learned^{5,6,7}. Other studies have explored assessment and evaluation of clinical competence using the objective structured examination^{8, 9,10,11,12,13,14}.

Several studies have used the observed structured clinical examination (OSCE) to assess the effect of teaching on specific skills, such as history taking for smoking or examination for low back pain or the examination of the breast^{15,16,17,18}. Its basic structure is a circuit of assessment and teaching stations where a range of skills may be evaluated.

We decided to critically assess and evaluate the use of the COMET (Clinical Objective Medical Education Tutorial) approach in teaching medical students about chronic obstructive airways disease. It was a multidisciplinary educational session involving medical students, Respiratory nurse specialists, Pharmacists, Clinical skills facilitator and Consultant physicians. Others have used different examination personnel; students compared course feedback on their OSCE performance, examined costs or reliability^{19,20,21,22,23,24,25,26}.

Abstract

Introduction: The modern clinical environment demands clear evidence of competency in core clinical skills for the sake of both patient safety and delivery of effective and evidence-based clinical care.

Lecture and tutorials both suffer from variability in student attention and often information overload. Clinical teachers often have too much to teach and want to "share all the pearls of ones wisdom"

The COMET educational method attempted to teach and evaluate core clinical skills required to sort out a common clinical problem.

Objective: To critically assess the use of a novel approach, COMET (Clinical Objective medical education tutorial) in teaching medical students.

Design: Evaluate and teach at a four station OSCE based on a common clinical problem: - Chronic obstructive Airways disease

Setting: George Eliot Hospital Teaching Education centre.

Students: Warwick Medical students (Phase II) Year three Medical students.

Main Outcome measures: Students own perceptions of learning prior to tutorial and after tutorial with educational feedback provided at each station.

Results: Students reported low levels of confidence prior to exercise particularly with regards to acute management, oxygen therapy and writing a discharge summary, with marked improvement after the session. Proficiency in Communication skills to a large extent predicted overall competence to a greater degree. Students rated the tutorial highly and were keen to see it being used in other clinical settings.

Conclusion: This study has demonstrated that it is both practical and feasible to conduct an OSCE as an evaluation and teaching model for common clinical problems.

The first clinical problem considered was chronic obstructive airways disease. Our clear objectives were to develop a structured approach with clear learning objectives featured around OSCE based scenarios where the student progressed through various stages of a patient's evaluation, treatment and finally discharge. Junior residents, Nursing staff, Clinical Skills Co-ordinator and Pharmacists were involved in the tutorial, with overall feedback done by a Senior Physician.

Methods

This study took place at the George Eliot Teaching and Education centre as part of the Phase II MB ChB Course of the Warwick Medical student's curriculum. Twenty students of the medical school took part in the COMET tutorial. Prior to the exercise the students were asked to rate their levels of confidence in five areas of expertise:

- Interpretation of investigations in the patient with COPD
- Acute management and prescription of oxygen
- Prescription of medications and the use of the drug chart
- Monitoring of the patient
- Writing a discharge summary and prescription.

