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Roles of Case Studies and Case Reports in US East Asian Medicine: A Narrative-Medicine Perspective

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Abstract

Recorded stories of the clinical encounter stretch back to ancient times. Throughout their history, these narratives have been called by different names, reflecting changes in format, function, and audience. This paper examines and explains the differences in two related forms of clinical writing as practiced by East Asian Medicine clinicians in the United States today—the case study and the case report. Each has its strengths and weaknesses; each is suited to different roles. The case study is ideal for education and the practice of narrative medicine, whereas the case report has played a vital role in propelling East Asian Medicine into the arena of modern scientific research.

Keywords: Case record; Case report; Case study; Herbal medicine; Narrative medicine

1 Introduction: The clinical tale of Dr. Fan and the film director

In the winter of 1961, a film director gets sick after sleeping on a newly built damp brick bed. This leads to prostatitis, which is cured, but relapses 13 years later. He delays seeking medical treatment for three additional years, during which time the disease progresses to urinary pain and frequency with ice-cold numbness and impotence. He tries chemotherapy, physiotherapy, sitz baths, acupuncture and moxibustion, massage, and takes more than 150 packets of herbs, all to no avail. At this point he consults the renowned practitioner of Chinese medicine Dr. Fan Zhonglin (范中林) who goes on to cure him and record his case.[1]

Dr. Fan describes and analyzes his symptoms, declaring that the patient has "a shaoyin yang weakness with exuberant internal yin cold. The proper method of treatment is to supplement yang, warm the kidney, disperse cold, and relieve pain. *Si Ni Tang* (四逆汤 Frigid Extremities Decoction) plus *Rou Gui* (肉桂 Cortex Cinnamomi) governs this." The patient takes three packets of the formula and gets significant relief. Dr. Fan makes some modifications in dosage and ingredients, and the patient takes 30 more packets. Dr. Fan interrupts the narrative with a lengthy aside explaining the treatment strategy and disease mechanism in accordance with classical theory. The patient then returns for a second examination. After listing the changes to his condition, Dr. Fan next clarifies the relationship between the heart and kidney, arguing that an understanding of this mechanism is central to the patient's situation. Another herbal formula is prescribed, further adjustments are made. There is a third examination and a third formula. Now the patient is cured.

The patient is overjoyed and writes a thank-you note to Dr. Fan, which is excerpted and included in the account: "Our work frequently needs me to make long and difficult journeys, to fight bitter cold, sweltering summer heat, heavy snow, gales, scorching sun, torrential rain... Since my disease was cured by Dr. Fan, I've already shot a whole segment of a feature film; presently I'm getting ready to meet the new fight!" the patient exclaims. The final part of the case study is a lengthy gloss by another famous doctor, Huang Huang (黄煌), who includes this case in his book *Yi An Zhu Du* (《医案助读》 *Case Studies Facilitate Learning*).[1]

This example of a case study is notably long (1657 characters) and detailed. It includes extensive descriptions of the patient's condition and treatment, analysis of each herbal formula and its modifications, a thorough explanation of the relevant theory employed at each stage of the case, feedback directly from the patient in his own words, and an additional layer of comments from another doctor. The writing style is engaging and informative, with a richness that makes it memorable. The case is dotted with useful clinical pearls. Although it includes diagnostic findings from a Western medical

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assessment, this information is almost an aside. The purpose of the write-up is to show the reader how classical theory can be used to untangle a knotty disease. This is truly a case *study*—employing analysis and reflection, with an explicitly epistemic and didactic goal. As such, it is markedly different from the increasingly popular form of contemporary clinical writing known as the case report.

In this paper, I will discuss the differences between these two forms of clinical writing as practiced in the US today—the case study and the case report. Modern inheritors of a genre that has gone through many transformations over time, they are branches from the same ancient tree. Each has its strengths and weaknesses; each is suited to different roles. They have notable differences in authorship, audience, and function. Because of this they will also differ in narrative format, as well as name. Among their other uses, the case study is ideal for education and the practice of narrative medicine, whereas the case report has played a vital role in propelling East Asian Medicine into the arena of modern scientific research.

2 Case studies and case reports: what's in a name?

Although the terms case study and case report are often used interchangeably, they have significant differences. The following section details these differences in terms of format, research type, level of analysis, relationship to traditional texts, and intended audience.

