
The challenge of assessing learners in the clinical setting

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Goals of today's lecture:

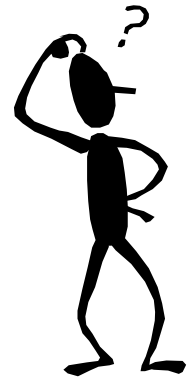
After this presentation, you will be able to discuss the principles of assessment in the clinical setting, and ...

- ❑ Outline why we must evaluate (the goals of assessment),
- ❑ Propose who should be evaluated & who should assess,
- ❑ List the aspects of clinical competence or performance that should be considered,
- ❑ Describe new / commonly-used assessment methods, with advantages and limitation, and
- ❑ Discuss whether accurate evaluation makes a difference.



Learner assessment in the clinical setting

- ❑ Goals of evaluation,
- ❑ Who is assessed & who does it,
- ❑ What is evaluated,
- ❑ How it is done,
- ❑ Effectiveness of assessment



Setting the stage - 'assessment cases' -



Student name _____ Rotation _____ Dates _____

Criteria	F	BA	A	AA	O
XXX					
XXX					
XXX					
XXX					
XXX					
Overall clinical mark					

Comments _____

Name of evaluator _____ Date _____

Signature _____ Attending staff ☐ Resident ☐ Other ☐

Student signature _____ Comment _____

Exam mark _____ OSCE mark _____ Clinical mark _____ Overall _____

Student name _____ Rotation _____ Dates _____

oeoifw			X		
dsffd		X			
sddsf			X		
dsff dsff		X			
djkd			X		
lkadsa					
fdfff					

No Feedback

**I was not aware of these problems
before I received this final evaluation**

Comments _____

Name of evaluator _____ Date _____

Signature _____ Attending staff O Resident O Other O

Student signature _____ Comment *jhkjfew lkjwe ljdede ljewnde* _____

Student name _____ Rotation _____ Dates _____

...					
Clinical reasoning					
Self direction					
Responsibility					
Professionalism					
Reflection					
...					

Definition of criteria

Comments _____

Name of evaluator _____ Date _____

Signature _____ Attending staff ☐ Resident ☐ Other ☐

Student name _____ Rotation _____ Dates _____

Definition of scale

F BA A G O

Poor, Borderline, Average, Good, Outstanding
vs. below, meets, above expectations ...
vs. Fail, Fair, Good, Very good, Excellent
vs. specific descriptors

Norm-referenced vs
criterion referenced ?

Comments _____

Name of evaluator _____ Dep't _____ Date _____

Signature _____ Attending staff ☐ Resident ☐ Other ☐

Student name _____ Rotation _____ Dates _____

Criteria		F	BA	A	AA	O	NA
Knowledge			x				
Data collection				x			
Problem synthesis				x			
Technical skills				x			
Communication skills					x		
Teamwork					x		
Attendance & reliability					x		
Motivation					x		
Overall					x		

Easygoing evaluator:
Trouble with knowledge
& problem-solving

Comments _____ *hard worker , nice person, comes in early* _____
 _____ *offers to take more patients, neat written notes* _____

Name of evaluator _____ Date _____

Signature _____ Attending staff ☐ Resident ☐ Other ☐

Student name _____ Not applicable / could not judge _____ Dates _____

		F	BA	A	AA	O	NA
.kfwfeljf				X			
Loinekhd skildlke				X			
databfel							X
refvANLD							X
dsmdlds							X
Dd dsalkde del							X
E,dsnd							X
Ede lde,ejde ,dede							X
				X			

Comments _____

Name of evaluator _____ Date _____

Signature _____ Attending staff ☐ Resident ☐ Other ☐

Student name _____ Rotation _____ Dates _____

Lkjdsj							
.llrlrj, lkrir ..krlik							
Jyrktr lmfr							
Kmrlfrlfr fr.frr							
.rlrgljgt							
rg;lgtr mrljgltr ;ltrkkg							
gr.,mgt							
;lkgt;kg							
.g.gtr,.r.mglmrlgtrm							
Overall assessment						X	

