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Too Smart to Fail: Guide for the Struggling Medical Student

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Too Smart to Fail: Guide for the Struggling Medical Student

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Abstract

Medicine is a vocation of perpetual independent learning; long term success is critically dependent on finding the right resources and establishing effective study methods and test-taking strategies. Students who struggle with the academic transition in medical school have common risk factors and characteristics. We highlight key resources that are available for struggling medical students with an emphasis on West Virginia's HELP, ASPIRE, and STAT programs.

Introduction

The transition to medical school can be both the most exciting and most challenging event in a person's academic career. On one hand, it is the final hurdle before one reaches the goal of becoming a physician and thus a reason for much excitement. On the other hand, the pace and the volume of material the student will encounter and be responsible for mastering far exceeds anything they have

previously experienced. It is this reality that has led to the statement that learning in medical school is analogous to "drinking from a fire hose". Management of the volume and need for exceptional academic performance necessitates an effective and reliable means of studying. Many medical students have difficulty changing the skills and strategies developed during undergraduate education.

Acceptance into medical school may falsely indicate that one has acquired an effective means of studying and retaining information. Most students are fruitful in their matriculation but there is a small but omnipresent group who does not succeed. No specific statistics are published regarding how many students struggle, repeat or remediate. Anecdotal evidence suggests that every student struggles at some point during their medical education as is evident by school policies for repeating and remediation.

There are a myriad of study resources available to medical students. These range from papers identifying characteristics of medical students who struggle to classes specifically aimed at helping that population acquire the necessary study skills. We identify and provide a brief review of key and critical resources available to help a struggling medical student.

Characteristics of a Struggling Medical Student

There is a limited body of research on what causes students to struggle. While there is no consensus as to what determines whether or not a student will struggle, there are some notable risk factors and indicators. Risk factors include a failure to be taxed academically prior to entering

medical school, an inflated sense of capabilities due to never having failed before, and misunderstanding of warnings because they are couched in optimistic terms.¹ Evidence also supports that medical students demonstrate higher levels of psychological distress when compared to the general population and their age matched peers. This distress can significantly impact academic performance with as many as 15-20 percent of physicians experiencing mental health issues during the course of their medical practice.^{2,3} Recent work on physician resilience shows great promise for assisting students in emotional distress.³ Regardless of what indicators apply to a particular struggling medical student, the fact that they will continue to struggle until corrective actions are implemented appears to be constant. It is difficult to adopt new methods when initially struggling in medical school. Students therefore often try to double down on the following three old, ineffective strategies:

1. *Spend more time than peers.* The time demands of medical school leave little extra time for success in this strategy;
2. *Re-writing notes and/or creating note cards.* This passive learning tool does not demand manipulation, building of connections, or critical thinking; and finally
3. *Reading, re-reading, reviewing.* Although critical for integration of concepts, these three "R's" cannot be successfully employed to manage the entire volume of material in the medical curriculum. There is simply not enough time.

Adoption of successful strategies requires that one realize when they

are in trouble. But what are the key indicators of those at risk?

Indicators of struggling are grouped into two categories: *qualitative* and *quantitative*. The **qualitative indicators** deal with characteristics shared by most students who struggle and include a focus on themselves only as medical students, a lack of a social support network, a reluctance to seek help, various social and health problems, and unprofessional behavior such as poor attendance.^{1,4} The qualitative indicators are not the focus of this review. The focus of this article is on the **quantitative indicators** of struggling: (1) failure of 3+ exams, (2) a score <50% on a cumulative assessment, (3) and a low first year cumulative GPA.^{4,5} Fortunately, there is a vast array of resources designed to address quantitative deficiencies. Some resources seek to enhance the effectiveness of a student's preferred study method by providing effective summaries or review questions. Others seek to teach students the skills which they are lacking or correct the

flawed techniques they are using. Whichever methods are employed, the first step is to recognize poor performance and act to correct it, with the first litmus test often being poor early test performance. For this reason any student who performs in the lower quarter of their class should actively seek help from their schools' Student Affairs Office early in their first year or whenever they begin to test poorly.