2.1 Case studies

Dr. Fan comes from a long tradition of clinical writing (Fig. 1). The medical narrative—at times referred to in English as a case study, case history, case record, or case report—is an ancient tradition that arose independently in many parts of the world.[2,3] Broadly, it is the story of an encounter between a practitioner and a patient, usually including a history and description of the disease, as well as its treatment and outcome. These texts bridge the gap between science and literature.[4] They are part of a rich literary tradition undergirding the practice of medicine, which the famous 20th-century practitioner-scholar Qin Bowei (秦伯未) described as the "intimate integration between theory and practice."[5] In case writing, the "primary goal is not the production of meaning, but the production of knowledge."[2] Since ancient times physicians have sought ways to pass along what they have learned through years of practice; the case is the ideal vehicle for this transmission.[6]

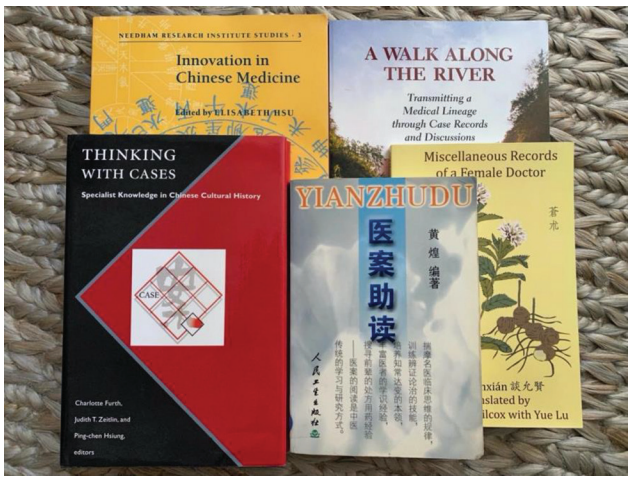

Figure 1 Examples of books of and about case studies. Photo courtesy of the author. ©2022

Beginning in the Ming, these texts have been called *Yi An* (医案), literally "medical case" in Chinese (Note 1).[7] The term case study has often been used when referring to them in English, as a reflection of the high level of analysis these writings may include—in-depth descriptions of presenting signs and symptoms and what they indicate, an explanation of the disease, a diagnosis supported by evidence from historical or theoretical texts, and a detailing of the herbal treatment or other intervention. While some case studies are quite terse, others, such as the Fan Zhonglin example included here, are rich with narrative color and provide an insight into the physician's thought process. As such, the case can serve as a container for the "induction of knowledge and theories" into the practice of medicine.[8]

The terms case study and case report sometimes get used interchangeably; however, they are not the same. The case study is a narrative form that encompasses "a great deal more complexity than a typical case report and often incorporates multiple streams of data combined in creative ways. The depth and richness of case-study description helps readers understand the case and whether findings might be applicable beyond that setting … As qualitative research, case studies require much more from their authors who are acting as instruments within the inquiry process."[9] In Dr. Fan's case, for example, we see the interweaving of the patient's story, analyses from two different doctors, observations of the disease progression, and references to classical theory. The reader is explicitly instructed on how to apply the lessons from this case to other clinical situations. As such, the case study is a "method of empirical inquiry appropriate to determining the 'how and why' of phenomena and contributes to understanding phenomena in a holistic and real-life context."[9] Again, as shown in Dr. Fan's narrative, case studies need not follow a prescribed format and often retain their clinician-author's unique voice.

2.2 Case reports

In contrast, case reports may lack the level of complexity and analysis found in a case study like Dr. Fan's. Authors are not meant to draw conclusions: The

purpose of the report is to describe clinical practice and serve as a building-block for further quantitative research.[10] When instructing acupuncturists in writing a case report Vinjamury emphasizes they "should not provide cause and relationship, so its authors and readers should refrain from making any causal inferences from the findings of a case report."[11] Case reports may follow a "template structure with limited contextualization or discussion of previous cases." The role of case reports is "often [to] provide a first exploration of a phenomenon or an opportunity for a first publication by a trainee in the health professions."[9] They are not a sufficient vehicle for the seasoned professional physician looking for a way to pass down their accumulated knowledge or explain a challenging case. Although both the case report and the case study are records of clinical practice, the case report may well not include the rationale for why a particular treatment was employed.

Case reports also do not typically include references to classical texts or theory. This is partly structural, as the case report has a different focus, but may also reflect who is reading these texts, which may include both practitioners and clinicians outside the profession. Today's students have less knowledge of canonical writings, so may not be able to refer back to them. For this audience, traditional terminology or a rationale for treatment based on the classics would seem incomprehensible or unscientific. Additionally, with an emphasis on brevity, a referent that is not meaningful to all may be sacrificed in the interest of space. Unlike case studies, case reports are not meant to be exemplars from which one can generalize or draw conclusions.

