To Grade or Not to Grade?

Medical schools, curriculum deans and directors of educational programs all sincerely want our young physicians-in-training to be the best doctors possible. As a result, curricular decisions often focus on how to best support students in their learning and achievement. One curricular decision that has turned out to be a particularly difficult one for some educators is "Do we grade or not?"

Why is this decision such a difficult one? One reason is the conflict or confusion related to the purpose of grades. Are assessments and grades intended to promote student achievement? Alternatively, many perceive that the primary purpose of grades is to sort and rank order students for some future judgment, such as admissions decisions or residency match. I would argue that for most medical schools, the primary purpose is, and should be, to promote student learning and achievement. We want our physicians to be the best physicians possible, right? So let's consider this decision from a focus on what promotes learning and achievement. How does the use of assessments and grades motivate and thereby improve learning? Does a decision to grade help or harm learning?
Rich information from the broader field of learning sciences can inform our decisions related to assessment and grading. James Pelligrino, in the Cambridge Handbook of Learning Sciences, distills out the salient points about how to use assessments to guide learning as follows: 1) use assessments in immediate or close proximity to learning, 2) provide relevant assessment tasks (also termed learning performances), 3) use quantitative and qualitative techniques to allow for meaningful interpretation of results, and 4) frame within a clear expectation regarding learning progression. From a curricular design perspective three elements are essential: clear learning goals, assessments that capture "current state", and opportunities to take action to close the gap between current performance and target goals. In sum, there is strong evidence that assessments improve learning.

But what about that grade assigned at end of course that is intended to summarize an individual's achievement? There is very limited evidence for use of the single end-of-course grade (or test) to motivate or guide learning in medical school. While traditional grades or end of course exams are often cited as a source of motivation by students, these types of grades are not sufficiently complete or cohesively connected to what is to be learned to guide learning. Furthermore, relying on grades as extrinsic motivators of learning can decrease intrinsic motivation to learn and result in avoidant behaviors. Older studies of college students indicated that a pass/fail grading system can result in lower academic achievement. Similar studies in medical students, however, do not demonstrate this same decline in performance, perhaps indicating that medical students have fundamentally different motivations to learn.

Concerns have been raised about the negative impact of grading on student wellness and anxiety. Curricular factors, including learning environment factors, are identified as related to medical student burnout or psychological distress, as well as student resilience. In a multi-institutional study, the use of a scaled grading system in the pre-clinical curriculum had a significant adverse effect on stress, emotional exhaustion, and burnout compared to students in schools using a pass/fail grading. One study directly examined the impact of a change to pass/fail on learning and markers related to wellness, finding that the decision benefited student perception related to reduced anxiety and competitiveness, yet did not harm learning. Interestingly, in this study the change in grading system was accompanied by use of weekly quizzes, perhaps indicating that factors such as a change in learning environment and more proximate assessments, both of which positively impact learning, may have contributed to the results.
How is the decision to grade or not put into practice at medical schools in the US and Canada? In the above Curriculum Inventory chart, we see that the majority of medical schools use a pass/fail grading system for pre-clerkship courses (71%-87%). In contrast, only a small portion of schools use a pass/fail system for required clinical clerkships (8%-14%). This striking difference across the curriculum is likely related to an emphasis on improving learning and wellness in the early curriculum and a greater perceived need to provide a summary of an individual student’s achievement in the required clerkship in preparation for residency applications.

In summary, use of assessments and well-designed curricula clearly benefit student learning. The assignment of a grade at end-of-course does not. The abandonment of scaled grading in the early curriculum, particularly when accompanied by increased use of timely, meaningful assessments, does not hinder learning and may result in benefits in terms of student wellness and positive learning environment. Most schools, however, continue to assign grades during required clerkships.

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