

Consistency in Evaluation of Medical Student Case Reports by a Dedicated Group of Faculty

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ABSTRACT: Previous studies have demonstrated inconsistencies in faculty evaluations of case reports written by medical students. The College Faculty at the University of Washington School of Medicine are a learning community dedicated to mentorship and to the instruction of basic clinical skills in the second year. The College Faculty made intensive efforts to standardize the approach to evaluation of case reports, including faculty development and creation of a “benchmark” defining the expectations for case reports. The consistency of evaluation was assessed. Three case reports were created to demonstrate student variability in attaining the benchmark and to assess interrater consistency across students and across cases. Twenty-two college faculty subsequently evaluated these case reports. A high degree of interrater reliability was obtained for the faculty evaluation across each of the three case reports, but inconsistencies remained. In addition, specific written faculty comments on both the manufactured case reports as well as actual comments on student case reports written during their “Introduction to Clinical Medicine” course in the second year were also assessed using qualitative methods to identify themes and specific educational techniques. There was wide variability in the amount and type of feedback generated by different faculty, but consistent themes were identified. The majority of comments were focused on the History of Present Illness, and comments that identified specific errors generally were consistent with the published benchmark. We conclude that a learning community dedicated to mentorship and clinical education allows for strong interrater reliability in evaluation of medical student case reports, and provides specific comments that are consistent with a benchmark created by that learning community

Introduction:

An important part of medical student's education is learning how to properly document their findings and clinical reasoning in case reports.

What is known:

- Medical school faculty assessments of case reports are inconsistent.
- Feedback improves performance, but poor feedback can actually result in diminished performance.¹
- Feedback that is more general has a better influence to stimulate future learning.² This “feed forward” provides information to improve future task in addition to feedback that provides information related to completed assignments.^{3,4}
- There is a need to create common feedback terminology that is comprehensible to students.⁵

Intervention:

• The University of Washington: School of Medicine (UWSOM) created a system of 5 Colleges with faculty given dedicated time for clinical instruction in the first two years of medical school. The “College Faculty” (CF) created “benchmarks” for case reports.

Methods:

- Part I – To study the consistency of evaluation, CF were given 3 case reports written by the primary investigator with increasing numbers of benchmark-related errors. Faculty evaluated the 3 case reports.
- Part II – Comments on 24 case reports from 6 faculty members were analyzed and categorized. Through an iterative process, two investigators, identified themes and categorized comments by theme.
- Part III – The investigators used this analysis to develop a set of rules with clinical rationales.

Results: Consistency of Faculty Assessment

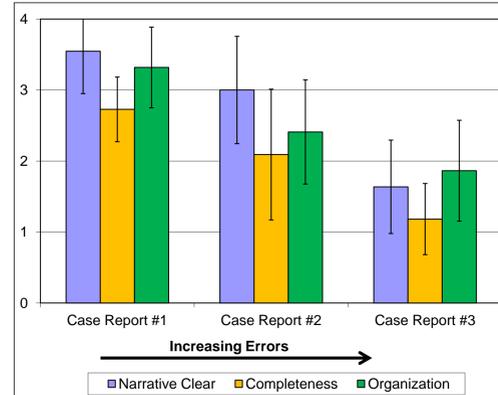


Figure 1: Faculty assessment of the quality of case reports with increasing numbers of benchmark-related errors. We tested whether an increasing number of errors in a case report would be reflected in faculty assessments. 22 College Faculty evaluated the case reports with increasing numbers of benchmark-related errors with regards to the quality of the narrative clarity, completeness, and organization. There was a strong correlation between an increasing number of benchmark-related errors in each case report and lower faculty assessments of quality in all three areas.

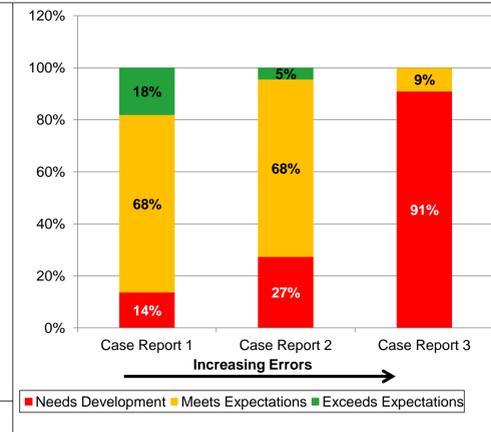


Figure 2: Consistency of Faculty's Overall Assessment of Case Reports. College Faculty were asked to give an overall evaluation of the case report as “needs development”, “meets expectations”, or “exceeds expectations.” There was a correlation between an increasing number of benchmark-related errors in each case report and the number of faculty rating the report as “needs development”. There was broad consensus that Case Report 1 met expectations, while Case Report 3 did not.