The widespread adoption of the CARE (CAse REport) and STRICTA (STandards for Reporting Interventions in Clinical Trials of Acupuncture) Guidelines have led to further standardization and medicalization of case reports (Fig. 2). First published in 2013, the CARE Guidelines grew out of a consensus process to review the medical literature and developed a thirteen-item checklist as a reporting guideline for case reports. The purpose was to increase rigor, and "improve the completeness and transparency of published case reports" to facilitate the "aggregation of information" for data analysis and "inform clinical study design." The STRICTA reporting guidelines were first published in 2001. Like CARE they were arrived at by consensus and are a checklist of items

CARE case report guidelines

CARE Checklist of information to include when writing a case report

Topic	Item	Checklist item description	Reported on Line
Title	1	The diagnosis or intervention of primary focus followed by the words "case report"	
Key Words	2	2 to 5 key words that identify diagnoses or interventions in this case report, including "case report"	
Abstract (no references)	3a	Introduction: What is unique about this case and what does it add to the scientific literature?	
	3b	Main symptoms and/or important clinical findings	
	3c	The main diagnoses, therapeutic interventions, and outcomes	
	3d	Conclusion—What is the main "take-away" lesson(s) from this case?	
Introduction	4	One or two paragraphs summarizing why this case is unique (**may include references**)	
Patient Information	5a	De-identified patient specific information	
	5b	Primary concerns and symptoms of the patient	
	5c	Medical, family, and psycho-social history including relevant genetic information	
	5d	Relevant past interventions with outcomes	
Clinical Findings	6	Describe significant physical examination (PE) and important clinical findings	
Timeline	7	Historical and current information from this episode of care organized as a timeline	
Diagnostic Assessment	8a	Diagnostic testing (such as PE, laboratory testing, imaging, surveys)	
	8b	Diagnostic challenges (such as access to testing, financial, or cultural)	
	8c	Diagnosis (including other diagnoses considered)	
	8d	Prognosis (such as staging in oncology) where applicable	
Therapeutic Intervention	9a	Types of therapeutic intervention (such as pharmacologic, surgical, preventive, self-care)	
	9b	Administration of therapeutic intervention (such as dosage, strength, duration)	
	9c	Changes in therapeutic intervention (with rationale)	
Follow-up and Outcomes	10a	Clinician and patient-assessed outcomes (if available)	
	10b	Important follow-up diagnostic and other test results	
	10c	Intervention adherence and tolerability (How was this assessed?)	
	10d	Adverse and unanticipated events	
Discussion	11a	A scientific discussion of the strengths AND limitations associated with this case report	
	11b	Discussion of the relevant medical literature **with references**	
	11c	The scientific rationale for any conclusions (including assessment of possible causes)	
	11d	The primary "take-away" lessons of this case report (without references) in a one paragraph conclusion	
Patient Perspective	12	The patient should share their perspective in one to two paragraphs on the treatment(s) they received	
Informed Consent	13	Did the patient give informed consent? Please provide if requested	**Yes** ☐ **No** ☐

Figure 2 The CARE Checklist of information to include when writing a case report. (source from: https://static1.squarespace.com/static/5db7b349364ff063a6c58ab8/t/5db7bf175f869e5812fd4293/1572323098501/CAREchecklist-English-2013.pdf.).

to be included in research reports, to insure "completeness and transparency of reporting of interventions." As the name implies, the STRICTA guidelines relate specifically to acupuncture, but reflect a broader trend to improve the quality of research by standardizing how it is reported.

These guidelines have been widely adopted and shaped the structure of case reports. Authors are often instructed to limit their use of Chinese medicine terminology and discouraged from using traditional theory to explain a treatment, disease process, or outcome. Instead, they should include findings from diagnostic tests and imaging. If symptoms are relieved by the intervention, this should be quantified using an assessment tool, such as a pain scale. Reports should be written to facilitate retrieval from electronic databases for aggregation and data analysis, and they should employ language that makes them more readily understood by clinicians outside of the East-Asian-medicine field.[12]

Case reports are thus a means of sharing East Asian medicine with the broader world. They are cheaper to fund and easier to publish than other kinds of research, so they have historically been a way to get the application of herbs and acupuncture into the mainstream medical literature. They can be a springboard as well to further research, as they provide the author with the opportunity to analyze the literature, including introducing concepts that might not have been previously published in English, when introducing the case (Note 2).[13]

Clinical writing, including case reports and other research forms, has helped integrate East Asian Medicine into the mainstream US healthcare system. Without the case report there would be no insurance coverage, without which thousands of patients would not be able to access care, nor would there be acupuncture in hospitals or other institutions. Case reports lead to case collections, pilot studies, and finally randomized control trials (RCTs), the gold-standard of scientific research. However, as previously discussed, case reports lack the narrative style that makes the case study invaluable in other ways.

2.3 Case studies *vs.* case reports

During the past 20 years in the United States, with the explosion of acupuncture research, the case report has become more widely practiced than the case study. Although students of acupuncture and herbal medicine may be instructed to write more in the style of a case study at the master's degree level to refine their diagnostic skills, they rarely receive the necessary feedback from their instructors that would enable them to master the case-study narrative form. If students pursue doctoral studies that include training in research methods, they are then taught to write case reports and often encouraged to publish them (Note 3). A cursory internet search revealed almost 50 journals that publish acupuncture case reports in English, in contrast to only a few publications that feature case studies. Those published case studies are often translations of the cases of famous Chinese physicians, not original writing: A case study such as the example from Dr. Fan might appear in an English-language journal such as *The Lantern*, but it would be unusual to see a similarly extensive exploration by a contemporary American clinician.