Quantitative improvement— Review Books

Arguably the most accessible of the resources are review books. While not designed to replace textbooks or lecture notes, they are a great resource for additional explanations of key concepts and organizing information. They come in many varieties but some of the more common and most popular are detailed in Tables 1 and 2.⁶ It appears that many struggling medical students are unable to mentally construct the "big picture" or organizational framework of

a given learning event (lecture, chapter in a book, etc.) and store the all-important details. It is reasonable to speculate that struggling students almost have to make a choice regarding framework versus details, and after they take the first detail-rich exam, they opt to focus on details. These details will either fail to be encoded into memory or not be accessible in the future due to the lack of the organizational framework. These problems can be addressed by learning how to first quickly construct the organizational framework before housing details. Review books like 'First aid for the USMLE' are particularly helpful in organizing detailed concepts into big picture ideas by organ systems. Other resources like Pre-Test also offer excellent review questions to evaluate readiness for exams by providing test style questions and answer explanations that assess both detailed and global understanding of topics.

When does it become too much?

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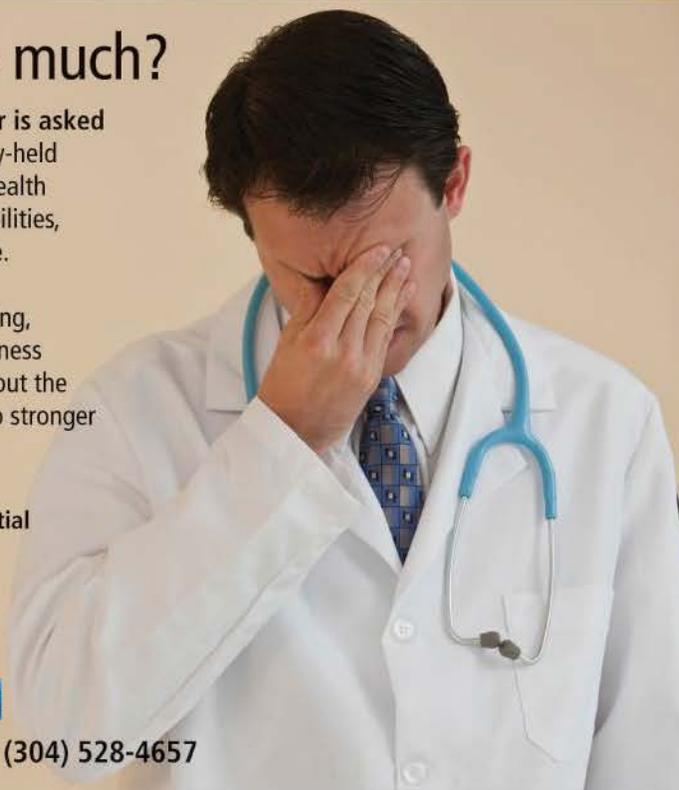


Table 1.

Most Recommended Review Books*		
Book	Pros	Cons
First Aid for the USMLE Step 1	<ul style="list-style-type: none"> • An excellent resource and the most commonly recommended book for USMLE Step 1 review** • Offers an excellent review of the highest-yield topics encountered on Step 1 • Helpful to read prior to covering topics during 1st and 2nd year lectures to familiarize oneself with the book in prep for later review*** • Annotation of book as topics are covered allows for more efficient review later • Easy to supplement with information from additional resources • Excellent section of high-yield photos** 	<ul style="list-style-type: none"> • Not a comprehensive resource
Kaplan USMLE Step 1 Lecture Notes	<ul style="list-style-type: none"> • A good resource to prepare for 1st and 2nd year course material**** • Excellent resource to review material that the student may be weak on 	<ul style="list-style-type: none"> • Not as high yield as First Aid** • Tendency to focus on details****
Rapid Review Pathology	<ul style="list-style-type: none"> • Excellent resource for review of pathology • Great for referencing pathology that is lacking in detail or isn't covered in the primary review book • Good supplemental question bank useful for pathology subject exams 	<ul style="list-style-type: none"> • Very detailed • Takes considerable time to read cover to cover

* <http://bit.ly/1nFauEf>

** <http://bit.ly/1ouldLm>

*** <http://bit.ly/1anrAKy>

****<http://bit.ly/1u8V0IZ>

Table 2.

