Summary of Factors Relevant to Pass-Fail Grading in Years 1 and 2

Background
Grading scales vary widely across US medical schools. While 3-point (Honors-Pass-Fail) or 4-point (Honors, High Pass-Pass-Fail; A-B-C-F) scales are used by over 90% of schools for core clerkships, a 2-point scale (Pass-Fail) is the most common system in preclerkship courses.1 A Pass-Fail system is used in both years 1 and 2 (or preclerkship years) in 41% of schools; Pass-Fail is used in at least one of the preclerkship years in 52% of schools).

Impact on Well-Being and Performance
The number of distinctions included in a grading scale has been viewed as potentially impacting the competitive environment of medical school, student academic performance, and student success in the residency match process. Common issues discussed by medical schools in considering a change to Pass-Fail grading in Years 1 and 2 relate to the relationship between grading scales and:

- Student stress, burnout or other potentially negative impacts of competitiveness
- Student motivation, striving for excellence, high level of academic performance, and other potentially positive impacts of competitiveness
- Student success in the NRMP Residency Match

Review of relevant literature
The most recent large-scale review of the impact of grading scales on the medical school environment is a February 2015 analysis of 19 studies examining interventions to mitigate burnout.2 Self-development groups, the Respiratory One method (a meditation technique focused on breathing), and conversion to a Pass-Fail grading system were the only strategies found to consistently decrease burnout.

A 2011 multi-school study (Mayo, Uniformed Services, Alabama, UCSD, Chicago-Pritzker, Minnesota, and Washington) assessed 2,056 students across the schools, unrelated to a recent grading scale change at their home institution.3 They found that use of grading scales with three or more categories were associated with higher degrees of student stress, emotional exhaustion, depersonalization, burnout and thoughts of dropping out compared to Pass-Fail scales.

A 2009 literature review focused on nine papers (some quoted individually below) assessing academic performance and/or well-being in a Pass-Fail environment.4 The authors concluded that student well-being is enhanced and academic performance is not adversely affected by changing to a Pass-Fail environment. Two of the studies they examined noted that some program directors felt a Pass-Fail system disadvantages applicants.

A 2009 commentary described Vanderbilt’s experience with student performance after a change to Pass-Fail grading in the first year.5 Compared to the control group (the previous class of students in a multi-point grading environment) the study group was
described as demonstrating no differences in course performance or success in the residency match, while USMLE Step 1 performance improved.

Authors at the Mayo Clinic School of Medicine (2006) examined the impact of changing from a 5-point grading scale to Pass-Fail in year 1 on both academic and psychological parameters. The Pass-Fail group demonstrated less perceived stress and increased group cohesion, with no change in mood, test-taking anxiety, and USMLE Step 1 scores.

Students at the University of Virginia (2009) were assessed after a change to Pass-Fail in both years one and two. Those students demonstrated an increase in well-being and greater satisfaction with both their academic performance and their personal lives compared to the previous class graded on a 5-point scale. No differences were seen in academic performance in years 1, 2 or 3, class attendance, NRMP match performance, or on USMLE Steps 1, 2-CK, and 2-CS.

The University of Michigan (2010) compared the performance of successive groups of year 2 classes, one graded on a discriminating scale and one graded Pass-Fail. No difference in academic performance or NRMP match success was found.

Summary

1. Many factors, both global and local, influence student stress, burnout and performance. Guidance from some of the literature must be interpreted in light of the fact that the reporting institutions that had already chosen to change from a multi-point to a Pass-Fail scale. The larger-scale, multi-school reports generally support the premise that a Pass-Fail grading system is consistent with an overall approach to limit the negative aspects of a grade-focused environment. That is different, however, from concluding that Pass-Fail grading is required to achieve a positive environment.

2. Concerns about Pass-Fail grading leading to student apathy, underachievement, or negatively impacting residency match success appear largely unsupported. There is little doubt that residency program directors welcome quantitative data about applicants, and a change to Pass-Fail grading decreases the availability of such information. Some residency programs directors feel strongly about the issue. Yet, with over half of US medical schools using some form of Pass-Fail grading in years 1 and 2, program directors have little opportunity or incentive to unilaterally discriminate against students from Pass-Fail curricula. For better or worse, clerkship performance, almost universally graded on a multi-point scale, appears to be given greater weight by program directors, perhaps because it is viewed as “performance-based” rather than “test-based”, or the expectation that clerkship grades sufficiently incorporate skills in integrating science into problem-solving. Pass-Fail grading may result in even greater emphasis on remaining quantitative measures such as the USMLE, and it is reasonable to conclude that USMLE Step 1 will remain a high-profile, high-stakes exam in students’ eyes. It is encouraging that studies show students’ sense of well-being was preserved in Pass-Fail environments despite these concerns.
Impact on Feedback and Transparency
A grading scale with fewer degrees of distinction (like Pass-Fail) may raise concerns about whether such a scale forfeits the opportunity to provide students detailed performance information, short-changes students who want to demonstrate excellence, or may lack the transparency needed to engender student trust. Common questions are

- Can courses provide sufficient performance (including both extremes of performance) feedback to students in a Pass-Fail environment?
- Will students who feel motivated to excel lament the loss of such opportunity?
- Is it appropriate to maintain “shadow records/rankings” (use of test scores or other finer degrees of distinction beyond Pass-Fail) to determine class rank or academic distinctions, such as AOA?
- Does a Pass-Fail grading scale in foundational science courses send the message that student performance in these subjects is valued less than clerkship performance?

Review of relevant literature
There are no empirical studies in the literature that address these questions, but schools with Pass-Fail grading scales have offered some insights. In general, providing students maximum detail (numerical test scores, or class histograms) is viewed favorably, while remaining consistent with the principles of Pass-Fail grading.

In the Virginia study, “cumulative honors” was available for the top 20% of students at the end of the 2nd-year, despite each course being graded Pass-Fail. Although a transparent process, student surveys showed that when students consciously pursued such honors, 70% felt it increased their stress level; of students consciously choosing to not pursue the honors option, 92% felt it decreased their stress. Other schools remain true to a 2-point scale for “passing” students, but Baylor (for example) retains a “Deferred” grade for students who fail a component of a course (see sample schools below). No studies appear to address this variant of a Pass-Fail scale. Discussions in the literature often use sustained high performance by students in a Pass-Fail environment to suggest that students have not devalued course content.

Reference Schools for Comparison

<table>
<thead>
<tr>
<th>School</th>
<th>Years 1 and 2 (or Preclerkship) Grading Scale</th>
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<tbody>
<tr>
<td>Baylor College of Medicine</td>
<td>Pass-Fail (also a “Deferred” grade; similar to UTMB’s “PC”)</td>
</tr>
<tr>
<td>UTHSC-Houston</td>
<td>Discussing Pass-Fail for new curriculum 2016</td>
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<tr>
<td>UTHSC- San Antonio</td>
<td>A-B-C-F</td>
</tr>
<tr>
<td>UT Southwestern (2015)</td>
<td>Pass-Fail</td>
</tr>
<tr>
<td>Yale, Cleveland Clinic</td>
<td>No grades</td>
</tr>
</tbody>
</table>

Summary
A Pass-Fail grading scale need not compromise performance feedback, including that to high and low performing students. Using additional performance information beyond the Pass-Fail grade in the Medical Student Performance Evaluation (MSPE) letter, for class rank, or for other discriminating purposes should be clearly stated up-front to avoid undermining the transparency a Pass-Fail system is designed to support.
References


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