As discussed, the case study and case report not only differ in name, but in form, authorship, function, and audience. The case report may follow a templated structure, where the case study can vary based on the author's writing style. Case reports are the ideal vehicle for the budding researcher to get their first publication; ideally case studies would now be written by seasoned clinicians to explain their thought process and pass along their accumulated knowledge, as they were in times past. Finally, case reports are written to be read by an audience both within the East Asian medical profession and the larger biomedical and scientific community. Case studies, by contrast, speak more to an audience within the East Asian Medicine profession. Case studies are also a valuable tool for the historian, as they not only describe clinical practice but show clinical thinking and provide cultural context. These differences are summarized in Table 1.

It is notable that during the past 20 years, as East Asian medical writing in the US has been moving toward this more standardized model of case reporting, Western medicine has seen the rise of the field of narrative medicine. There has been a proliferation of medical storytelling in books and popular magazines, as well as in scientific journals (Note 4). Narrative medicine values what the case study has traditionally offered—a means of making sense of the clinical encounter, cultivating empathy, and processing the doctor's and patient's experiences through the written form.

Table 1 How case studies and case reports differ

Aspects that may differ	Case studies	Case reports
Format	Narrative, may vary based on the author	May be templated or follow a prescribed format
Type of research	Qualitative	Quantitative
Level of analysis	May be detailed	Might not be included
Conclusions	Draws conclusions, discusses cause and effect	Should not draw conclusions, only meant to describe practice
Refer to traditional texts and theory	Often	Rarely
Intended audience	Within the profession	Within and outside the profession

3 The case study and the power of narrative

In addition to these differences in name, format, authorship, and audience, the two subgenres are suitable to different roles—the case report to scientific research, the case study for historical record-keeping, education, and narrative medicine—as previously discussed. To this end, the case study can be employed to organize clinical thinking, help with individuation and professionalization, and aid memory, as well as serve as a vehicle for storytelling and teaching-learning. The following six subsections detail each of these roles, chiefly with regard to the case study.

3.1 Organizing clinical thinking

The case study is not only a literary form, but a "pattern for clinical reasoning,"[14] which is much less so in case reports where the purpose is to relay information. Scholars both of Chinese and Western medicine use the phrase "thinking with cases," to convey the idea that the case history "is a style of thinking as well as a mode of writing" (Note 5).[4,15] Case histories help order a clinician's thinking around diagnosis, allowing them to create a hierarchy of symptoms and make sense out of a series of events in the course of the patient's illness.[16] The process of putting the story of a patient's illness into a coherent narrative not only clarifies the clinician's thinking but provides an opportunity for reflection. Through writing the doctor can think out loud, puzzling through possible diagnoses and treatments,[17,18] as is seen in the case from Dr. Fan.

Both writing and reading case studies are clinically useful. In reading cases, the clinician learns how past practitioners addressed a similar problem.[19] Furth writes that cases are "fundamentally about working with analogies," a type of reasoning that relates "individual instances to a model … and ordering by the historical relationship of precedent/descent."[15] As Dr. Fan does in his writing, the case connects an individual disease occurrence in the clinic setting back to the medical literature and foundational texts.

In my conversation with Dr. Yu Guojun (余国俊), a prominent contemporary physician-scholar and advocate for case studies, he lamented, "part of the problem … is that we are actually not really taught how to think in Chinese medicine. We're taught to imitate, and imitation doesn't work. In contrast, case studies are where you actually see how things work—or sometimes, how they do not work—in real life, which can be a valuable learning experience" (Note 6).[13] Reading case studies by different physicians may reveal a variety of approaches to a similar condition. Sifting through these conflicting approaches is a way for the novice and seasoned clinician alike to learn how to reason through a challenging clinical situation.

3.2 Individuation

The case provides an opportunity to assess and think critically, allowing the clinician-reader not only to avoid the pitfalls of generalization and see the uniqueness in each illness, but to see patients as individuals as well. Standard textbooks cannot account for variation by gender, age, race, or other demographic factors, which can have significant impact on disease. For example, in discussing uterine bleeding, in my interview with Sharon Weizenbaum, she made the point that stopping bleeding requires different strategies if the patient is an adolescent with bleeding of recent onset *vs.* a perimenopausal woman who has been bleeding for a while. It is only though reading case studies that the practitioner can learn the nuances of how to treat these different situations effectively (Note 7).[13]

As in reading fiction, where one might identify with a character and through the act of reading come to a deeper understanding of another's life experience, in reading case studies we learn about both the clinician's and patient's experiences of illness and its treatment. The case study as a work of "literature can (possibly) promote sympathetic responses to human situations."[20] The narrative structure of the case allows us to see both clinician and patient as individuals, since "we always personify when we read."[21] This individuation ideally leads to empathy, an essential value to cultivate in practitioners.

