An Example of a Remediation Program

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Abstract

In this chapter, the authors briefly describe a clinical skills remediation program that developed as a result of the introduction of a comprehensive clinical skills exam for students at the end of their core clerkship year. They describe the diagnostic framework that guides their work, discuss lessons learned, and explore the impact of this remediation program on their institution. They place their work within the context of published literature on remediation in medical education and discuss experience-based best practices for developing new clinical skills remediation programs.

2.1 Introduction

We established the comprehensive clinical skills exam (CCSE) at the New York University School of Medicine in 2004 with federal funding.[1] While the overall purpose of the exam was to ensure that all our graduates had basic competency in primary care medicine, our specific goals for this exam were to:

1. Give students detailed, formative clinical skills feedback as they entered the last year of medical school
2. Provide clerkship directors with detailed curriculum evaluation
3. Prepare students for the United States Medical Licensing Exam (USMLE) Step II Clinical Skills

We were in good company. At that time, 75 % of US medical schools required a similar clinical skills exam [1]. That was the same year the USMLE added a standardized-patient based, multi-station clinical skills exam (Step II Clinical Skills) as a required component.

Our students are required to take the CCSE at the end of their core clinical clerkships. However, since 2005, when we thoroughly established the CCSE's feasibility, reliability, and validity, all students are required to pass the CCSE in order to graduate [2–5]. Students receive a report card designed to provide detailed formative feedback (see Appendix).

[1] United States Department of Health and Human Services, Health Resources Services Administration, Predoctoral Training in Primary Care, Kalet PI DP5684191, 2003–2006.

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2.2 The NYU CCSE Remediation Program

We committed to the development of a robust clinical skills remediation program based on our early experiences with the CCSE. The CCSE is an eight-station Objective Structured Clinical Exam (OSCE), in which trained actors ("standardized patients," or SPs) enact complex, authentic cases and then assess student performance using validated checklists of clinical skills. The core clerkship directors and their designated educators worked collaboratively to design this "final exam" for the clerkship year. We use state-of-the-art techniques to continue to develop cases across clinical disciplines that challenge our students to demonstrate their ability to apply their accumulated medical knowledge and "put it all together" by displaying integrated clinical skills. For a detailed description of our approach, see Zabar et al. [6].

In this exam, we measure four domains of competence across eight cases: communication skills (information gathering, relationship building, and patient education), clinical history gathering, physical exam skills, and clinical reasoning. Clinical reasoning is demonstrated in written patient notes as well as interpretation of laboratory, radiographic, and electrocardiogram data. In the first years that we conducted the CCSE, we held debriefing sessions with students immediately following the exam. Our goal was to fully understand and maximize the educational value of the CCSE. We encouraged students to review their exam results, to identify areas of strength and weakness, and to make learning plans for their final year of medical school. Through these debriefings, we were reassured that students recognized the salience and authenticity of the integrated clinical skills being assessed. We stopped conducting the debriefings when the exam became higher stakes.

Each of the exam's major domains was validated as having very good to excellent psychometric qualities (e.g., Cronbach's alpha for communication items 0.8–0.9, for physical exam items 0.4–0.6). The CCSE was then instituted as a pass–fail exam required for graduation. Initially, roughly 5–10 % of students failed the exam each year based on a non-compensatory standard. This means that a student's scores had to be more than two standard deviations below the group mean on more than one component of the exam, or on the communication skills section alone, to fail. Of note, students were about 9 months from graduation when they learned of their exam failures, and most were in the midst of applying for residency positions. We required them to demonstrate their clinical competence in a reexamination in order to graduate from our medical school. Anecdotally, we know that while in most cases clinical educators familiar with the student's past performance could have predicted the CCSE failure, some failures came as a surprise. Our responsibility was to ensure that all the students who failed the CCSE were "on course" to graduate; our remediation program grew out of this responsibility. Every year after the pilot year, each student who failed was required to meet with us individually to "diagnose" what went wrong in the CCSE and to collaborate on designing a remediation "treatment" plan.

2.2.1 Example Cases

What were we up against? Consider the cases of Sylvia and David.

Sylvia's CCSE scores put her at the bottom of her class in clinical reasoning and history gathering. All eight standardized patients indicated they would not recommend her as a doctor to a friend; one said, "She was very nice, but seemed unfocused, lacking confidence". Faculty review of the video recordings of Sylvia's CCSE cases revealed her excellent rapport-building skills, but minimal relevant history gathering during the interview as well as superficial physical examination. Sylvia's patient notes lacked sufficient clinical

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data and listed limited differential diagnoses. She had passed all her preclinical courses and clerkships. Feedback from clinical clerkships consistently suggested that she "read more."

Sylvia was not entirely surprised by her low exam score, since she felt that she had struggled on her clinical clerkships. She had hoped that her excellent interpersonal skills would "save the day" as they usually did. She was surprised to hear that most of her peers were able to perform a focused history and physical exam in the given time frame.

In reviewing her results with the remediation team, Sylvia recognized that she had an adequate knowledge base but she was less able than her peers to access that knowledge "in real time" with the patient and that she was not actively reasoning during the interview. Sylvia did not believe she could rely on a physical exam to provide clinical data and therefore approached it without enthusiasm. She also stated that she had never been directly observed performing a physical exam during her clerkships.

Could we get this student ready to graduate and begin residency training under time pressure? What strategies should we employ?

David performed in the lowest decile of the class in all four competency domains of the CCSE. Standardized patient comments were atypically critical. One SP reported that he was "unnecessarily rough while performing the physical exam," and another commented, "this is perhaps the worst student I have ever seen." David had been disruptive in the CCSE orientation, making sarcastic comments challenging the usefulness of the exam. David was well known to the preclinical faculty for his consistently near-perfect medical knowledge test scores. His record showed no formal documentation of problems, but course directors commented that David was routinely troublesome and distracting in lectures and that he frequently missed assignment deadlines in seminars. Clerkship directors remarked on his considerable knowledge base and excellent oral and written presentations of clinical cases, but also noted that he "could be arrogant, especially to his peers." By talking directly with attending physicians who had supervised him, the remediation team confirmed that David had performed well clinically on clerkships.

David was astonished when he learned he had failed the CCSE. He argued that "nobody takes this exam seriously" and rejected detailed feedback from standardized patients as "ridiculous." On review of his own abbreviated clinical notes from the CCSE and example notes written by peers, he was easily able to recall and present the cases and to generate reasonable differential diagnoses and case management plans on the spot.

Ultimately, he admitted to intentionally "blowing" this exam because he was annoyed at having to take the exam at all. He denied feeling any regret at having done this, just annoyance that he would now have to "waste his time" dealing with the consequences.

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We had 6 weeks to help David turn his exam performance around so that his CCSE failure would not be flagged on his residency applications. Was this possible?