Results: Analysis of Faculty Feedback Comments

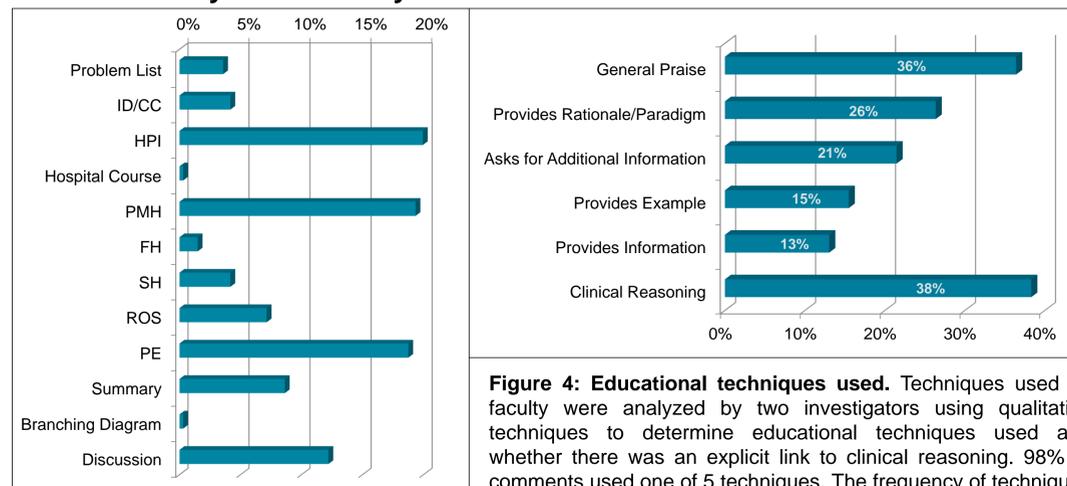


Figure 3: Faculty Comments on Case Reports by Section.

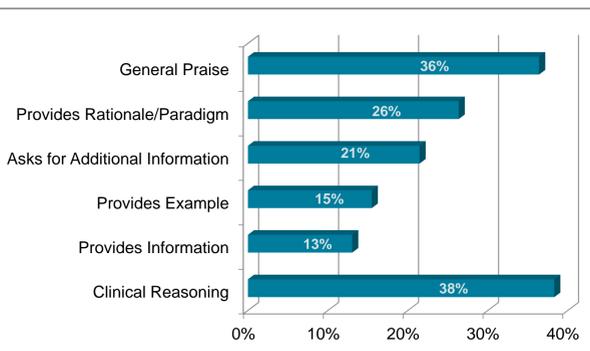


Figure 4: Educational techniques used. Techniques used by faculty were analyzed by two investigators using qualitative techniques to determine educational techniques used and whether there was an explicit link to clinical reasoning. 98% of comments used one of 5 techniques. The frequency of techniques is greater than 100% as many comments used >1 technique. The investigators also determined whether comments were related to clinical reasoning.

Rules and Rationales: Based upon faculty comments, we created rationales for each rule with an explicit link to known pitfalls in the communication and clinical reasoning processes that can adversely impact patient care. Examples are given below.