'Thoughtless rater'

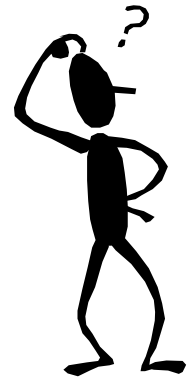
Comments *not much chance to observe, but should do well*

Name of evaluator _____ Date _____

Signature _____ Attending staff ☐ Resident ☐ Other ☐

Learner assessment in the clinical setting

- ❑ Goals of evaluation – why evaluate?
- ❑ Who is assessed & who does it,
- ❑ What is evaluated,
- ❑ How it is done,
- ❑ Effectiveness of assessment



Why evaluate?

Judgment → consequences



Why evaluate?

- ❑ Learner:
 - ❑ formative
 - ❑ summative
- ❑ Teacher:
 - ❑ learning objectives achieved
- ❑ Program planner:
 - ❑ curriculum
 - ❑ institutional change
- ❑ Society:
 - ❑ protect the public



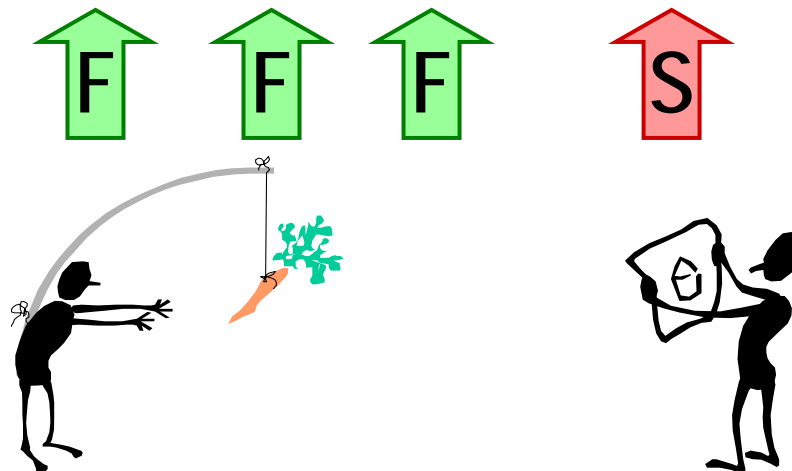
Formative

Summative

Guide learning

Provide judgment

A > > > > > > > > B



Formative

Guide learning

reinforce motivation

set higher standards

Provide reassurance

Promote self-reflection

Foster habits of life-long
learning

Summative

Student promotion

Access to advanced training

Judgment re competence or
fitness to practice

Professional self-regulation &
accountability



Different methods

Formative

Provide feedback to
drive learning

Less rigor

Summative

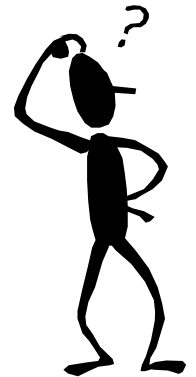
More psychometric rigor
(essential for 'high stakes
exams')

Less feedback

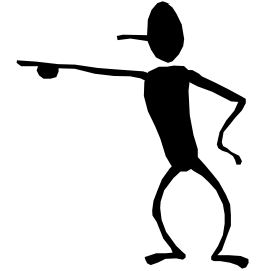




Learner assessment in the clinical setting

- ❑ Goals of evaluation,
- ❑ Who is assessed & who does it,
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- ❑ Effectiveness of assessment



Who is assessed?

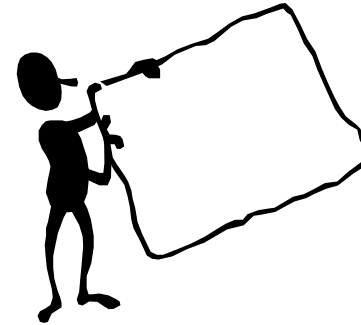


- ❑ Medical students: 
pre-clerkship, clerkship, clinical electives
- ❑ Residents, clinical fellows 
- ❑ Physicians in practice



Who should evaluate?