3.3 Professionalization

Systematic record-keeping, including the writing of case studies, has historically played a significant role in the professionalization of Chinese medicine, through preserving medical knowledge and giving the practitioner a sense of identity.[19,22] Writing cases not only makes a physician feel like a professional; the act of writing also helps make them a better practitioner.

Dr. Yu recalls how he spent years treating patients during the day, then writing up his cases at night. He credits this balance of practice and written analysis with greatly increasing his clinical efficacy, and he recommends this strategy to anyone seeking to become a better practitioner.[13] Accumulating a written body of medical literature created a community and provided a means of communication within the realm of East Asian medicine, both among practitioners as well providing a vehicle to communicate to the outside world.[4] This shared corpus led to the development of a "technical terminology" or jargon, of Chinese medicine.[23] Jargon in turn further defines the people who speak or write in it as a group and also can designate them as professionals.

3.4 Memory

As the Nobel Prize winning neuroscientist and researcher on memory, Eric Kandel, wrote: "Memory is essential

not only for the continuity of individual identity, but also for the transmission of culture and for the evolution and continuity of societies over centuries."[24] The writing of a case study preserves a doctor's knowledge, while allowing them to pass it along to the next generation. The practice of medicine is an example of an adaptive behavior, one that has been sustained and developed through the case study. Case studies preserve our collective memory of Chinese medicine in written form, and, in the process, they turn information and experiences into stories. The imposition of a narrative structure also organizes the material, so it can be more easily assimilated into memory,[14] as can be seen in Dr. Fan's compelling case of the film director.

Kandel further elaborates that the key to remembering is "attending to the information and associating it meaningfully and systematically with knowledge already well established in memory."[24] For example, after having already learned the basic facts about an herbal formula, reading a case study on its application will help cement those facts, while also deepening understanding of how the formula might be used clinically. A challenge for any student of herbal medicine is not only to learn the properties and functions of an herb or formula, but to retain them and absorb them so fully the knowledge becomes habitual. Kandel emphasizes the importance of repetition in the process of memory, as "short-term memory grades naturally into long-term memory … through repetition." Repetition is how we transform explicit memory (conscious recall of facts) to implicit memory (habituation).[24] Arguably, to effectively use herbs in a clinical setting our knowledge of them should have progressed to this level of implicit memory. Reading or writing a case study is one component of the necessary work of repetition and linkage of information to meaning.

There is a long tradition of the unusual case study, partially due to the influence of *Zhi Guai* (志怪 "accounts of the strange") and other popular genres of literary entertainment.[25,26] Whether or not this is deliberate, cases that are unusual or shocking will also be more memorable. The case that reads like a novella or a detective story, or elicits a strong emotional reaction from the reader, is not easily forgotten. This is akin to what psychologists call a flashbulb memory, where the emotional jolt of the experience will imprint the occurrence in one's memory.

A case written by Dr. Song Daoyuan (宋道援) in 1929 is an excellent example of this: On a boat to Shanghai Dr. Song met an ailing young man whose condition matched a *Da Qing Long Tang* (大青龙汤 Major Bluegreen Dragon Decoction) formula presentation (Note 8).[27] Although the formula choice was correct, due to grave omissions in ingredients and a lack of instructions around administration, the patient died. In the case study, Dr. Song is heartbroken at his fatal error, berating himself for his mistakes and sharing his emotional distress with the reader. The literary qualities of the text, along with the pathos and tragic outcome make this an affecting and memorable tale. After reading it, any practitioner of herbal medicine could not help but remember the ingredients and proper method of taking *Da Qing Long Tang* (Note 9). Like the case from Dr. Fan, Dr. Song's case is an even more dramatic illustration of how the uniqueness of case studies makes them memorable.

3.5 Narrative and storytelling

Narrative and storytelling are intimately tied to memory. Organizing information into a story is a common memorization strategy used to recall the herbs in a formula when learning Chinese medicine. It is employed by students in the health sciences to remember anatomical terms, foreign language learners to master new vocabulary, and even people in everyday life who may construct a story in their minds to help recall a grocery list or tasks to be accomplished. Podcasters, marketers, and politicians all harness the power of the narrative to tell their stories and get their messages across. Stories are also how we record our history, transmit, and preserve information, and help others understand our experience. Through stories we learn about ourselves and others, in daily life as well as in a clinical setting.[28] Or, as Dr. Jerome Groopman recently wrote in *The New Yorker* magazine, "by writing stories, we as doctors aim to teach others about our patients while learning about ourselves."[29] Additionally, the practice of storytelling has also been shown to boost resilience among clinicians.[30]

In addition to aiding memory, storytelling "is a fundamental way for human beings to make the fact that we live in the dimension of time intelligible."[31] Illness unfolds and progresses over time, which can best be captured in the narrative form of the case study. This stands in contrast to the mere snapshot provided by a textbook or in many case reports. For this reason, case studies are where we learn the staging of treatment that is necessary for clinical success. Like a narrative, illness has an arc, or as Charlotte Furth points out, "stories have a dramatic structure that shapes our understanding of the temporality of events [and their] descriptive language gives meaning to inner bodily experience... [linking it to] the social world."[31] They contextualize both patient and practitioner, orienting them to time, place, and community.