Fig: 1

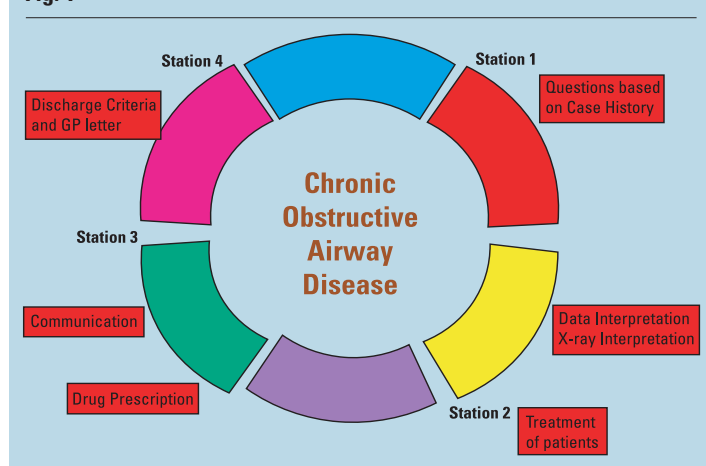
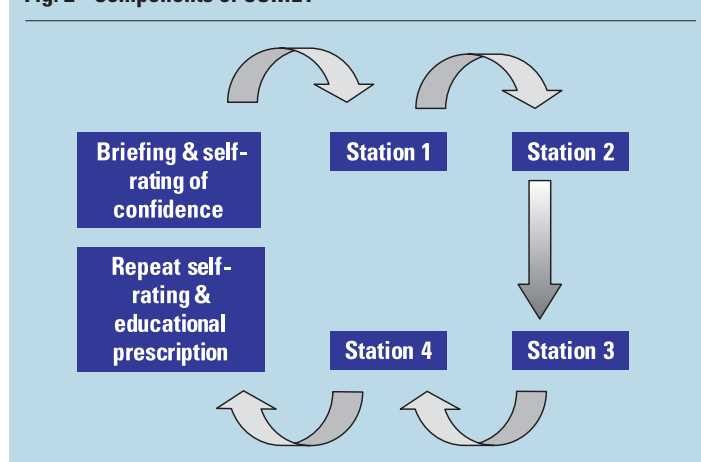


Table 1 - Description of stations

	Description of Station	Teachers involved
Station 1	Questions Based on brief Case history Interpretation of Findings and Investigations	Nurse Specialist Pre Registration House Officer
Station 2	Treatment of patient Writing drug Prescription	Nurse Specialist Consultant Physician SPR Clinical Pharmacist
Station 3	Communication of Management Plan to Nursing Staff	Clinical Skills Facilitator (Nurse Specialist)
Station 4	Discharge Criteria and Writing of TTO	Junior Doctor SPR



Fig: 2 - Components of COMET



The COMET tutorial then took place. At each station the students performed the indicated tasks for 10 minutes while the teacher observed and checked off the tasks performed correctly as defined by checklists. During the final 5 minutes the teacher provided feedback on the student's performance. This included an opportunity for students to clarify points of clinical knowledge and ask questions. After 15 minutes they were prompted to move on to the next station. At the end of the session the students were given time to reflect on the tutorial and evaluate the session.

Students completed identical forms after the session, without reference to the previous ones. They were also asked to identify three things learned from the session and to write themselves an educational

prescription by listing three things about COPD about which they needed to learn more. A final evaluation and performance feedback was done in real time by a senior clinician.

Results

The students' ratings of their own levels of confidence before and after the exercise are summarized in table 2.

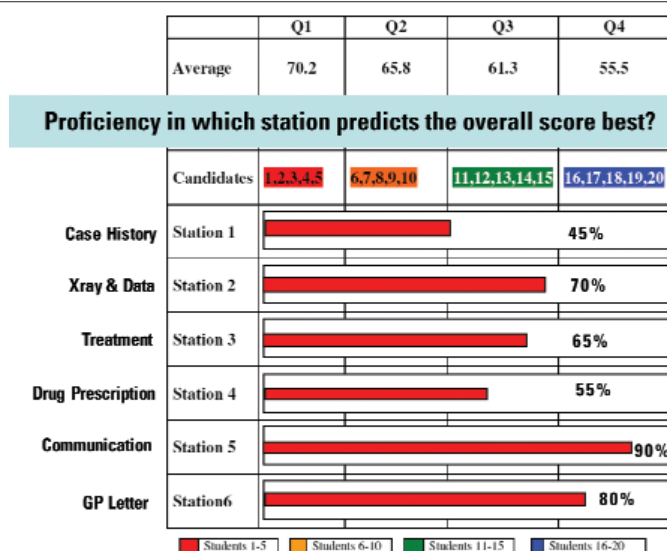
Table 2 - Description of stations Students' self-rated confidence levels before and after COMET, by area of expertise

Area of expertise	Average before (Scale 0-10)	Average after (Scale 0-10)	% increase
Interpretation of investigations	4.5	8.0	78.7
Acute management and prescribing of O ₂	3.7	8.2	121.8
Inhaled therapy and use of Drug Chart	3.4	7.5	121.7
Monitoring of patient	4.0	7.9	98.2
Writing discharge summary and Discharge Letter	3.1	8.1	164.2

The numbers are too small to permit detailed statistical analysis. However, it is clear that the students self rated confidence in their expertise was low prior to the session and that improvements were considerable, confidence levels doubling in all areas.