2.2.2 Remediation Cases

Guided by our experience as medical educators of students and residents, and our own collective clinical reasoning skills, the remediation team drafted a plan for each student, calling in others when special expertise was needed. We met weekly to share the design and implementation of learning and practice strategies and to monitor each student's progress. We also designed a three- or four-case "make-up" exam to be conducted the week before medical school transcripts were to be sent to residency programs. Consider the outcomes for Sylvia and David.

Sylvia worked with the remediation team diligently and collaboratively to develop a remediation plan. She enjoyed using the CCSE data to understand her specific areas of weakness; she was eager to address these areas and sought out her favorite clerkship faculty members to help her practice both clinical reasoning and physical exam skills. She devoured reading assignments about the cognitive science of clinical reasoning, wrote the required self-reflections, and passed the remediation exam. A year later she wrote an email thanking us for working with her to become a better doctor; she reported that she was doing very well as an intern and gave us permission to talk with her residency program director who confirmed that she was doing "well enough."

David agreed to participate in a remediation plan but did not contribute to its development. As directed, he wrote a 500-word essay analyzing his intentional failure of the CCSE. The essay focused on his obligation to strive for excellence as part of our institution's expectations of medical professionalism. He reluctantly agreed to meet three times with a senior faculty member whom we deputized specifically to work with this student. With this faculty member, David reviewed his video recordings from the CCSE. They discussed norms of behavior for the medical profession through readings and case discussions. David took and passed the remediation CCSE. No further episodes of frankly disruptive behavior were reported as he completed his required rotations and graduated. He did not respond to our requests for follow-up or give us permission to speak with his Program Director.

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2.3 Outcomes

The remediation team has had a high success rate since its inception, receiving a great deal of positive feedback from students for the specific, targeted learning plans they helped to create. Most students describe the remediation process as something they initially dreaded but that ultimately made them more aware of their own learning needs. Several students who failed the CCSE in the past few years have chosen to delay graduation, spending another year in medical school to work on their skills. Since 2004, fewer than five students have chosen not to graduate or were not allowed to graduate due to poor performance. In each of these cases, the CCSE and the remediation process provided necessary objective evidence to support these decisions. The rest, like Sylvia and David, successfully completed the remediation program and moved on. After 10 years of experience, we believe that most students who fail the exam are remediable in the short term (i.e., fewer than 3 months). With intensive focus on the skills assessed in the CCSE, students have demonstrated significant improvement and have helped themselves get "back on course."

2.4 Framework to Describe CCSE Failures

Our remediation work is organized in part by a set of empirically derived reasons behind student failure of the clinical skills exam (Table 2.1).

2.5 Structuring Remediation

Students who fail the CCSE are required to participate in remediation. They are responsible for actively engaging with the remediation team to develop an individualized remediation plan, to initiate and complete the remediation activities that were agreed upon, and to take and pass a make-up exam that closely parallels the CCSE.

We inform students that brief reports of their progress during remediation will be made to the Dean of Student Affairs. Both the remediation team and the Dean of Student Affairs are committed to each student's privacy, although the remediation may become part of the student's official academic record (see Chap. 18). The CCSE Co-Directors have formed a team of expert educators as a resource for investigating additional evidence of clinical competence, facilitating

Table 2.1 Categories of the underlying difficulties identified in students who failed the CCSE

Category of difficulty	Descriptors of these students	Where to find useful models or remediation strategies in this book
1.	*Preexisting academic issues and isolated clinical skills deficits*: students in this category may have a previously identified learning disability, history of poor academic performance in medical school, and/or are on a dual degree/transfer/other nontraditional educational path. They demonstrate specific areas of weak clinical skills. $N=27$ (56 %)	Chaps. 3, 8, and 9
Insufficient working knowledge base	• Misses critical features of common clinical patterns (lacks well-developed clinical scripts) • Fails to gain patient confidence, even with adequate interpersonal skills • Performs at or below the mean in standardized knowledge tests (e.g., USMLE, Shelf exams) • Has inconsistent academic performance, particularly on clerkships • Does not have well-developed study strategies (may rely on "just reading more" or "trying harder" without asking for help) • May be aware of his or her lack of knowledge relative to peers • Avoids contact with faculty rather than actively seeking strategies to address areas of deficit	Chaps. 3, 6, and 13
Insufficient communication skills	• Despite positive attitude toward this competency domain, lacks specific skills in information gathering, relationship building or patient education	Chaps. 4 and 10
Insufficient physical exam skills	• Lacks the knowledge or skills required to perform effective physical exams • May have general or specific problems (e.g., student may only show skills deficits on neurology exam) • Exhibits timidity around physical exam • Believes physical exam information is not valuable	Chaps. 5, 6, and 8
Inadequate clinical reasoning	• Gathers copious information without evidence of inductive or deductive reasoning • May have coexisting deficit in knowledge base or slower than average cognitive processing speed	Chaps. 3, 6, and 9
2.	*Specific testing issues or organizational problems*: students with poor test results due to test-specific stressors or fundamental underlying organization difficulties. $N=11$ (23 %)	Chaps. 9 and 13

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Table 2.1 (continued)

Category of difficulty	Descriptors of these students	Where to find useful models or remediation strategies in this book
Performance anxiety	• Has intense anxiety about performing on the exam or being directly observed • Has a history of debilitating anxiety in other performance situations • May have "adrenergic" symptoms (e.g., tremor, sweating, palpitations, diarrhea) and physical agitation	Chaps. 10, 11, and 12
Poor organization/ time management	• Comes late to meetings and misses deadlines • Has a messy clipboard or disheveled white coat • Is perceived as smart and engaging, but disorganization interferes with learning and patient confidence	Chaps. 8, 9, and 12
Expertise reversal effect	• Student with a neutral or positive attitude toward the exam but functions at a clinical level beyond that which is targeted by the exam • Recognizes the clinical "script" in the case, rapidly and accurately assesses the patient—asking all pertinent negatives to rule out likely competing diagnoses • May not thoroughly collect all CCSE checklist data, which results in a low "percent well done" score • May not write thorough note, limiting documentation of clinical reasoning • Lack of awareness of or rejection of medical student role in exam	Chaps. 1, 2, and 6
3. *Extenuating psychosocial factors*: students with psychiatric disorders, substance abuse, eating disorders, and situational distress. $N=7$ (15 %)		Chaps. 8, 9, 11, 12, and 18
• Has a prior diagnosis or meets diagnostic criteria for a psychiatric diagnosis, most commonly anxiety or depression • Demonstrates distress that raises concern for student's well-being • May have had recent positive or negative life event (bachelor party, new baby, illness, or death of family or friend)		
4. Nonverbal *learning issues*: social awkwardness, autism spectrum disorder. $N=4$ (9 %)		Chaps. 10 and 12
• Has very low communication skill but otherwise high competency scores • Is described by SPs as awkward, shy, with limited eye contact, difficulty in addressing emotional issues, intimate clinical symptoms, or performing the physical exam • Reports a history of interpersonal awkwardness, limited social life, and a preference for working alone • Suspects he or she needs to work especially hard to have rapport with others • Has limited ability to self-assess or strategize around the deficit • Is eager to improve his or her performance		
5. *Attitudinal issues*: lack of professionalism. $N=14$ (30 %)		Chaps. 2, 7, 8, 13, 14, 15, and 17
• Negative rapport (limited professionalism or cultural competency) • Does not meet behavioral conduct standards • Offends or is disrespectful to SP, staff, or faculty • Has pattern of expressing provocative attitudes • Challenges validity of exam in an argumentative manner • Dismissive and/or overly charming • Blames others for own difficulties (e.g., "No one told me this was required") • Has an attitude of superiority, creates friction with colleagues, which initially may be reinforced by faculty members (e.g., "I am better than my peers") • Difficulty with perspective-taking (limited cultural competence)		