A fundamental premise of the field of narrative medicine is that reading about the patient's experience is a way to teach empathy in training clinicians. In a richer, more narrative case study, both the practitioner and the patient appear like literary characters. The reader gets to know and empathize with them. In the case from Dr. Fan, the inclusion of the patient's own florid description of his recovery likewise provides the reader an opportunity to see the patient through his own writing. The patient narrative is also a means for clinicians to gather potentially useful information about the condition of their patients. Without the narrative, it would be harder to convey the practitioner's or patient's experience, elicit

empathy, and address the aspect of time in the disease progression or treatment.

3.6 Teaching and learning

The power of the case study to guide critical thinking, help with individuation and humanization of patients, clarify their disease, professionalize the practice of medicine, act as a mnemonic, and tell our collective stories all contribute to its value as a teaching and learning tool. Case studies can be explicitly didactic when they are used to introduce novel theory and ideas.[8] Dr. Fan does this when he interrupts the history of the illness to instruct his reader. Cases serve as examples to explain these new concepts, as well as models to emulate. When a famous doctor makes a substitution in an herbal formula or interprets traditional theory to explain a clinical puzzle, the reader sees how to modify an herbal formula and employ theory *in situ*. It is through reading cases studies that we learn both how famous physicians practiced and how they interpreted theory.[13]

It takes many years of repetition for skills to become intuitive. Case studies are the best way to pass along this expertise. As most students of East Asian medicine no longer have the opportunity to apprentice with a famous doctor, reading their case studies is the next best thing. Practical skills like patient management, dosage, and staging of treatment are learned through reading case studies. These nuances of practice will not appear in a textbook,[13] nor will there be included in most case reports.

In my interview with Sharon Weizenbaum, she mentioned how she learned a crucial lesson around dosing strong formulas from reading and translating the previously summarized case from Dr. Song. In that case, the patient died largely because Dr. Song neglected to tell the patient's family to stop the administration of herbs once the patient started to sweat. Though painful for the physician to admit their mistakes, cases like Dr. Song's are important to record what Dr. Yu calls "learning from errors." They are vital as a teaching tool; showing what did not work is at least as important as showing what did. They are essential for patient safety, to help other physicians avoid making the same mistakes.[13]

While a clinician may find the herbal formula to match their patient in a textbook, they will not necessarily find all the subtleties and modifications to that formula. Nor will they find how to adjust the formula once symptoms change. The literature of cases studies is so vast it encompasses a broader range of conditions and presentations than could be contained in a textbook. Particularly as a reference for the treatment of rare diseases, cases studies are invaluable.[13] Case studies have the added value of showing that doctors did not always agree: Making sense of conflicting approaches and interpretations is a valuable learning experience, as it prepares the practitioner for the complexities and contradictions of real patients in a clinical setting.[32]

Hua Xiuyun (华岫云), compiler of Ye Tianshi's (叶天士) case histories, famously said "the art of medicine lies in three critical points: recognizing [sic] patterns, constructing methods and writing formulas," arguably all facilitated by the reading of case studies.[5] Case studies are real-world examples—bridging theory, textbook, and practice. As Blalack writes, "textbooks are full of stock formulas that represent the first step in the educational process and are really meant only as guidelines," but they cannot show us how theory was applied, or a formula was modified. He concludes that "case records essentially demonstrate how master practitioners have done this and brought Chinese medicine's theory alive in the clinic."[5]

4 Practicing narrative medicine through the case study: a case study on teaching case studies

One of the arguments that proponents of narrative medicine make is that learning how to do a close reading of a text is a skill that can help in a clinical setting. This should in turn improve outcomes.[33,34] Typically, this is done through reading poetry or fiction, but this can also be accomplished through reading case studies, as the case study is also a story. When I taught a case-based learning curriculum, for example, I found that reading cases improved my students' clinical reasoning and diagnosis skills. From 2015 to 2018, I collaborated with a colleague to design and teach a case-based herbal medicine curriculum to acupuncturists at Tri-State College of Acupuncture in New York City. My colleague first taught them the relevant single herbs and formulas, after which I introduced cases to expand on what they were learning (see Fig. 3). We read historical and modern cases studies, discussing the physician-author's choice of formulas and modifications, as well as staging of disease treatment, and patient management.