Section	Rule	Rationale	Student Example	Faculty Comment
GENERAL	Use standard medical terminology accurately	incorrect use of medical terminology may lead to incorrect assumptions and medical errors.	GI: Ascites present	This is a conclusion –a very dicey business. It can't be reliably determined from a PE whether a distended abdomen is due to ascites or intra-luminal gas/fluid
PROBLEM LIST	Designate problems on the problem list as active or resolved	Helps in the formulation of assessment and plan. Active problems must be managed while the patient is hospitalized.	Problem list separated into active and resolved.	Good to differentiate between active and resolved problems. On the wards, active problems need a plan for treatment while hospitalized.
ID/CC	Patient's presenting symptoms must be described in the ID/CC, not their diagnosis.	Avoids premature diagnostic closure	ID/CC: Mr. X is a 5X year old man with metastatic colon cancer, hypertension, and hypercholesterolemia who presented to the ED yesterday in "atrial fibrillation"	Many people have AF and don't need to go to the ER. What were his symptoms? Palpitations? Dizziness? Malaise? - remember to put a symptom in the CC
HPI	HPI must include full description of presenting symptom (OPRSTAAA), and clear presentation of pertinent positives and negatives, including relevant PMH, FH, ROS of affected system and other related systems	Sufficient key data must be gathered and reported to allow for generation of diagnostic hypotheses.	severe stomach pain	Try to get more info on the pain to help you with your differential . How about more specifics on pain (timing/onset? Did it come on abruptly and persist? Did it wax and wane? Exact location? Severity on the 1-10 scale? Radiation?) You got quality
PMH	Problem onset and treatment status of significant past illnesses should be included in PMH	Helps provider/reader fully understand patient's health and allow for appropriate management of ongoing patient problems during admission.	Very severe asthma	Would be good to get more info here. We like to know about Hospital admissions, ICU stays, intubations, use of oral steroids— this gives a more thorough history of the severity of the asthma
MEDICATIONS	in “medication list”, identify the reason for which the patient takes each medication.	Helps ascribe significance to data and allows for generation of a more complete problem list.	• Coumadin to prevent clotting with atrial fibrillation: 60 mg/week • Benazepril for hypertension: 40 mg QID • Erythromycin topical for Rosacea	good, thinking about the reason and the dosage.
FAMILY HISTORY	FH should include all first degree relatives and age or age at death; health status or cause of death; major illnesses; epidemiologically important diseases such as cancer depression, alcoholism; illnesses that might be related to the patient's presenting complaint	FH may supply important contextual information to aid in formulation of diagnostic hypotheses.	Family Hx • Mother: passed away from drug overdose when XY was 11 • Father: healthy • No siblings • Paternal grandparents living and well • Thyroid problems: Aunt and grandfather on paternal side	Very good job with first degree relatives. Should also ask about FH of neurological problems as this is related to the chief complaint, as well as epidemiologically important diseases – hypertension, diabetes, cardiovascular disease, cancer, depression, alcoholism.
SOCIAL HISTORY	Gather and succinctly present appropriate social history which should include upbringing, education, stress/pleasures, insurance, living situation, support systems.	Helps provider/reader understand and integrate contextual factors, patient's psychosocial milieu. Succinctness helps lead to clarity.	Mr. B was born and raised in the XX area. Currently, he attends Community College to fulfill his goal of getting a degree in nursing. School and finances are his main stressors. He lives with his grandparents. His supports are his father, grandparents, and youth pastor. Spirituality is a major source of comfort. He enjoys walks and music.	Excellent job - includes upbringing, education, stress/pleasures, insurance, living situation, and support systems. It would be good to mention here his mother's death and how this affected him. He has felt depressed since his mother's death, which makes it even more important to investigate.
ROS	Highlight important ROS findings	Helps provider easily identify problems that must be addressed and managed during hospitalization.	• Cardiovascular o Patient has a heart murmur o No palpitations, cyanosis, edema	• Cardiovascular o Patient has heart murmur o No palpitations, cyanosis, edema
PHYSICAL EXAM	On physical exam, report only actual findings. Do not make assumptions as to etiology.	Assumptions may be incorrect and lead to diagnostic errors.	Difficulty appreciating liver size on percussion, although a slightly enlarged size is suspected	just report ONLY what you found by subjective exam here, no assumptions
SUMMARY	The summary is a brief review of the key facts of the history, physical exam findings and a listing of top potential diagnoses.	After reporting all the facts of the case, the provider/reader should be reminded of the essential features of the patient's presentation in order to be able to formulate their own diagnostic hypotheses and their opinions on investigations and management.	Summary: Mrs. X is a 69 year old non-smoker with a one year history of unproductive cough recovering well after a right lower lobectomy and hilar lymph node biopsy for an undiagnosed mass.	What do you think is the likeliest diagnosis?
ASSESSMENT	Avoid using the term “rule out” in discussion or A+P	Difficult to definitively rule out any condition in medicine	Sometimes MI can present in diabetic patients as back or abdominal pain, without “classic” symptoms. This would be ruled out quickly by obtaining an ECG.	Avoid the term “rule out” in your write-ups since it is really hard to officially rule out anything in medicine! !

Conclusions

- A learning community can:
 - Create benchmarks and use them to assess student case reports
 - Come to consensus on the requirements for a case report to meet expectations.
- Faculty feedback on case reports is focused on the HPI, PMH, and Physical Examination, and Discussion.
- Faculty primarily used five different teaching techniques
- 38% of faculty comments are related explicitly to clinical reasoning
- We were able to formulate rules to complement the benchmarks to create consistent feedback with rationales that are tied to clinical outcomes and safe patient care.

Limitations:

- The list of rules and rationales we have created should not be thought of as exhaustive. These represent the main themes identified by a sample of faculty on a limited number of reports.
- We did not include the students' first two reports in this study as their clinical reasoning skills so early in the year are embryonic. A similar list of rules and rationales could be devised that would apply primarily to the first two write-ups.

Next Steps:

- The rules and rationales we list can serve as a starting point for faculty to make more in-depth comments on student reports. Comments should be individualized to address the student's specific assertion.
- Future studies could include investigation of more student reports by more faculty to see if other overarching themes are identified.
- Further studies could include implementation of the results of our study by all the college faculty and then comparison of scores on clerkship evaluations before and after the implementation. Another strategy might include solicitation of student impressions of the benefits of the written feedback before and after implementation

References:

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