The five categories, each containing subcategories or "presentations," define groupings of issues, which can be addressed using similar strategies. Categories are not strictly mutually exclusive. Between the years 2006–2009, 53 of 500 students failed the CCSE and required remediation. The number and proportion of the students from this time period is noted

remediation activities, regularly reviewing and documenting the students' progress, and ultimately determining whether the student successfully completed the remediation plan.

For students like Sylvia, who actively embrace remediation by collaboratively developing and following an individualized learning plan, demonstrate motivation and persistence, and show receptiveness to feedback, remediation increases self-awareness and confidence. The prognosis for these students is excellent, in large part due to their extra effort in ensuring their own clinical skill development (see Chap. 13).

Our program's success stems from the active engagement of students with their own development as physicians. Repetitive rehearsal for the exam itself is not predictive of success. Even when a student's difficulties are limited to performance anxiety, rehearsal is not enough. The remediation team's job is to frame remediation work in the context of each student's professional goals and both the institution's expectations for professionalism.

David, for example, was not expected to rehearse for the make-up exam since past performance indicated that he was perfectly capable of performing well. Instead, he was expected to address his attitudes, beliefs, and professional behaviors toward the exam. His remediation consisted of writing exercises and working with an authoritative role model who took a hard line with him on professionalism. David respected this approach. The long-term prognosis is not clear. In the short term, David's behavior fell in line with professional expectations. The fact that remediation is required has significantly improved our success in working with students like David whose initial motivation is limited.

2.6 Benefits to the Medical School of Having a Remediation Program

Identifying and remediating serious clinical skills deficits should take place as early in medical training as possible, but it is not uncommon for "hard stops" to be limited to the period following clinical clerkships [7]. A program of student assessment that is soundly aimed at enhancing learning is the element that prevents a remediation program from being anything other than, as Cleland says, "examination coaching." It makes sense that targeting remediation earlier in the curriculum has a better chance of producing long-term benefits, but a more holistic and comprehensive assessment approach must be in place throughout the curriculum (see Chap. 1).

Feedback from students about their CCSE experiences has helped us to reform the way we assess students throughout the curriculum, to detect clinical deficits needing earlier attention, and to ensure that all our students' training experiences are enriched by the benefits we have seen from students' engagement in the CCSE remediation program. We are in the process of implementing a comprehensive program of assessment with a focus on assessment *for* learning, which is mastery oriented and managed and accessed by students through an academic portfolio (Chap. 1).

Our medical school's curriculum has benefited from CCSE performance and remediation data. For instance, when we discovered that many of our students had difficulty with the same area of competence (e.g., reading and interpreting an electrocardiogram, conducting a focused neurological exam), we addressed these deficiencies through partnering with preclinical and clinical course directors to make targeted adjustments in the curriculum.

2.7 Willingness to Fail a Student

Prior to the implementation of our remediation program, even the most experienced, frontline clinical educators were reluctant to label a student as having weak clinical skills. There are many reasons for this [8]. Our efforts over the past decade have provided clinical faculty with a shared language with which to discuss students' clinical competence. By demonstrating that remediation can be successful, we are encouraging faculty to participate in early identification of struggling students. In general, remediated students

have been good ambassadors for the remediation program. The "buzz" on the program has been generally positive, respectful, and supportive. Through this mechanism, we have had more students self-identify as needing help and more faculty members seeking support in conducting remediation (see Chap. 19). As these efforts are absorbed into the earliest years of training, they are taking on a tone of development and prevention, rather than remediation.

As accreditation expectations for residency programs increasingly emphasize clinical outcomes and clinical skills portfolios, faculty seek our help to create similar remediation programs at the GME level.

While the published literature is limited, we are aware that we are not unique in addressing these issues programmatically [9–12]. Through both published reports and personal communications, we are heartened by the number of remediation programs that are initiated and championed by a particular member of the faculty who is passionate about this domain of education (like many of the contributors to the book [10]). A consensus on best practices is evolving. Short-term outcome data are encouraging [11, 12], and we know there is much more to come. Related efforts, which are informative to medical education, are taking place in other health professions [13]. We enthusiastically agree with the call for multi-institutional, outcomes-based research [1] (see Chap. 21).

Emerging Best Practices for Remediation Programs Include:

- Support from Dean for Student Affairs or Office of Medical Education/Curriculum Committee
- Mandatory participation, rather than "suggested" for struggling students
- Learning diagnosis/es based on multisource data: preclinical and clerkship performance, as well as detailed assessment of the underlying competency issues
- Collaborative development of an individualized remediation plan
- Frequent monitoring and documentation of progress
- Development of longitudinal faculty–student relationships
- Tailored remediation strategies to individual needs
- Use of variety of remediation methods
- Explicit mention of attitudes and motivation
- Teaching of goal-setting, strategic planning, self-monitoring, and self-analysis
- Emotional support and rigorous, clear expectations
- Development of faculty mentoring, facilitation, direct observation, and feedback skills

2.8 Remediation: What Works?

There is as yet little evidence supporting how and why remediation in medical education works. Most recently, Cleland et al. conducted a structured, rigorous review of the literature to explore this question (see Chap. 21). So far, research findings are of limited generalizability. Very few reports are of complex or holistic remediation approaches. The reports show that a great deal of faculty time is committed to remediation, and outcome data demonstrate that most students go on to graduate [7]. They also found that while few programs report theoretical frameworks driving their work in remediation, those that do focus on cognitive capacities of students, such as self-regulation, metacognition, and reflection, as well as the giving and receiving of feedback, all of which is firmly supported by the general education literature [14].

Since our program began, we have remediated 100 students who have failed the CCSE. We have expanded our work to include other students and residents referred to us and shared our work with educators working at every point in our medical school's training continuum. Until we can establish satisfying criteria-based standards for clinical skills

assessment, we rely on normative data to give students specific and reasonable goals. The CCSE report card given to all students is particularly useful feedback because it shows individual performance relative to peer group (see Appendix). This has served as an incentive to participate in remediation for students who did not previously see themselves as veering off course. For students who did not fail but who had specific areas of weakness, the report card can also serve as a cautioning voice in preparation for the USMLE Step II CS.