When I mentioned our approach to other colleagues, they often asked how I managed to simplify cases to make them approachable to beginners. When possible, I chose straightforward cases, though these are difficult to find.

Historically, case studies have been written to explain complicated or unusual disease presentations or unique applications of an herbal formula, and not for more common and straightforward situations. However, it was through reading complex cases that my students seemed to learn the most, precisely because they had to weed through extraneous signs and symptoms to find the essence of the pattern. This is a habit of mind, in fact, that is important for students to master. As the students transitioned from classroom to clinic, we found that this exercise in close reading of cases had also better

Chai Hu Class:

1. Review the basics of *Chai Hu* (柴胡 Bupleri Radix) and the *Chai Hu* presentation from Dr. Huang Huang's *Ten Key Formula Families in Chinese Medicine* (pg. 75-79).

2. Review ingredients and general indications of the five most commonly used *Chai Hu* formulas (see *Chinese Herbal Medicine: Formulas and Strategies*), and discuss related case studies:

A. *Xiao Chai Hu Tang* (小柴胡汤 Minor Bupleurum Decoction)
Case studies from *Shang Han Lun Explained*, pg. 261-276

B. *Chai Hu Jia Long Gu Mu Li Tang* (柴胡加龙骨牡蛎汤 Bupleurum plus Dragon Bone and Oyster Shell Decoction)
Case studies from *Shang Han Lun Explained,* pg. 285-286

C. *Si Ni San* (四逆散 Frigid Extremities Powder)
Case studies from *Shang Han Lun Explained*, pg. 343-346 and
http://www.chinesemedicinedoc.com/casestudy/si-ni-san-constipation/

D. *Xiao Yao San* (逍遥散 Rambling Powder)
Case *studies* from
https://www.chinesemedicinedoc.com/casestudy/ye-tian-shi-constraint-2-3-xiao-yao-san/ and *The Clinical Application of Shang Han Lun Formulas,* pg. 406-408

E. *Chai Hu Shu Gan San* (柴胡疏肝散 Bupleurum Powder to Dredge the Liver)
Case studies from *San* from *Patterns and Practice in Chinese Medicine,* pg. 115-120

Required textbooks:

Chen RC. trans. Zhang Y, Wang CH. *The Clinical Application of Shang Han Lun Formulas*. Beijing: People's Medical Publishing House; 2009.

Huang H. trans. Max M. *Ten Key Formula Families in Chinese Medicine*. Seattle: Eastland Press; 2009.

Scheid V, Bensky D, Ellis A, Barolet R. *Chinese Herbal Medicine: Formulas and Strategies*. Seattle: Eastland Press; 2009.

Young JDG, Marchment R. *Shang Han Lun Explained*. Chatswood: Churchill Livingstone; 2009.

Zhao JY, Li XM. *Patterns and Practice in Chinese Medicine*. Seattle: Eastland Press; 1998.

Figure 3. Excerpt from the syllabus of a case-based learning class for herbal medicine. (source from: designed by the author.).

prepared them for the thorniness of diagnosis in the real world.

For example, the common herbal formula *Gui Zhi Tang* (桂枝汤 Cinnamon Twig Decoction) is often prescribed for the common cold, but practitioners who base their approach on classical texts such as the *Shang Han Lun* (《伤寒论》 *Treatise on Cold Damage*) (Note 10) have expanded its usage to a wide range of conditions that the common cold may be characterized by fever and chills, "aversion to wind" (sensitivity to drafts), and a floating pulse. In our class, we read *Gui Zhi Tang* case studies for conditions that ranged from one-sided sweating with somnolence after eating, to diarrhea, urinary problems, and rashes. This showed the students the flexibility of the formula and taught them to look for the marquee symptoms when determining formula suitability. When they entered the clinical setting, they were then able to successfully pick out a *Gui Zhi Tang* pattern when patients came in for headaches and menopausal symptoms, for example.

A good case study will not only teach about dosing and staging of herbal treatment, convey these nuances of diagnosis and pattern identification, but can also teach disease and patient management, while describing the psychosocial environment in which a disease occurs. The introductory case from Dr. Fan is an excellent example

of this. In the cases we covered in our class we saw many additional instances:

In a class on the single herb *Chai Hu* (柴胡 Radix Bupleri) and the most common formulas that contain it (Fig. 3), we read a case study on using *Xiao Yao San* (逍遥散 Free Wanderer Powder) for an adolescent man with seminal emission. The physician-author mentioned that the patient was "very nervous and afraid the condition would affect his marriage and fertility. The psychological pressure made him so nervous that he could not concentrate in class, and his sleep and appetite were poor." The author goes on to advise the reader to determine whether the condition is due to prostatitis and not assume weakness of the kidney, while also stressing the importance of counseling the patient and providing psychological support as part of the cure.[35]

5 Conclusions: reintroducing case studies into practitioner education, the repository of narrative medicine

The case study and the case report are related subgenres with notable differences. Both are practiced in the US today. Each has a role to play in the education of practitioners. They developed from ancient records of medical treatment, but have diverged in format, function, and audience (see Section 2.3).