Review Books to Assist with Block Exam Preparation		
Book	Pros	Cons
First Aid For The USMLE Step 1	<ul style="list-style-type: none"> • Reviews all concepts covered on USMLE Step 1 • “Dictionary” of science topics covered in MS1 and MS2 • Provides global overview for study of a topic • Should be annotated as subjects are initially studied 	<ul style="list-style-type: none"> • Provides only broadest points of a topic, limited details • Not a complete review of topics
The Pre-Test Series	<ul style="list-style-type: none"> • Provides a brief review of high-yield information in a given subject • Hundreds of board style test questions with detailed answers • Explanations not only of correct answer choice but why others options were wrong • Allows student to gauge level of comprehension of topics and practice applying them 	<ul style="list-style-type: none"> • Not a comprehensive review of a topic/subject • Questions can likely only be used once in a given module
Board Review Series	<ul style="list-style-type: none"> • Subject specific, in-depth review of concepts covered on a given topic • Summaries and visual aids are excellent for seeing the larger picture and integrating information across subjects • Great for identifying what is likely important about a given topic and succinct summaries of that topic 	<ul style="list-style-type: none"> • Provides a limited number of review questions • Sometimes lacks explanation of reasoning of why something is the way it is
High-Yield Series	<ul style="list-style-type: none"> • High yield facts and topics on a specific subject • Very concise • Great for making sure no important points were missed 	<ul style="list-style-type: none"> • Minimal details

Quantitative Improvement—Classes

Review books are an excellent means of uniting the information being studied into a framework of a larger system. Often, however, students struggle because of fundamental problems inherent to their method of study. These problems manifest in medical school because it is only at that point that the student, whose study methods have allowed them to be successful in the past, is challenged thoroughly enough that the flaws in the study systems become evident.³ According to Caven McLoughlin, Ph.D., these problems manifest themselves in one of three areas: information organization, planning processing, or test preparation. These flaws can take many forms and McLoughlin observed that rarely does a struggling student exhibit flaws in all areas.¹ Once identified, these areas of deficiency need to be addressed with the help of either the school academic support office or privately. There are many commercial academic programs to assist medical students, notably for West Virginia are the Marshall University Medical H.E.L.P. (Higher Education for Learning Problems) Program and the STAT Program.

Both the Marshall Medical H.E.L.P. program and the STAT program are designed to assist struggling medical students and physicians who would benefit from improvements in test-taking skills, study skills, fundamental reading skills, time management and self-esteem using authentic medical school content. Both programs have demonstrated anecdotal success.

The Marshall Medical H.E.L.P. Program, located in Huntington, WV, in place for the last 25 years, offers five-week courses throughout the year. They have enrolled students from all levels of medical training (pre-med to recertifying physicians) as well as other medical professionals: physician assistants, pharmacists, physical therapists, dentists and podiatrists.

Its website (<http://muwww-new.marshall.edu/medhelp/>) states that it is a “tactically corrective” program aimed at teaching struggling medical students the skills necessary to be successful in medical school and on board examinations.⁷ Their website states that their instruction includes “diverse and engaged study tactics, memory skills, test-taking strategies, effective time management and organization, as well as positive self-concept and stress reduction.”

The STAT Program: Study, Timing, and Testing for Medical Professionals provides two platforms for struggling medical students: The STAT Class and The STAT Boards Workshop (<http://www.thestatprogram.com/about-us>). The STAT Class is an intensive 12-day course that redesigns the way struggling medical students study, manage their time, and take tests by targeting bright, successful students who simply cannot manage the sheer volume and speed of information required for medical school mastery. The class is offered at various times throughout the year along the east coast at sites including Kentucky, West Virginia, and Maryland. Each skill is taught individually in a specific scope and sequence using authentic medical school content. These individual skills are then integrated into a cohesive learning sequence tailored to fit every student’s unique needs. The STAT Boards Workshop is designed for students with a history of poor standardized test performance and is tailored for the USMLE, COMLEX, shelf exams, and specialty board exams (pediatrics, emergency medicine, internal medicine, etc.).⁸

Quantitative Improvement—Websites & Blogs

Even with the many resources available, the struggling student must apply the most effective materials to a successful study method. Both the University of California at San Diego School

of Medicine and the University of Utah School of Medicine have excellent websites dedicated to helping medical students develop an effective method of studying. The basic method emphasizes pre-reading, lecture note taking, summarization and annotations utilizing active studying. Organization is key to the review process which requires early and frequent recall via practice questions.^{9,10} The websites do an outstanding job of explaining all of the concepts and techniques mentioned above as well as detailing techniques for achieving active studying. The websites are a very valuable resource and should be visited by all students starting medical school.

Inevitably, any search involving studying in medical school will lead to the blogs. Google defines the word blog as “a personal website on which an individual records opinions, links to other sites, etc. on a regular basis.”¹¹ Medical students and physicians primarily use blogs and other social media as an electronic diary, recording thoughts, rambles and unique experiences. A focused search of the internet may yield blog posts containing answers to specific questions. Blogs can be helpful in answering specific and unique questions, or if the documented experience is similar to one’s own experience. The authors reviewed numerous blogs and we have highlighted four that we found most useful in helping a medical student utilize their study resources and develop a sound study method (Table 3).