2.9 Unprofessional Behavior Presents as Clinical Incompetence

An important lesson from our experience with standardized patient exams is that unprofessional behavior presents as clinical incompetence, even when students have the capacity to be clinically competent. Although the majority of our remediation students are likely to have negative feelings about the exam, they are eager to discuss their performance, do so respectfully and in partnership with us, exhibit motivation to work on clinical deficits, and strive for excellence. However, up to a third of students initially approach the remediation process with dismissive disbelief ("there is no way I have worse clinical skills than my classmates"), disrespect ("what do you people want from me?!"), attitudes inconsistent with good patient care ("the patient should be happy as long as I get the right diagnosis!," "It is not my job to deal with crazy people"), lack of motivation ("I am going into a non-patient care specialty, so I don't need to be able to talk to people"), and lack of self-awareness ("I function at the level of a good intern already, I don't need this"). In these cases we try to identify whether this behavior is unique to the CCSE or is part of a pattern of behavior by consulting with clinical educators who have worked directly with the students in authentic clinical situations overtime.

A few students each year have "unprofessional" behavior as the *primary* reason the student failed the exam, even though it is clear that the student is capable of adequate performance in all competency areas. This is the group of students we find most challenging, and for whom we feel we have the least effective remediation strategies.

Strategies we have employed for unprofessional behavior include direct confrontation about the lack of professionalism with reminders that passing the CCSE and the USMLE Step 2 Clinical Skills exam are necessary for professional advancement, discussions with the students about moral reasoning (see Chap. 7), reflective essays written by students to demonstrate knowledge and awareness of the elements and expectations of medical professionalism (see Chap. 14), and deputizing high-level authorities in a clinical field of interest (e.g., most often full professors) to work with the student. In some cases we have used a version of the program described in Chap. 7 to assess and then make summative conclusions about such students.

Educators working on a remediation team must be prepared to approach students who need help but are confrontational or disrespectful. Remediation teams can work together to provide a "team awareness" of students' issues that leads to a wider array of options for engaging students who are upset or argumentative.

2.10 "Expertise Reversal" Effects

The CCSE is not an easy exam, and scores do not have a ceiling effect. Over the years, the mean score (% Well Done) on each of the four competency areas hovers around 55 %. It has been our experience that occasionally students who fail claim that the CCSE tripped them up because it was "too easy" for them. In most of these cases, there is ample supporting evidence that the student requires remediation of clinical skills. Very rarely, we have worked with students who failed the CCSE who, based on their level of skills and abilities, should not have. During the exam, they tend to collect very limited history data, they perform a highly focused physical exam, and they demonstrate strong communication skills and accurate clinical reasoning, although their patient notes lack detail.

Students who may be operating at a more expert level than their peers may have extensive knowledge structures called schemas stored in and accessible from long-term memory [15] (Chaps. 6 and 19). Therefore, they can use lim-

ited working memory to perform complex tasks automatically or seemingly intuitively. Because experts can accurately "jump to conclusions," they may underperform on assessments like OSCEs, where competence is based on demonstrating the series of steps required by novices to come to an accurate conclusion. This seeming "de-skilling" of experts under circumstances designed for novices is a phenomenon known to the cognitive psychology community as expertise reversal [16]. We suspect expertise reversal effects when we meet a student with extensive clinical experience prior to medical school (e.g., a nurse, physician's assistant, EMT, or engineer) or students who are uniformly judged as exceptionally sophisticated by clinical faculty, or both. In these cases all that is required for effective remediation is "examination coaching" strategies to assist the student in passing high stakes performance exams like the CCSE.

2.11 Human Resources for Remediation

Our CCSE remediation team consists of clinician educators, one each from pediatrics (L.T.), internal medicine (A.K.), and surgery (J.O.) (10 % effort each). In addition, we have a research scientist/data analyst (10 % effort) and a full time project assistant who plans and implements the CCSE, with the assistance of temporary staff on the days of the exam, and then supports the remediation process. In the past 2 years, we have added an administrative director (S.Y.) (10 %). Remediation students are referred to any or all of the following specialists as appropriate: an organizational psychologist with experience in improving professional verbal and nonverbal communication skills that are key to patient encounters (see Chap. 10), a drama therapist (who also recruits and trains our SPs) who coaches students to practice clinical communication skills with an SP, a learning specialist who conducts neuropsychological assessments and coaches students with learning disabilities (see Chap. 7), and a psychiatrist with expertise in medical student mental health. In most cases remediation resources are either grant-funded or provided by the Dean's Office.

2.12 Do We Have a "Theory of Remediation in Medical Education"?

The word *remediation* is provocative. Lay people are truly perplexed ("What does that word mean?"), fellow medical educators sigh with relief (e.g., "Thank goodness, I thought I was all alone in this work!"), and students physically shrink away ("How horrible, I thought I was getting by").

As is clear from the many diverse contributions to this book, remediation is an area of medical educational practice drawing on many theoretical frameworks and learning theories. But it is also, in and of itself, becoming a distinct area of research and theorizing (see Chaps. 1, 19, and 21). A set of principles is emerging upon which to base our practice and to identify gaps in our knowledge (see above).

2.13 Conclusion

If we are to honor our social contract with the public and maintain our integrity as a medical profession, we will need to continue to improve our ability to assess and learn from our own clinical performance and that of our trainees. As assessment strategies in medical education become more sophisticated with the implementation of programs of assessment *for* learning (see Chap. 1), ideally remediation efforts will be better integrated throughout the curriculum rather than as separate formal programs for students with late-identified deficits in clinical skills. Until then, we must continue to respond to clinical deficits with the full force of our creativity and commitment, ensuring that our graduates are prepared to be safe, effective, and responsible physicians. We share our experience to contribute to the conversation about creative and innovative approaches to this work springing up in all realms of health professional education.

Appendix

NYU School of Medicine
NYU LANGONE MEDICAL CENTER

<<DATE>>

Dear <<STUDENT>>,

This past February, third-year medical tudents at NYU SoM were required to participate in the Comprehensive Clinical Skills Exam (CCSE), a half-day 8-station Objective Structured Clinical Exam (OSCE) that tested core clinical skills across all clerkships. The CCSE is designed to assess clinical competence based on standards determined by the NYU SoM clerkship directors as supported by the Dean's Office and consistent with structure of the USMLE Step 2 Clinical Skills Exam.

Analysis of student performance on the exam enables us to: 1) provide students with individualized feedback on their clinical skills in comparison to class results; 2) prepare students for the USMLE Step 2 CS exam, a requirement of Medical licensing ; and 3) provide NYU SoM with valuable feedback on the effectiveness of our curriculum.

The CCSE report card is a summary assessment of your performance across all stations of the exam distilled into four separate scores—communication, history gathering, physical exam, and clinical reasoning as demonstrated in the patient note.

Please be assured this is a highly standardized and reliable exam.
We encourage you to use this information to reflect on your own clinical skills, taking advantage of your fourth year of medical school to improve any areas of weakness.

Satisfactory completion of the CCSE is a required component of graduation. Overall performance on the CCSE will be indicated on your final transcript as a "pass" or "fail."