As discussed, the case study can be used to teach critical thinking skills, refine diagnosis, and aid with memorization and comprehension. The reading and writing of case studies allow the practitioner to see their patients as individuals, while giving the practitioner a sense of professional identity. The case study is a story, a record of clinical practice, invaluable to both clinicians and historians, meant to pass along accumulated knowledge to future generations. For this reason, many scholars use the term "epistemic genre" to describe the medical case.[2,3]

Reading and writing case studies has traditionally been a part of East Asian medicine, but their place in education has fallen away as other priorities have gained ascendency, specifically preparing clinicians to practice in integrative settings and advance the field through research. For this reason, in most East-Asian-Medicine programs, the emphasis is now primarily on writing case reports. Their standardization puts them at an advantage if the goal is to combine multiple reports to prove efficacy in larger quantitative studies. Additionally, there are many opportunities to publish case reports; as publishing brings prestige, this makes the writing of case reports appealing to clinicians and their institutions.

Since both case reports and case studies have value and distinct roles to play in the education of practitioners, how best to insure they both flourish? Particularly how best to preserve the case study, so it is not overtaken by the case report? The answer may lie in the relatively new field of narrative medicine and its increasing influence. Typically, narrative medicine programs teach close reading through examining fiction or poetry and ask students to reflect on their experience in journal-like writing exercises. Narrative medicine is increasingly becoming part of the curriculum of allopathic medical schools, and East Asian Medicine students would benefit from its lessons too. However, because the case study is a narrative form, it can offer the same opportunities, providing the clinician with an avenue for self-awareness, preventing burnout, and helping clinicians and patients better collaborate on care and understand each other.

Lessons from the field of narrative medicine in biomedicine and the greater cultural interest in storytelling can help revive the case study as means for teaching students and for honing skills of mature practitioners in East Asian medicine. Essentially East Asian Medicine practitioners have been practicing narrative medicine without calling it by that name since antiquity—be it proto-cases inscribed on oracle bones in the Shang or doctors reading and composing poetry in the Tang to cultivate their humaneness. Much like a seed bank can be used to reintroduce a lost species back into an ecosystem, so can the practice of narrative medicine revive the art and science of the case study in the education of practitioners of East Asian Medicine.

Notes

1: Prior to the Ming, the term *Zhen Ji* (诊记 "examination record"), and other terms, were used. This new name reflected changes to format, authorship, and role of the case that accelerated during this time.

2: This was raised in my interview with Valerie Hobbs, who was then the director of a doctoral program that relied heavily on case studies and reports.[13]

3: Marnae Ergil, personal communication, October 7, 2022. Dr. Ergil is the chair of the board of commissioners for the Accreditation Commission for Acupuncture and Herbal Medicine schools and has been involved in practitioner education as a professor and administrator for the past 25 years. She notes that most of the faculty at colleges of East Asian medicine are adjuncts, so they are not compensated for the time it would take to read and critique a student's written work, hence the lack of meaningful feedback in many cases.

4: A recent PubMed search for "narrative medicine" turned up 22,502 results; books by physician-writers Jerome Groopman, Atul Gawande, and Abraham Verghese about their experiences are national bestsellers.

5: See also articles by Potama,[3] Pethes,[4] Class,[8] Epstein,[16] and Charon.[18]

6: Dr. Yu is the author of several books, one of which has been translated into English as the two-volume *A Walk Along the River: Transmitting a Medical Lineage through Case Records and Discussions* (Eastland Press, 2017). In *A Walk Along the River*, each chapter is a case study followed by a dialogue with other physicians

where the ask him questions about his treatment methods. See reference 13 for an interview with him.

7: Weizenbaum is an independent teacher and translator, whose popular Graduate. Mentorship Program has trained thousands of practitioners of Traditional East Asian Medicine. Her reimagining of Chinese herbal education includes the extensive use of case studies. See reference 13 for an interview with her.

8: *Da Qing Long Tang* is a famous herbal prescription from the *Shang Han Lun*. It is used for high fever with chills, body aches, and thirst, but no sweating, generally presenting in patients with robust constitutions.

9: Dr. Song's errors were to omit *Sheng Jiang* (生姜 fresh ginger) and *Da Zao* (大枣 Chinese dates) from *Da Qing Long Tang*, and he neglected to tell the patient's family to stop administering the herbs once the patient had sweated and the fever broke.

10: The *Shang Han Lun*, a canonical text in Chinese herbal medicine, was written by Zhang Zhongjing (张仲景, given name Zhang Ji 张机) circa 200 CE, and compiled by Wang Shuhe (王叔和) in the 3rd century. It is still used by contemporary clinicians.

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Author Contributions

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The author declares no financial or other conflicts of interest.

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