It was also possible to predict the overall best score by noting that communication skills rated as the best overall predictor. (Table 3) This in itself would highlight to students the importance of good clinical communication skills.

Table 3 - Proficiency to predict best overall score



Asked to list three things they learned, seven of the ten students spontaneously mentioned drug use and prescribing, six procedures for discharge, six assessments and monitoring of the patient, and four oxygen therapies. Asked for an educational prescription, all students identified drug use and prescribing, and six oxygen therapies. No other aspect of management rated more than three mentions.

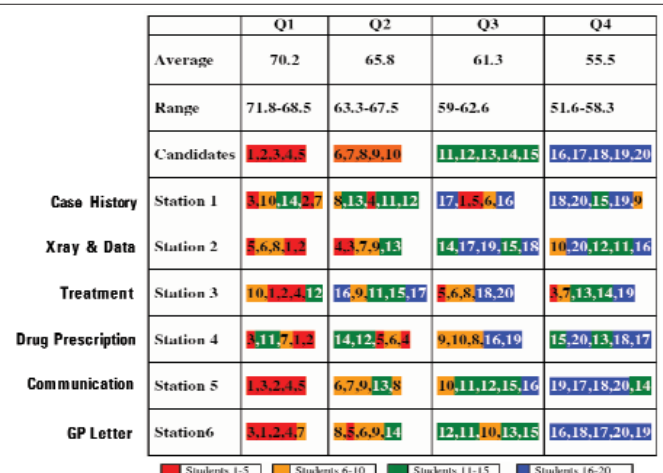
Table 4 - Categories of learning

Three things learned:	
Need of a systematic approach / clear protocol	8
Prescribing of drugs	2
Complications of COPD	2
Difficult questions:	
Prescribing of drugs	4
Referrals to other healthcare professionals	2
ABC approach	2
Issues mentioned by more than one candidate:	
Discharge summary	3
Prescribing drugs on discharge and explanation to patients	3
ABCDE care plan (or components thereof)	2
Oxygen delivery devices	2

Discussion

The COMET tutorial involved a multidisciplinary educational approach towards facilitating a better understanding of a common clinical problem. It uses very basic teaching skills and gives students certain core principles which are necessary in coping with the busy ward environment. Basic skills are assessed and also reinforced. It also helps identify the areas of uncertainty and with the help of the matrix mark system allows tutors to identify student deficiencies. Fig 3 shows how this works in principle in another 6 station COMET that was piloted. Each student is allocated, by their overall mark, into quartiles. For example in Fig 3, Student 5 is in the top quartile overall but not so in the case history and treatment stations where the student was in the third quartile. This provides important feedback to the student by identifying areas of weakness.

Figure 3 - Student Matrix



Teaching effectively need not be made unnecessarily complex. Students are motivated by simple methods simply because it serves their learning needs. When a clinical problem is broken down into various components it also reinforces the medical students attention span. Figure 4 below shows the approach with a didactic lecture and Figure 5 demonstrates the value of the COMET tutorial, where a break is taken between assessment and evaluation stations. The COMET approach allows attention span to be regained by the simple manoeuvre of moving from one station to another and encountering a different tutor and task. This in effect creates a break.