Poor performance criteria include:

performance at or below the bottom (10^{th}) decile in two or more competency areas (as listed above) or

markedly poor performance in communication alone.

Students who failed this exam are identified in the enclosed report card and will be provided with a more detailed analysis of their performance as part of an individualized remediation program. Following remediation, such students will be required to pass a new exam in order to receive a passing grade on their transcript. If you have any questions or concerns about your performance, the exam or remediation opportunities, please contact <<PROGRAM COORDINATOR>> at <<PHONE>> or alternatively via email at <<EMAIL>>.

Sincerely,
Co-Directors of CCSE and Deans of Curriculum and Student Affairs

<<STUDENT>>

Overall Performance: Fail

CCSE Reporting Guide

Communication

Standardized patients in each of the eight scenarios rated student communication skills, based on four components of the medical interview: organization, information gathering, relationship building, and patient education and counseling. Scores are reported as percent items from a standardized communication checklist rated ***done well***.

History Gathering

Standardized patients rated student history gathering skills using content-specific history checklists developed by the relevant clerkship director(s). Scores are reported as percent of items from the history checklist rated ***done well***.

Physical Exam

Standardized patients recorded whether each student performed the expected physical exam maneuvers and the level of skill with which the exam was performed based on specific behaviors defined by the clerkship directors. Each standardized patient was trained in the physical exam by a clerkship director or an experienced NYU attending designated by the clerkship director.

Overall scores are reported as percent of expected physical exam maneuvers ***done well*** by the student.

Physical examination scores are also provided for each case as such skills may be quite specific.

Clinical Reasoning

You were asked to write patient notes after each of seven cases. Faculty, using a standardized grading rubric, rated the clinical reasoning demonstrated in each of those notes, focusing on organization, identification of relevant findings and differential diagnoses. Faculty then rated overall clinical reasoning on a 4-point scale (1=poor; 2=fair; 3=good; 4=excellent). These overall ratings were averaged across the seven cases to arrive at a summary Clinical Reasoning score.

We also provided you with information on the percent of accurate findings notes and the number of notes rated by faculty as “organized”.

How to Interpret the Results:

Your individual scores in each of the above skill areas are displayed in the following graphs. We have also provided you with the average score of your class to aid in interpretation. Class scores one standard deviation ***above*** the mean and one standard deviation ***below*** the mean are displayed with an error bar.

Based on careful analysis, student performance may be interpreted as follows:

Students performing **one or more standard deviations above the mean** likely possess ***excellent*** skills and will likely perform well on similar tests in the future.

Students **within one standard of the mean** likely possess at least ***adequate*** clinical skills and are likely to pass similar tests in the future, but they may have specific areas in need of improvement.

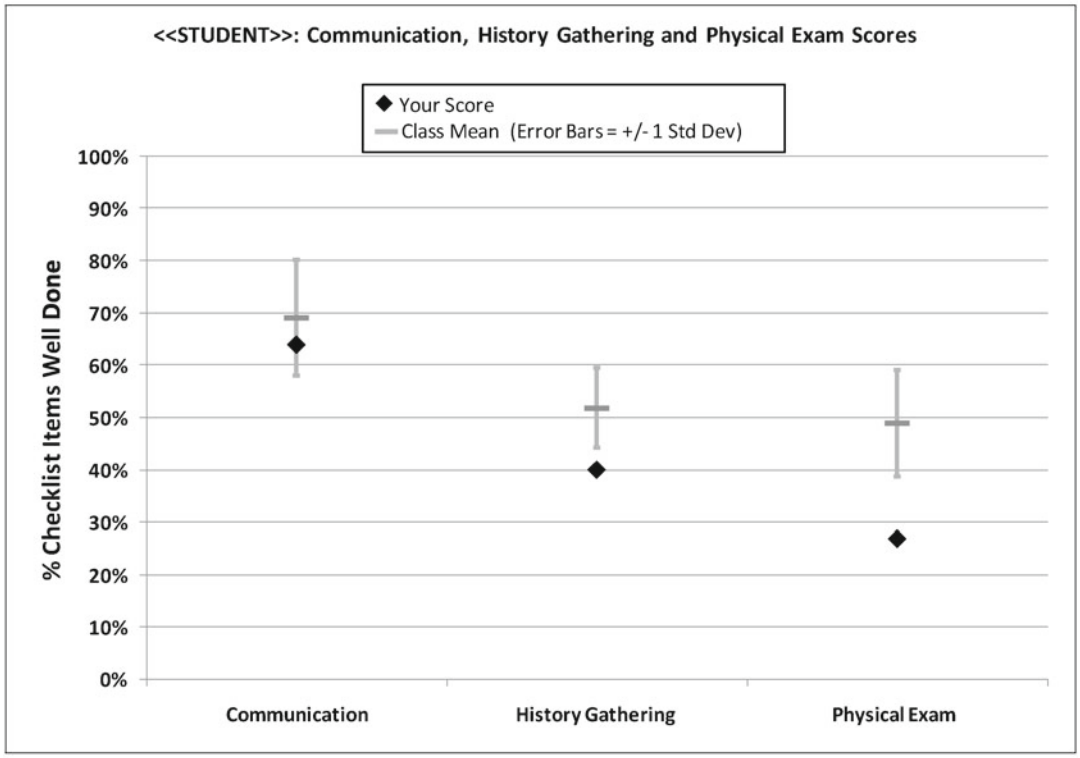
Students **with scores more than one standard deviation below the mean** possibly have ***weak*** clinical skills, as measured by this type of exam, and will benefit from an increased effort to improve such skills through practice or, in some cases, specific remediation. Test anxiety may contribute to poor performance on the exam; practice often helps this situation.

Note: % Well Done = percent of rated items for which you received a well done (vs. not or only partly done). A 0% means that you didn't get full credit for any of the assessed items. Missing data are indicated by **N/A** for Not Available.