Quantitative Improvement—School Specific

Next, there are the school specific resources for West Virginia medical students. For example, Marshall University’s Joan C. Edwards School of Medicine (MUJCESOM) has an entire Office of Student Affairs dedicated to helping students in need of help. They assist with every type of problem from financial aid, to personal, to academic. The office coordinates various

resources such as academic and career advising, providing both a clinical and a peer mentor for each student. They also provide free tutoring, test preparation sessions, and counseling. The school also ensures that faculty is available to answer student questions.¹² This is not unique to MUJCESOM and most medical schools offer some combination or version of those services to their students.

WVSOM offers Academic Support and Intervention Resources (ASPIRE). ASPIRE is dedicated to helping students understand what it takes for a first year medical student to keep pace and be successful in medical school. To accomplish that goal, the office works to identify areas of deficiency and teach appropriate academic skills as well as offer counseling in a myriad of areas which could potentially cause a student to struggle.¹³ West Virginia University's School of Medicine Department of Medical Education offers both

counseling and peer tutoring services for its medical students.¹⁴

Technological Resources

Students should not overlook the ever-expanding electronic study aids available via the internet or web-based applications. Two such examples include The Open Hydrant (<http://www.theopenhydrant.com/>)¹⁵ and CramFighter (<http://cramfighter.com/>).¹⁶ The Open Hydrant was created by an alumnus of Marshall University Joan C. Edwards School of Medicine who is now a Medicine-Pediatrics resident. In a student-friendly format, The Open Hydrant provides study guides, illustrations, and references to other study materials. CramFighter (available on the web or as an application) allows students to create customized, content-based study schedules for a number of pertinent exams including the USMLE Step 1 and Step 2-CK. Creating and sticking to a schedule

is a widely accepted practice that can lead to success making this a potentially invaluable resource.

Quantitative Improvement—USMLE Step 1/COMLEX I

All West Virginia medical schools require successful completion of either the USMLE Step 1 (MD programs) or COMLEX 1 (DO programs) prior to being promoted to year 3 of their medical education.^{17,18} Although the struggling medical student should be identified prior to these examinations, these tests are frequently the event that generates remediation. Standardized test preparation is therefore critical and covered below.

The USMLE Step 1 and COMLEX 1 exams are the first part of medical licensing examination series in the US. Not only do all medical students need to pass this exam in order to obtain their

Table 3.

STUDY SKILLS Websites		
Website	Pros	Cons
USMLE Gunner	<ul style="list-style-type: none"> • Good starting point • Recommendations on Review Books • Detailed USMLE Step 1 Prep Program • Provides a basic outline for general Study 	<ul style="list-style-type: none"> • Infrequently updated • Lacks details and explanations
MedMaster	<ul style="list-style-type: none"> • Covers every imaginable topic relating to medical school • Brief but effective explanations • Easy to read and navigate • Written by a medical school professor • Frequently updated 	<ul style="list-style-type: none"> • Pushes "Made Ridiculously Simple" book series
Student Doctor Network Forums	<ul style="list-style-type: none"> • Excellent starting place for researching any conceivable question • Active community means questions are answered fairly quickly and new posts are frequently generated • Allows for multiple perspectives 	<ul style="list-style-type: none"> • Threads can go off topic • Answers are sometimes only the opinion of another member • Post can be insensitive/mean
Gunner Library	<ul style="list-style-type: none"> • Book ratings • Covers Pre-clinical, clinical, and board review books 	<ul style="list-style-type: none"> • Limited feedback in reviews section • Blog has only a single post

USMLE Gunner Blog; <http://bit.ly/1qRJzZA>

MedMaster Blog; <http://bit.ly/1qRJl5R>

Student Doctor Network Forums; <http://bit.ly/1vu6V3C>

GunnerLibrary; <http://bit.ly/Zo8rcR>

Table 4.

General USMLE Step 1 Study Principles	
Principle	Tips
1. Begin preparation for USMLE Step 1 by learning the material in 1st and 2nd year coursework	
2. Develop a plan	<ul style="list-style-type: none"> • Determine what resources to use and have a schedule to ensure that you get through those resources • Have mentors (students and/or faculty) that you can go to for advice • Have a routine – begin studying, take breaks, and go to sleep at the same time each day • Don't second guess yourself or let what others are doing or saying affect you and your plan
3. Take Practice Exams	<ul style="list-style-type: none"> • Helps to identify subject strengths and weaknesses • Prepare you for the format of the exam
4. Visit Testing Center	<ul style="list-style-type: none"> • Test takers can set up a mock exam at their testing center prior to their scheduled test date • This helps reduce anxiety on test day
5. Take care of yourself	<ul style="list-style-type: none"> • Make sure to get enough sleep each night • Exercise • Consider having dedicated time off from studying each week • Eat healthy

Table 5.