Figure - 4 Decreasing levels of attention during Traditional Lecture

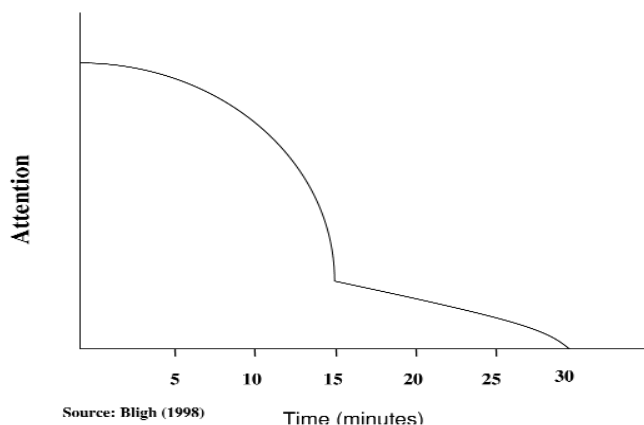
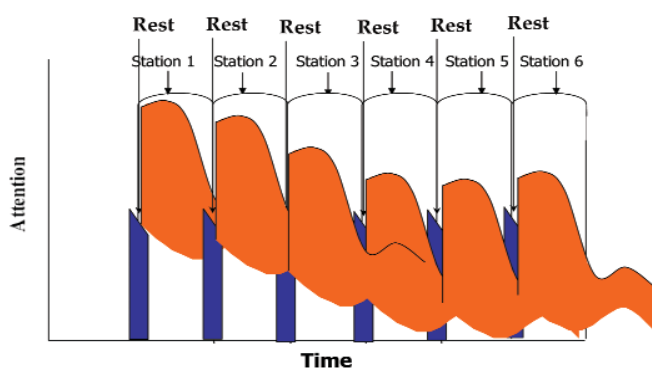
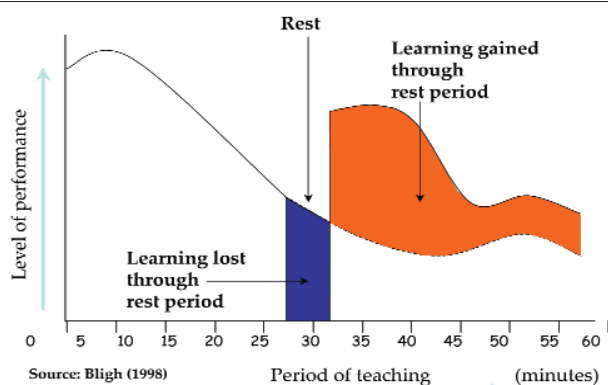