YOUR SCORES ON THE 2013 CCSE Communication,

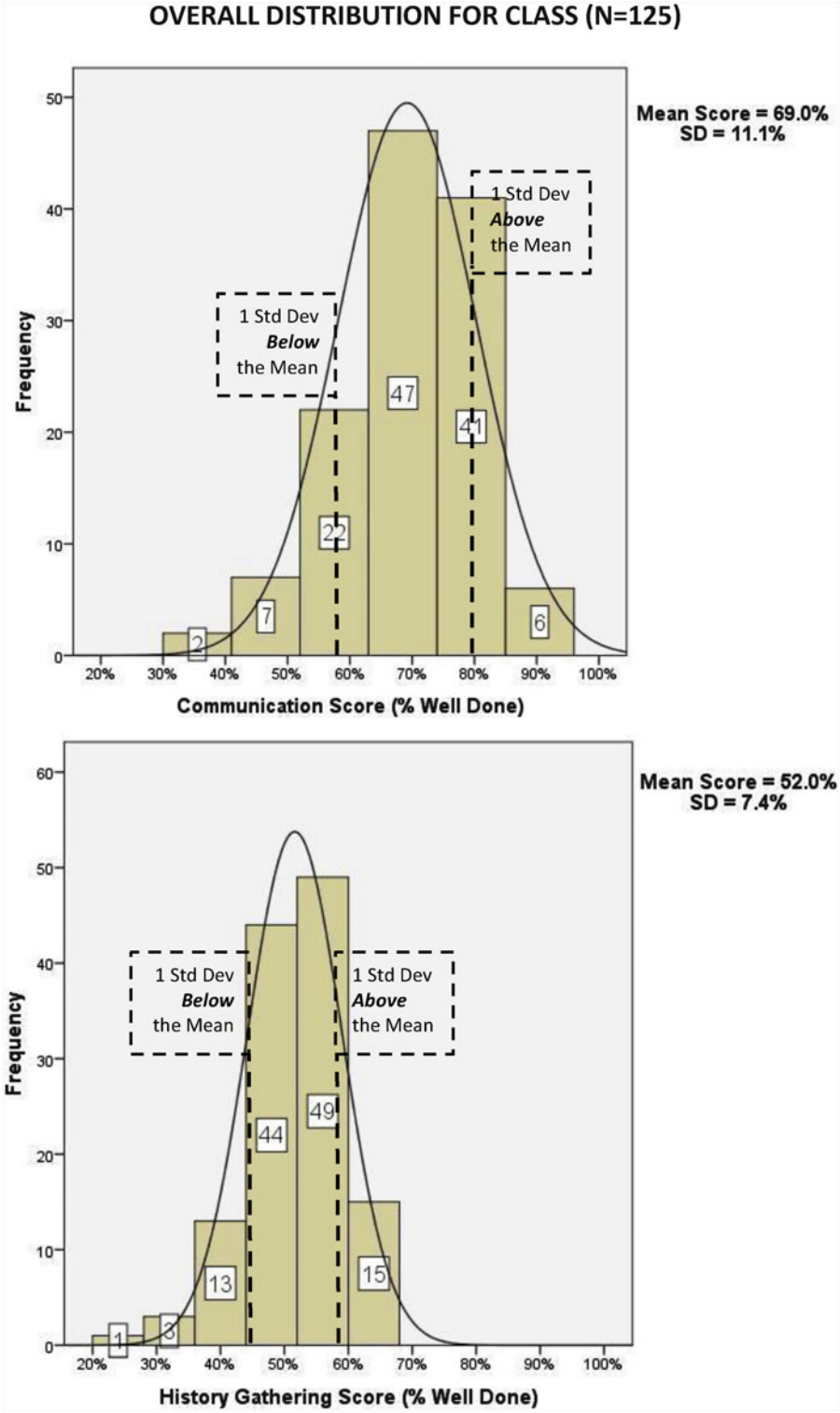
History Gathering, Physical Examination

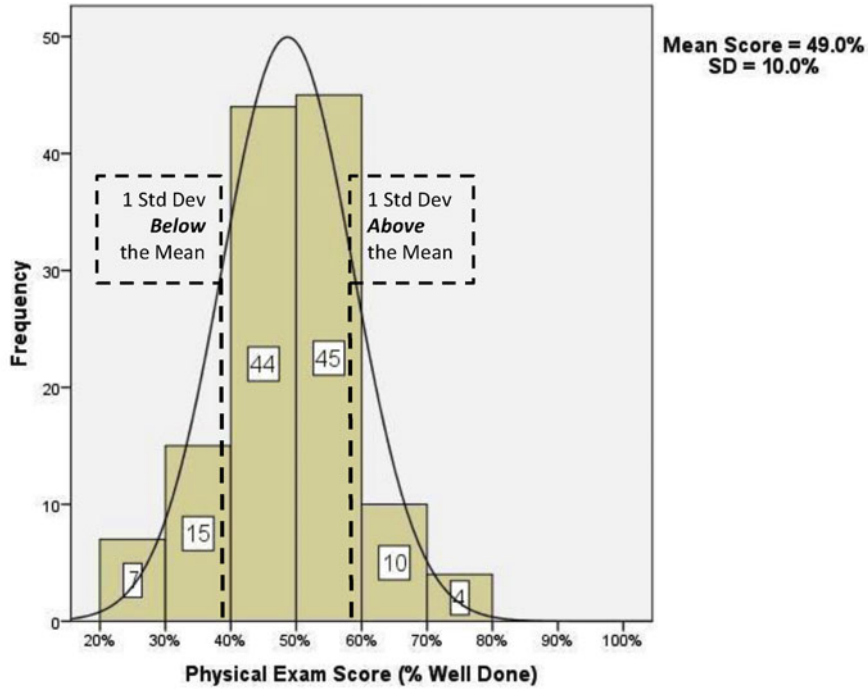
OVERALL



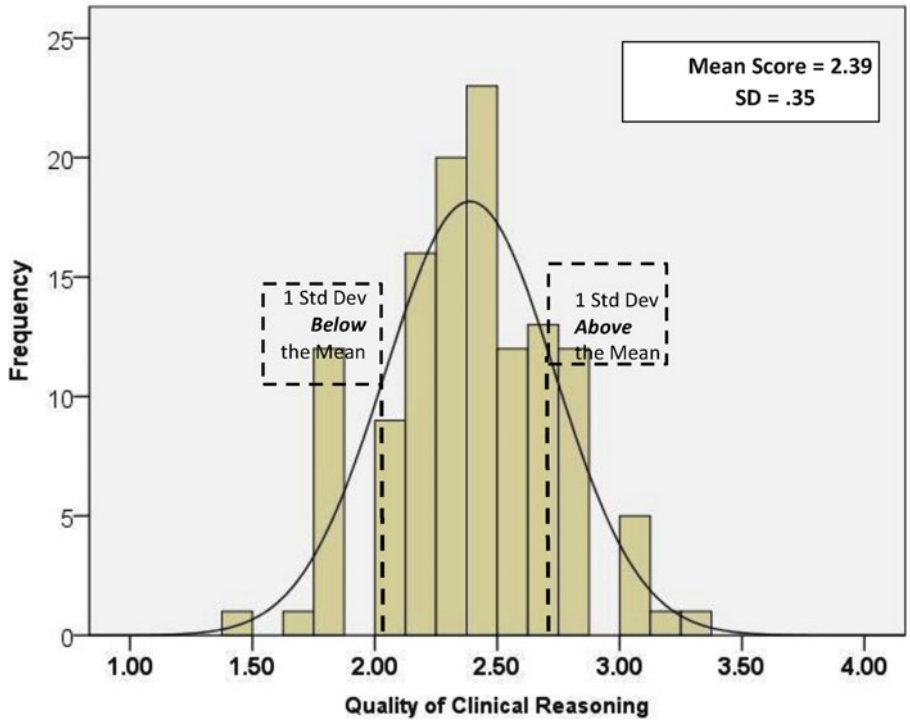
Due to the specificity of physical examination skills, we also provide you with percent well done scores for the assessed physical examination skills within each of the 6 physical exam cases.