Miscellaneous USMLE Step 1 Resources		
Resource	Pros	Cons
NBME Practice Exams	<ul style="list-style-type: none"> • A valuable resource that mimics the real exam • Provides feedback allowing students to determine which areas they need to focus on • Helps with preparing for the pacing of the exam 	<ul style="list-style-type: none"> • No review of the questions that were answered incorrectly • Questions tend to be easier than the actual USMLE Step 1
Doctors in Training (DIT)	<ul style="list-style-type: none"> • Good to ensure covering large amount of material • Good for students who have trouble adhering to a schedule • Contains in-lecture quizzes to facilitate comprehension of material 	<ul style="list-style-type: none"> • Takes a considerable amount of time to complete • Lectures have a tendency to read First Aid to students* • Expensive
Goljan Audio Lectures**	<ul style="list-style-type: none"> • Excellent explanation of core pathology topics • Can be used when working out or driving • Dr. Goljan is a very entertaining and makes his lectures enjoyable • Can be sped up to 2x playback speed 	<ul style="list-style-type: none"> • Not comprehensive • Can be difficult to follow at times

* <http://bit.ly/1vrYrJn>

** Accessed on 8/4/2013; <http://bit.ly/1qRJWKI>

medical license, but also how well they perform on it determines their competitiveness for their chosen residency. A study in 2009 demonstrated that the USMLE Step 1 exam is one of the most important factors used in evaluating candidates for residency.¹⁹ This

was especially true for the more competitive specialties including ENT, Plastic Surgery and Orthopaedic Surgery.²⁰ Due to the variance of grading schemes (pass/fail versus letter grading) and the difference in grading scales amongst different institutions, program directors

feel that step 1 is a standardized measure of applicants pre-clinical knowledge.²¹ For this reason it is essential that students perform well on USMLE and COMLEX exams.

There are numerous resources available to medical students in order to prepare for the USMLE

Table 6.

Most Recommended Question Banks*		
Question Bank	Pros	Cons
USMLE World Step 1 Qbank	<ul style="list-style-type: none"> • One of the highest yield resource available** • Questions are most representative of those seen on USMLE • Excellent explanations that make supplementing and adding details to primary review book easy and useful for later review • Great for developing appropriate test question block timing 	<ul style="list-style-type: none"> • Takes a considerable amount of time to complete
Kaplan USMLE Step 1 Qbank	<ul style="list-style-type: none"> • Good for access to additional questions • Good to use to prepare for subject exams and coursework 	<ul style="list-style-type: none"> • Sometimes places too much emphasis on details*** • Explanations are not as well written as USMLE World
USMLE Rx	<ul style="list-style-type: none"> • Integrated with First Aid helping to reinforce the material**** 	<ul style="list-style-type: none"> • Question quality can be lacking***** • Explanations are not as good as Kaplan or USMLE World • Program interface can crash

* <http://bit.ly/YMYDb1>

** <http://bit.ly/YHl41w>

*** <http://bit.ly/1rlieoO>

**** <http://bit.ly/1wUxpeC>

***** <http://bit.ly/YHlxxu>

Step 1 and COMLEX 1. In fact it is not uncommon for students to feel overwhelmed and end up over-extending themselves in an attempt to use too many resources. This can be avoided by planning what resources will be used as well as developing a schedule that will ensure the student covers all the material tested. (Tables 4,5,6)

Conclusions

The resources discussed above provide an excellent starting point for any medical student whether they are struggling or simply want to improve upon their academic performance. All medical students should be familiar with school specific resources and the additional resources mentioned in this article. If struggling, denial and social isolation will only exacerbate the problems and not correct a study method that is unsuccessful. The struggling medical student must be proactive and seek out help aimed at the adoption of new study techniques and test-taking strategies. Medicine

is a vocation of perpetual learning, requiring a willingness to seek help as soon as poor performance becomes evident. It is therefore critical to find the right resources and an effective study method for long-term success.

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Editor's note: While facilitating study techniques may provide a remedy for struggling students, these techniques should not be seen as a substitute for a thorough diagnostic psychiatric evaluation to exclude other treatable causes that interfere with a student's performance. These may include, but are not limited to, psychiatric, neurologic and metabolic illnesses that may not be apparent subjectively.