Clinical Reasoning: An Unfinished Journey

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During one of my seminars at a Japanese medical university, Tomoko, a pseudonym of a 5th year medical student, told me about how smart and bright American medical students (MS) were when she experienced a clinical clerkship in America. By inference, she felt inferior and lacked confidence. I told her, as I have told many Japanese MS and residents: “Tomoko, you and every Japanese student and resident I have ever met are totally and completely as smart and bright intellectually as any American medical student. The only difference is your training.” The American student training is very practical, with maximal direct individual patient experiences with supervision, minimal lectures, and maximal group and individual discussions, resulting in basic clinical reasoning skills at graduation. The Japanese student has limited direct patient contact, maximal lectures, and minimal discussions limiting clinical reasoning development. One can speculate the reasons for this disparity: cultural, traditional, prior government policy, staff shortages, research emphasis, etc., none of which are easily altered.

In fact, several students have told me that they felt no need to learn clinical skills; if their curriculum did not encourage acquiring clinical skills, then that was satisfactory for them as long as they had enough knowledge to pass their university and national licensure examinations. Despite this student attitude, several Japanese reports have highlighted the lack of adequate clinical skills of first grade residents, namely the two recent reports for St. Luke’s Medical Center Life Institute.\textsuperscript{1,2} Two Japanese organizations target this deficiency by offering seminars and international clinical experiences, namely, Noguchi Medical Research Institute (NMRI) and American College of Physician (ACP), Japan Chapter.\textsuperscript{3,4} However, they fail to question the lack of adequate clinical training at its source, namely medical universities. It is indeed challenging to teach clinical skills to students rotating through about 20 clinical clerkships in their final 15 months. Observational exposures are not a substitute for hand-on clinical experiences with supervision.

There is an international understanding that basic clinical skills for all graduating MS should include the ability to take an accurate simplified present and past medical history, and a patient’s medication list, perform a physical examination, organize the clinical data to generate a preliminary differential diagnosis, suggest laboratory and imaging studies based on the presumed diagnosis, understand and analyze all clinical data to reformulate the differential diagnosis.\textsuperscript{5} This is clinical reasoning, a complex task Japanese senior staff learn to...
perform by extensive experience. This is the skill Tomoko observed with American MS, and she felt she lacked.

Sensing this deficiency, a group of students, members of the American College of Physicians, Japan Chapter, Student Section, invited me to tutor them. I led discussions on the Internet, using a free conference video-audio program, with the students in their own apartments, and me in my Florida home office. A student presented a patient case; the other participants prepared a problem list from which we discussed laboratory results and diagnosis, all within the context of clinical reasoning.6 This experience was published five years ago in General Medicine.7

With only anecdotal observations, to modestly address this issue, a group of clinical professors at three Japanese national universities invited me to produce a Japanese language module to show Japanese clinical tutors a path to improve clinical reasoning. In this issue of General Medicine, the authors published their results of this feasibility project, informally titled the Webinar Project, or WP.8 Using a protocol to enhance the importance of our project, we randomized fifth grade Japanese MS to the tutored group or the self-study group. All students took a pretest, the clinical narrative test called the Sequential Question and Answer (SQA). The details of the SQA have been published previously.9

At the end of the webinars, all students took the posttest SQA and completed a questionnaire. The tutored students’ posttest scores increased to 62% correct answers, a gain of 47%; comparatively, the self-study students’ posttest scores increased to 52% correct answers, an increase of 30%. Although the tutored group had the greater increase, this change was of marginal statistical significance, with a p value = 0.066. Among the participating students, 92% rated the SQA as an improved way to learn case presentation and clinical reasoning.10 Additionally 79% of the students described the SQA as an effective way to acquire clinical information. Lastly 75% of the tutored students evaluated the webinars as a valuable method to acquire clinical reasoning and clinical information. Our WP produced the clinical reasoning module for this goal-directed feasibility project. It was not without its problems. A major problem was the lack of studies supporting the validation and reliability of the SQA. Also the number of participants, 24 students, was small. Specific issues for the SQA were the labor-intensive manual scoring for the students’ answers and the failure to require the students to complete a clinical reasoning table containing the complete problem list, differential diagnosis, and plans.11 A significant deficiency was the failure of the tutors to lead discussions; the tutors used about 90% of their time to lecture from the syllabus.12

In spite of the WP’s shortcoming, the module was well accepted by the students; many of the students recognized the limited goals of their medical education; they accepted the challenge to acquire clinical reasoning skills and indeed progressed satisfactorily.

There are many possible paths to further implement clinical skills in the Japanese medical universities. Here is a partial list of my suggestions:

1. National Licensure Examination- Add more clinical narrative questions similar to our SQA. The more such questions, the more the medical universities must teach to this reformed examination.

2. Train tutors to teach clinical skills including clinical reasoning- Consider special government funding for training of tutors to teach general problem solving skills in Japanese, the language doctors use to talk to patient. Pre-clinical tutors need to focus on teaching the methods to make problem lists from non-medical sources (novels, films, and non-fiction sources such as social and political issues, before advancing to using problem solving skills in patient care training).13

3. Tutors need ‘protected time’ to teach medical students and residents, that is, permitted and compensated time not associated with research and clinical duties.

4. Medical students and residents need time to complete a medical history, perform physical examination and analyze the data to make a differential diagnosis with critical feedback from well trained clinical tutors.

5. The 5th–6th grade clinical clerkship rotations need to focus on the clinical skills enumerated in #4 above. This refocusing will require significant reduction in the number of rotations from the current 20 or more mostly observational experiences.
6. Our recently developed Web-based module to teach clinical reasoning and knowledge needs further refinements and testing with the incorporation of many clinical specialties and sub-specialties topics.

7. Formation of a national committee to reform medical education which might have the acronym NCRME. Membership might include like-minded reformists clinicians, medical students, residents, community activists, concerned politicians, reform minded Monkasho and Koserodosho medical education leaders, and relevant health-related industry leaders (pharma, medical publishers and devices, etc.). Input should be solicited from clinicians trained abroad such as Tokio Kajo’s “N Program”,14 NMRI, and ACP-Japan Chapter.

Reforms of medical education are certainly the prerogative of the Japanese academic, governmental, industrial and community leaders. However, patience is a virtue as I continue my unfinished journey on the path to improve clinical reasoning in Japan.15

Conflict of interest
The author declares that he has no conflict of interests.

Acknowledgements
I appreciate the editing assistance of Joel Branch, MD, and the manuscript review provided by Makoto Aoki, MD.

References