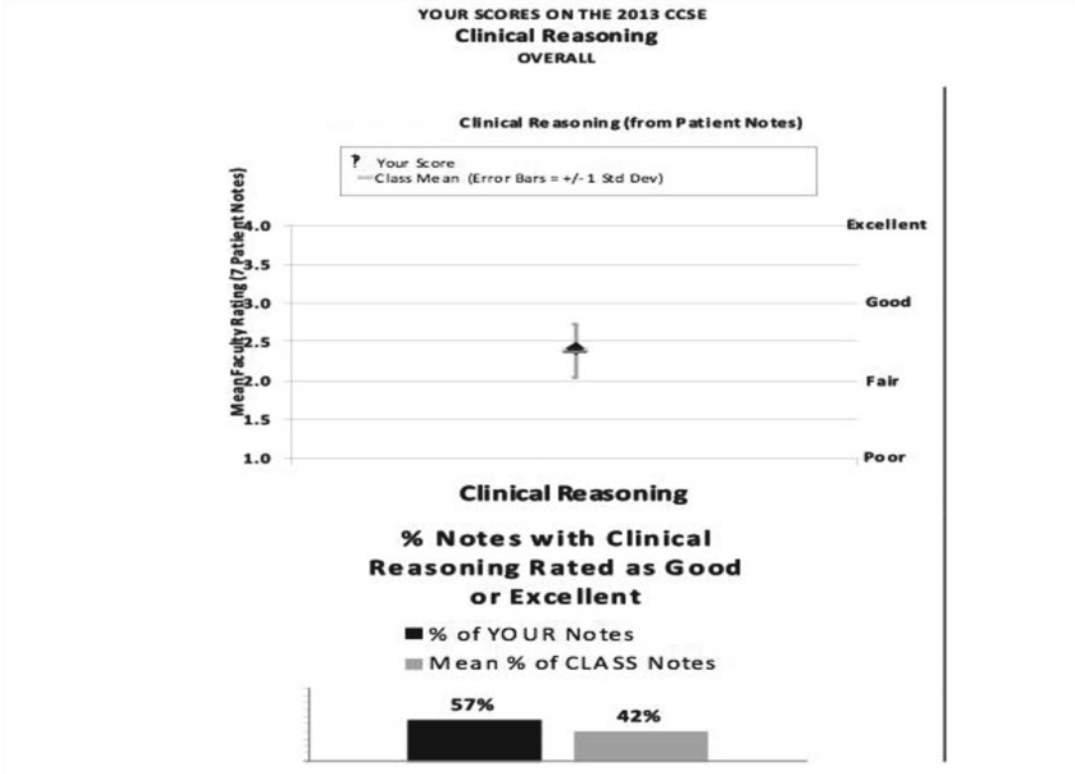
Physical Examination Case Specific Scores	YOUR SCORE % Done Well	CLASS MEAN % Done Well	CLASS RANGE 1 Std Dev Below Mean	CLASS RANGE 1 Std Dev Above Mean
Abdominal Exam	35%	45%	26%	66%
Musculoskeletal Exam	30%	43%	27%	59%
Cardio/Neck Exam	20%	38%	17%	59%
Neurological Exam	8%	55%	37%	73%
Cardiovascular/Pulmonary Exam	40%	51%	35%	67%


OVERALL DISTRIBUTION FOR CLASS (N=125)
Mean Score = 69.0%
SD = 11.1%
1 Std Dev
Below
the Mean
1 Std Dev
Above
the Mean
Frequency
Communication Score (% Well Done)
Mean Score = 52.0%
SD = 7.4%
1 Std Dev
Below
the Mean
1 Std Dev
Above
the Mean
Frequency
History Gathering Score (% Well Done)



Mean Quality of Clinical Reasoning (scale: 1 – 4)





Additional Information on Your Patient Notes

Patient Note Scores	Your Mean Score (Std Dev)	Class Mean Score	Class Distribution	
			- 1 Std Dev	+ 1 Std Dev
% Accurate **History** Findings Noted	50%	53%	45%	61%
% Accurate **Physical Exam** Findings Noted	40%	41%	30%	52%
# of Notes Rated as "Organized"	4	6	5	7

STANDARDIZED PATIENT GLOBAL ASSESSMENT

Standardized Patients were asked to indicate on a scale of 1 to 4 (1 being the lowest and 4 being the highest) if they would recommend you to a family member or friend who was seeking a physician. This score can be viewed as reflecting an aspect of "patient satisfaction."

Note that these ratings are not used to determine CCSE pass/fail decisions. We nonetheless believe these ratings are a good indication of the Standardized Patient's impression of the encounter and suggest how patients might perceive an encounter with you under similar circumstances.

The table shows how many of your eight cases fell into each of the four "recommend" rating categories. The table also displays the number of cases in each "recommend" category, averaged for the entire class.

SP GLOBAL RATING	1 (lowest)	2	3	4 (highest)
# of YOUR cases*	2	5	1	0
# of cases, averaged for the class	0-1	1-2	4-5	1-2

**If the number of your cases does not add up to eight (the total number of cases in the exam) it is due to missing data*

Practical Advice for Review: The Patient Note

The patient note serves many important purposes. It is the only way to document your encounter with a patient. It must communicate clearly to other health care providers and to you the next time you interact with the patient. On the following page we share our insights and advice on writing a patient note, having read CCSE students' patient notes from each of the eight stations.