Figure 5 - The COMET Approach

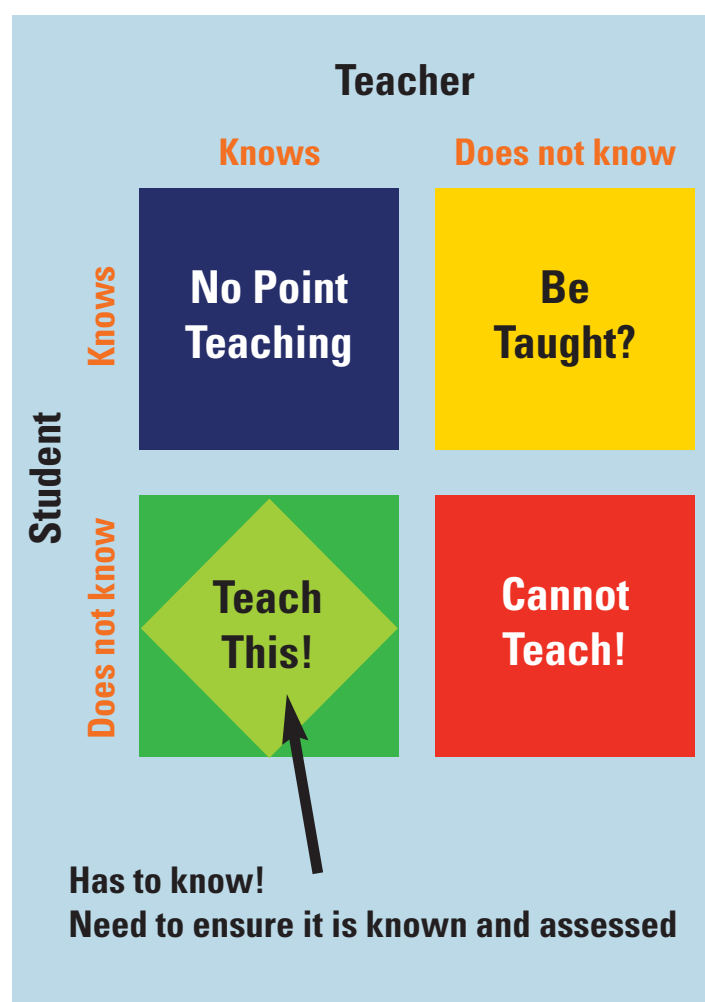


Increasing levels of performance by taking break



In attempting to facilitate learning teachers often tend to dwell on their own understanding of the subject matter. It may be prudent to attempt to identify the students own gaps in knowledge and then try and attempt to pass on core clinical and communication skills. This attempt to clarify what the student does not know and then teaching and assessing those vital skills has been used in the COMET approach, by using and evaluating students own perceived deficiencies. (Figure 6)²⁷.

Figure 6 - Johari concept in education



Objective identification of skills acquired and also using them practically is a necessary first step in improving the quality of teaching and the learning of those skills. In this COMET students scored higher in interpersonal and technical skills rather than on interpretive or data interpretation skills.

This study has shown that it is both feasible and practical to conduct an OSCE as a teaching model for common clinical problems. Students were specifically asked about the time allotted and the complexity of the case. Response varied according to the stations being evaluated and a time of fifteen minutes seemed about right. As it was used fairly early during the student's rotation the tutorial was seen as a non-threatening way of formative assessment.

Strengths of COMET

- It's a clear educational prescription
- Addresses communication skills
- Allows students a break permitting concentration on core skills
- Pilot demonstrates that the COMET approach is a preferred method of learning in comparison to lectures and tutorials.
- The key interest in this method is that it serves to both assess competency and teach at the same time in a structured multi-professional way.
- Successful learning approaches were all catered for and considered during the COMET process.
- Education prescription from the matrix analysis would be useful to guide further individual learning
- COMET could also have a role in teaching other healthcare professionals.
- COMET may have a role in helping guarantee competency in core clinical skills and allow transfer of many aspects of management of long term conditions to primary care.
- The results matrix by individual student on each station gave valuable insights into the strengths and weaknesses of each student and helped formulate an educational prescription for each student.

Considerations of COMET

- COMET is a labour intensive method of teaching and further studies are required to evaluate its cost effectiveness and place in medical education
- Difficulties encountered with COMET included not enough time on certain stations especially chest X-ray interpretation and drug prescription.

Conclusions

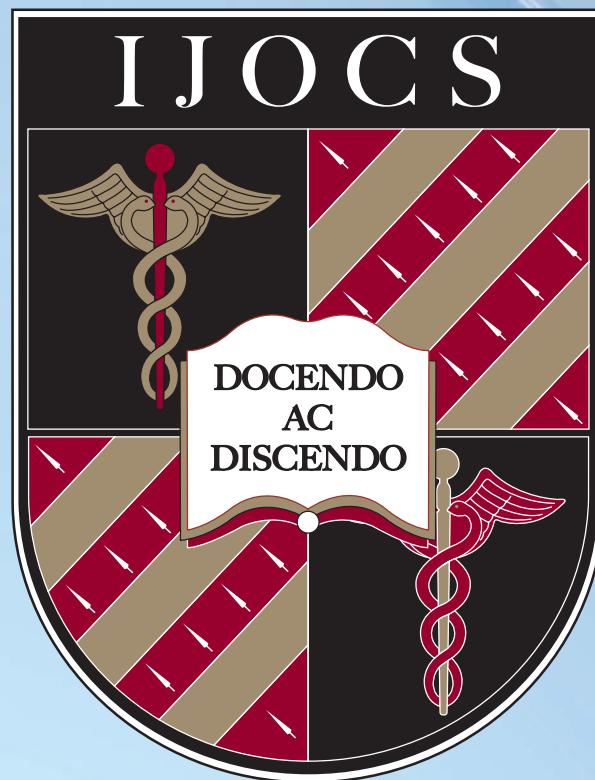
COMET teaching and assessment allows early feedback and it identifies students with good and weak performance. It focuses the student and also the clinical ward teachers to the core essential skills in a particular subject. ■

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