- ❑ Clinical teachers or tutors
- ❑ Attending physicians
- ❑ Residents, fellows
- ❑ Clinical service chief
- ❑ Other health professionals
- ❑ Patients
- ❑ Peers
- ❑ Self assessments

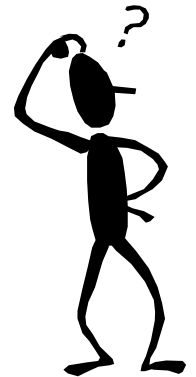


.... As many as possible



Learner assessment in the clinical setting

- ❑ Goals of evaluation,
- ❑ Who is assessed & who does it,
- ❑ What is evaluated,
- ❑ How it is done,
- ❑ Effectiveness of assessment



What are we evaluating?

Clinical competence & performance

“ the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and the community being served.”

An evolving ‘habit of learning’, driven in part by evaluation

(JAMA)



What are we evaluating?

Clinical competence & performance

- ❑ Clinical skills,
- ❑ Data collection,
- ❑ Problem-solving, diagnostic reasoning
- ❑ Management of ambiguity,
- ❑ Self-direction,
- ❑ Judgment,
- ❑ Clinical knowledge and application to practice
- ❑ Learning strategies,
- ❑ Core competencies,
- ❑ Professionalism,
- ❑ Attitudes,
- ❑ Respect,
- ❑ Work habits,
- ❑ Teamwork,
- ❑ Organizational skills



What are we evaluating?

Clinical competence & performance

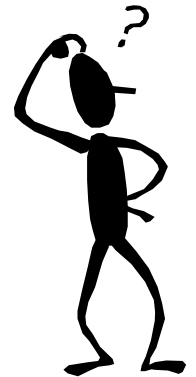
What standard, level?

- ❑ Related to context
- ❑ Related to content
- ❑ Evolve at varying rates



Learner assessment in the clinical setting

- ❑ Goals of evaluation,
- ❑ Who is assessed & who does it,
- ❑ What is evaluated,
- ❑ How it is done – assessment methods
- ❑ Effectiveness of assessment



Where and when should we evaluate?

- ❑ In clinical setting, with real patients ... where possible
 - ❑ Supplement & complement based on learning objectives
- ❑ Formative and summative
- ❑ Ongoing – repeated observations
 - ❑ For some competencies, longitudinal through clerkships
- ❑



'*CARVE*' approach to evaluation

- ❑ *C*ost
- ❑ *A*ceptability
- ❑ *R*eliability
- ❑ *V*alidity
- ❑ *E*ducational value



Assessment methods

In-training evaluation:

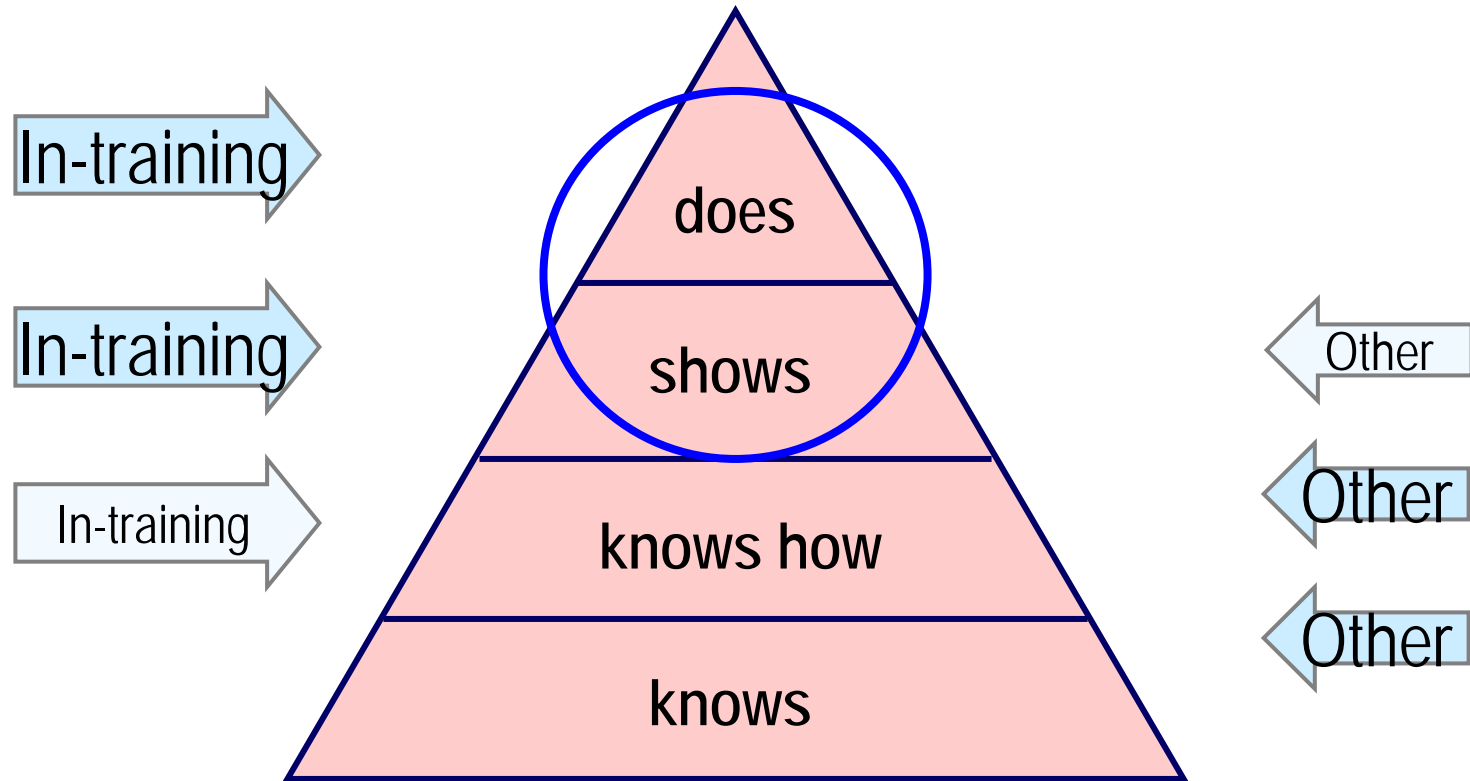
- ❑ practice based,
- ❑ ongoing,
- ❑ global,
- ❑ multifactorial,
- ❑ integrated,
- ❑ formative,
- ❑ subjective,
- ❑ qualitative

Other assessment tools:

- ❑ away from context,
- ❑ single time,
- ❑ specific,
- ❑ summative,
- ❑ objective,
- ❑ quantitative



Miller triangle



Assessment methods for clinical setting

OSCE, observed H&P, oral examination,
MCQ, logs, journals,
portfolios, critical incidents, Mini-CEX,
P-Mex, SP's, medical records
360° feedback, formalized feedback
PMP's, SCT's, key features exam,
SAQ, essays global ratings
simulations, ...?