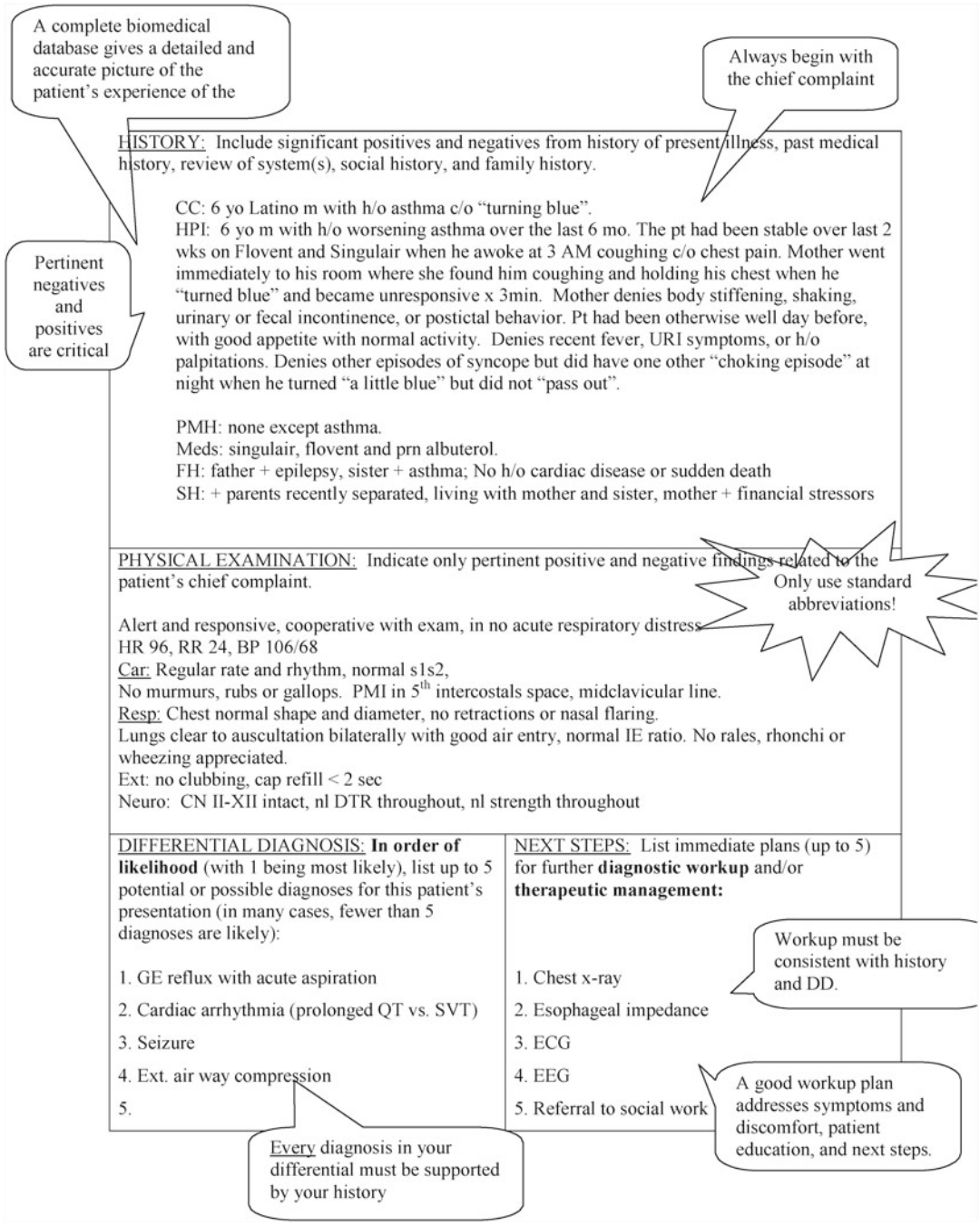
All students saw the same patients and had equal time and space to document the encounter. However, there was a wide range of quality among students' notes.

To illustrate the technique behind writing a good patient note, we crafted a note based on the following case, which is *not* a case from the CCSE:

Anthony is a 6-year-old asthmatic who was brought into the emergency room by his mother after a cyanotic episode. You have been assigned to the case.

Your tasks:

139. Take a focused history
140. Perform a respiratory and cardiovascular exam
141. Discuss possible differential diagnosis and initial work up


A complete biomedical database gives a detailed and accurate picture of the patient's experience of the
Always begin with the chief complaint
HISTORY: Include significant positives and negatives from history of present illness, past medical history, review of system(s), social history, and family history.
CC: 6 yo Latino m with h/o asthma c/o "turning blue".
HPI: 6 yo m with h/o worsening asthma over the last 6 mo. The pt had been stable over last 2 wks on Flovent and Singulair when he awoke at 3 AM coughing c/o chest pain. Mother went immediately to his room where she found him coughing and holding his chest when he "turned blue" and became unresponsive x 3min. Mother denies body stiffening, shaking, urinary or fecal incontinence, or postictal behavior. Pt had been otherwise well day before, with good appetite with normal activity. Denies recent fever, URI symptoms, or h/o palpitations. Denies other episodes of syncope but did have one other "choking episode" at night when he turned "a little blue" but did not "pass out".
Pertinent negatives and positives are critical
PMH: none except asthma.
Meds: singulair, flovent and prn albuterol.
FH: father + epilepsy, sister + asthma; No h/o cardiac disease or sudden death
SH: + parents recently separated, living with mother and sister, mother + financial stressors
PHYSICAL EXAMINATION: Indicate only pertinent positive and negative findings related to the patient's chief complaint.
Only use standard abbreviations!
Alert and responsive, cooperative with exam, in no acute respiratory distress
HR 96, RR 24, BP 106/68
Car: Regular rate and rhythm, normal s1s2,
No murmurs, rubs or gallops. PMI in 5th intercostals space, midclavicular line.
Resp: Chest normal shape and diameter, no retractions or nasal flaring.
Lungs clear to auscultation bilaterally with good air entry, normal IE ratio. No rales, rhonchi or wheezing appreciated.
Ext: no clubbing, cap refill < 2 sec
Neuro: CN II-XII intact, nl DTR throughout, nl strength throughout
DIFFERENTIAL DIAGNOSIS: In order of likelihood (with 1 being most likely), list up to 5 potential or possible diagnoses for this patient's presentation (in many cases, fewer than 5 diagnoses are likely):
1. GE reflux with acute aspiration
2. Cardiac arrhythmia (prolonged QT vs. SVT)
3. Seizure
4. Ext. air way compression
5.
NEXT STEPS: List immediate plans (up to 5) for further diagnostic workup and/or therapeutic management:
Workup must be consistent with history and DD.
1. Chest x-ray
2. Esophageal impedance
3. ECG
4. EEG
5. Referral to social work
A good workup plan addresses symptoms and discomfort, patient education, and next steps.
Every diagnosis in your differential must be supported by your history

In order of likelihood (with 1 being most likely), list up to three possible diagnoses for this patient's presentation. Provide supporting evidence *for* and *against* each diagnosis based on your findings (history and physical) from the case.

Diagnosis	**Supporting Evidence for diagnosis**	**Evidence Against diagnosis**	**Diagnostic Work-up:** Diagnostic tests **AND** anticipated results for given diagnosis
1. GE reflux with acute aspiration	-coughing -chest pain -cyanosis -symptoms positional (occurred when lying down)	-no prior history -no h/o vomiting -normal lung exam	Chest x-ray – possible infiltrate Esophogeal impedance – evidence of reflux Bronchial alveolar lavage – lipid laden macrophages (evidence of chronic aspiration)
2. Cardiac arrhythmia (i.e., SVT)	-chest pain -syncopal episode -cyanosis	-Regular rate and rhythm on exam -No h/o palpitations -No prior h/o syncope -No family h/o cardiac disease/arrhythmia	ECG: SVT rhythm Holter monitor: SVT rhythm
3. Seizure	-Syncopal episode -Family h/o epilepsy	-no tonic-clonic movements -no incontinence -no prior seizure hx	-EEG – seizure activity

For the **most likely diagnosis** what would be the next steps in **management**?

Monitor 02 saturation, oxygen as needed

Anti-reflux medications (histamine-2 receptor antagonist or proton pump inhibitor)

Consider antibiotic treatment for aspiration pneumonia if evidence of infiltrate on CXR (ampicillin-sulbactam).

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