Global 'in-training' assessments

Global summative (sometimes formative) ratings of many aspects of clinical performance on clinical rotations

Advantages

- ❑ Allows direct observation
- ❑ Can have many independent raters
- ❑ Quantitative & narrative data
- ❑ Many clinical skills & core competencies

Limitations

- ❑ Subjective
- ❑ May be second-hand
- ❑ Infrequent observations
- ❑ May be based on limited contact e.g. case presentation
- ❑ Need to define scale & criteria



ITER example

<表4> 指導医用

研修・研修医評価

研修期間：____年____月____日、評価日：____年____月____日
 研修施設：____、評価者：____

3	2	1	NA
研修医とは思えない程 優れている	研修医として 十分なレベル	今後更なる 努力が必要	十分な情報がなく 評価できない

患者診療

適切な病歴が聴取できる	3	2	1	NA
心理社会的な側面についても情報収集できる	3	2	1	NA
必要な身体診察が正確に行える	3	2	1	NA
的確な問題リストを作成できる	3	2	1	NA
臨床上の決断に際し、エビデンスに基づいたアプローチがとれる	3	2	1	NA
患者とその家族の要望や意向をくみ取ることができる	3	2	1	NA
健康維持に必要な患者教育が行える	3	2	1	NA

記録の記載

診療録がきちんと記載できる	3	2	1	NA
的確な診療情報提供書を書ける	3	2	1	NA

医師としての職業的態度

患者に対して思いやりをもって接し共感を示すことができる	3	2	1	NA
周囲のスタッフと良好なコミュニケーションがとれている	3	2	1	NA
どのような状況下でも建設的な行動がとれる	3	2	1	NA
時間に正確である	3	2	1	NA
常に信頼できる	3	2	1	NA

知識/学習態度

十分な医学的知識を有する	3	2	1	NA
自ら積極的に教科書や文献に当たり知識を得ている	3	2	1	NA
何を学ぶべきか認識できている	3	2	1	NA

総合評価

- ☐ 研修医とは思えない程 優れている
 ☐ 研修医として 十分なレベル
 ☐ 今後更なる 努力が必要
 ☐ あまりに不十分で 研修したと認められない

優れていた点

努力が必要な領域

研修医の署名

評価者の署名



Student name_____ Rotation _____ Dates _____

This evaluation is a consensus following discussion with the supervising fellow, the nursing staff and key consultants.

The resident's strengths are xxx xxxx xxxx and xxxx
She has been encouraged to improve xxxx and xxxxxx.
The student could work on this by: Xxx xx xxx and xxxxxx xx xxxxxx x.

I have discussed this in detail with the trainee

Comments _____,hfewkjfr lewjrlrej ljwglkejejgr.fr elrjrekj lkjljnreljrenflkjre relkjrlrejrel _____
 _____lurgiewliwejlijff lreljgfr le lojrlelf f;lkrlelilj lrekjlrejlkf ljljlrelre loerljrlekjrl foelokrelkj f _____
 _____juhjfr l,wjire :welrjkwrlr lrlwlewl rldj rejewliilewj lewjewr lewjrlrej rew rlwejrlerlrlewjelrljwerljrelkjrlllewkr _____

Name of evaluator _____ Date _____

Signature_____ Attending staff ☐ Resident ☐ Other ☐

Formalized feedback

Feedback based on clinical performance, often using global rating form as a guide, mandated at mid term of clinical rotation;

Advantages

- ❑ Feedback 'appointment' is 'booked'
- ❑ Formative – allows time for improvement
- ❑ Assesses many aspects of clinical performance

Limitations

- ❑ Training in providing feedback may be needed
- ❑ Compliance variable (student driven is better)



P-MEX, Mini-CEX (Clinical Evaluation eXercise)

Structured direct observation by attending physician / supervisors with checklist for rating a brief clinical interaction with patient

Advantages

- ❑ Can provide feedback
- ❑ Wide range of clinical issues
- ❑ Can assess:
 - Communication skills
 - Clinical skills
 - Professionalism

Limitations

- ❑ Time consuming
- ❑ As yet limited use
- ❑ 'Best' behaviours rather than 'normal'
- ❑ Need evaluator training



Clinical evaluation exercise example



Script concordance tests

Written assessment clinical reasoning, application of knowledge; given situation + information – degree that new information increases or decreases likelihood of diagnosis

Advantages

- ❑ Assesses clinical problem solving ability
- ❑ Useful for controversial issues
- ❑ Avoids cueing
- ❑ Computer grading

Limitations

- ❑ Unknown predictive validity for real-life clinical reasoning



SCT example

A 45 y. o. man with a three-hour history of vertigo is brought to the hospital by his wife.

- ❑ You believe he may have multiple sclerosis. Physical exam reveals bi-directional nystagmus. How does this change your assessment?

(-2)-----(-1)------(0)-----(+1)-----(+2)

- ❑ You believe he may be suffering from labyrinthitis. He reveals to you that he also developed diplopia recently. How does this change your assessment?

(-2)-----(-1)------(0)-----(+1)-----(+2)

- ❑ You believe he may have Ménière's Syndrome. Exam shows no hearing loss. How does this change your assessment?

(-2)-----(-1)------(0)-----(+1)-----(+2)



Key features exams

Written exercise for clinical reasoning, application of knowledge focussing on critical decisions & essential steps to resolve problems in clinical scenarios; >1 response may be correct

Advantages

- ❑ Assesses clinical problem solving ability
- ❑ Avoids cueing
- ❑ Computer grading
- ❑ Reliable; face & content validity

Limitations

- ❑ Unknown if transfer to real-life reasoning skills
- ❑



Elements of KF scenarios

- ❑ Reason for medical visit
- ❑ Symptom
- ❑ Sign
- ❑ Laboratory investigation results
- ❑ Images (radiology, photos)
- ❑ Complications of Dx or Rx
- ❑ Also ...
- ❑ Ethics
- ❑ Legal
- ❑ Preventive medicine



Key features example



Portfolios

Documentation of & reflection areas of competence; may include (patient documents, papers, patient letters, projects, self & other assessments, reflective essays)

Advantages

- ❑ Combination of evidence from many sources
- ❑ Self-reflection
- ❑ Formative >> summative
- ❑ Face validity

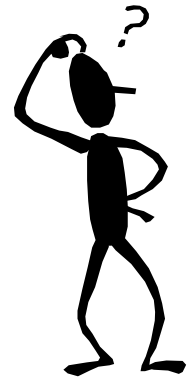
Limitations

- ❑ Need mentoring & interpretation – and evaluator training to do this
- ❑ Time intensive
- ❑ Predictive validity



Learner assessment in the clinical setting

- ❑ Goals of evaluation,
- ❑ Who is assessed & who does it,
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Is evaluation in clinical setting effective?

- ❑ Learner:
 - ❑ formative +++++
 - ❑ summative +++
- ❑ Teacher:
 - ❑ learning objectives achieved ++
- ❑ Program planner:
 - ❑ curriculum ++
 - ❑ institutional change +
- ❑ Society:
 - ❑ protect the public +



Assessment / Evaluation:

Does it drive learning?

...

Can it expand professional horizons?



Assessment in the clinical setting - guidelines

- ❑ Ensure evaluation method matches learning objective;
- ❑ Assess as many aspects of clinical competence as possible;
- ❑ Clarify criteria & standards you want to assess;
- ❑ Think 'formative' and 'summative';
- ❑ Use more than one data source, & method;
- ❑ Balance complex real-life & focussed simplified
- ❑ Qualitative & quantitative methods are complementary; Remember 'CARVE'
- ❑ Train the evaluators
- ❑ Don't underestimate the power of assessment to drive learning, teaching & curriculum change



Clinical assessment - the future ..

- ❑ New domains to evaluate >> new methods
 - ❑ e.g. teamwork, professionalism, patient safety
- ❑ More work on validity and reliability, while maintaining feasibility
- ❑ Longitudinal evaluations
- ❑ Combined multi-method
- ❑ Standards – at what level? (national, school)



In summary ...

Learning in the clinical context is an essential part of medical education.

SO ...

Medical students, interns and residents must be evaluated on their achievements in this setting.

The goals of evaluation must be clear.

Assessment methods should be reliable, valid and feasible.

