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Martin's Map: a conceptual framework for teaching and learning the medical interview using a patient-centred approach

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Objective At the end of training, students seem to lack a basic understanding of how to take an organised, relevant medical and social history using a patient-centred approach. The aim of developing the map described in this paper was to provide a framework for such an approach.

Methods Action research was used to continuously modify and refine an interview map that was used by medical clerks, family medicine residents, international medical graduates and practising doctors for teaching and learning purposes over a 10-year period.

Conclusion 'Martin's Map' provides a realistic framework for flexibly organising and integrating medical content with process that did not previously exist. The map provides medical educators with a standardised framework for talking about the medical interview, which helps learners understand how to use their medical knowledge with a patient-centred approach. Learners are able to visually see how they can take a focused medical and social history using a patient-centred approach, which subsequently seems to help them organise their thinking and approach during the medical encounter.

Keywords education, medical undergraduate/*methods; medical history taking/*standards; physician–patient relations; *communication; interviews.

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Introduction

Ten years ago I began teaching interviewing skills to family medicine residents. In an attempt to understand (as a non-doctor) how the components of a medical history fit with the patient-centred method, I constructed an interview map to visually integrate the 2 concepts. Not only did this map provide me with a framework for my own understanding, but it became a useful tool for teaching medical students with varying levels of experience and ability how to organise and use their medical knowledge. Much like action research,[1] where an intervention is designed to improve practice and/or solve real local problems, the interview map was modified and refined over the years through student/preceptor reflection and feedback. 'Martin's Map' has evolved into a useful template for both teaching and learning how to integrate medical knowledge using a patient-centred approach.

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Background

One of the main purposes of undergraduate medical education is that learners acquire the specialised body of knowledge that will give them the credibility they need to call themselves doctors. The profession of medicine values and endorses the use of a patient-centred approach in the delivery of this knowledge.[2] This method consists of a set of beliefs, values and understandings that assist the doctor to apply this specialised body of knowledge and skills in a helpful way. The patient-centred method does not lend itself easily to interpretation. It is a framework that encompasses both abstract concepts, such as empathy, humanism and self-awareness, and concrete concepts, such as the organisation of an interview and knowledge of community resources.[3] Despite the inclusion of patient-centred training in many undergraduate medical education programmes, the relevance of communication to clinical practice is often missed or ignored by students as they struggle to learn and use this challenging body of knowledge.[4] This outcome is both

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Key learning points

The lists of medical questions memorized during training are often intrepreted as "to do" lists by inexperienced students with poor understanding of how to discriminate based on revelant patient context.

Medicine does not have a much-needed basic conceptual framework for teaching and learning a patient-centered approach to medical history taking.

A conceptual framework of a patient-centered medical interview was constructed to bridge the identified gap between medical knowledge and practice.

The map embeds the medical and social history in a framework that allows students to broaden their conceptualization of what, where, when and how questions could be asked.

The Map provides medical educators with a standardized tool for guiding the ongoing development of a student's approach to the clinical encounter from the outset of training.

reflected in the literature[4–7] and in students' everyday performances. Students seem to lack a basic understanding of how to take an organised, relevant medical history using a patient-centred approach.

This deficiency has been commented on in the medical literature for at least 20 years.[8] It is well documented that the history is the most powerful diagnostic tool in medicine[9–11] and that the quality of the doctor–patient relationship can positively affect health care outcomes.[12] Considering that most doctors conduct approximately 200 000 interviews in the course of their career,[13] helping students learn how to effectively and efficiently take a history using a patient-centred approach is paramount to their training.

Current practices

Anecdotal reports and observations reveal that history taking is often conceived as a series of memorised, close-ended medical questions, while communication is considered as 'chatting'[14] with the patient. The lists of medical questions memorised during training are often interpreted as 'to do' lists by inexperienced students with poor understanding of how to discriminate based on relevant patient context. This observation can be extended to social histories, which often appear in textbooks as lists of questions.[15] Evidence suggests that novice interviewers use medical history questions in a random search and seek pattern when trying to establish a diagnosis[10,16] and prematurely begin taking a medical history before they have an understanding of the chief complaint and the history of the illness experience.[11]

The medical literature is rich with examples of how understanding the patient's perspective at the beginning of the medical encounter contributes directly to better health care outcomes,[12,17,18] yet students who are insecure with their level of knowledge quickly gravitate towards the familiar lists of questions. This less than ideal approach to the clinical interview is often compounded by how medical students are evaluated. Objective structured clinical examinations (OSCEs) used in undergraduate years principally focus on skill sets that are measured by predefined checklists. Students frequently interpret these to mean that they should ask as many content-related questions as possible in a limited timeframe in order to earn checks. Little attention is given to process or how they use their knowledge. For some students, the OSCE evaluation inadvertently reinforces a close-ended, disease-focused approach to the interview.

How we teach learners to organise a clinical interview does not reflect what experienced doctors do in practice[19] and, perhaps more importantly, it does not encourage a patient-centred approach to the interview. For example, most literature on the doctor–patient relationship strongly urges the doctor to invite the patient to speak first without interruption.[18,20] In contrast, medical students are often taught to begin an interview by asking the patient some basic social history questions, such as: 'How old are you?' 'What do you do for a living?' and 'Are you in a relationship?' before the reason for the visit is even determined. The rationale behind this is that it establishes some context, begins the process of rapport building and helps *them* (meaning the students, not the patients) to feel more comfortable.[21] In reality, most students report that they feel awkward when they begin an interview by asking a patient for personal data before they have inquired about the patient's agenda. If a patient does begin sharing the requested information, students often become overwhelmed, feeling they have lost control of the interview. Rather than building rapport, the student's anxiety quickly leads them to cut the patient off in order to begin a focused medical inquiry.[22,23] Research has shown that developing the confidence to perform successfully is a dependable predictor of new skills[24,25] and of actual performance.[26,27] Because students

prematurely abandon using a patient-centred approach for interviewing, they never gain the necessary experience or confidence to flexibly incorporate questions on the patient's perspective of illness into office visits.

For medical educators the problem becomes how to integrate these components in a relevant and useful way that provides structure for learners, yet realistically allows for the natural development of a 3-dimensional relationship over time. Patients are not a homogeneous group. A practical intervention needs to be flexible enough to address the helical and individual learning needs of students, as well as accommodate the myriad of patient and disease combinations and permutations that present themselves in everyday practice. Cognitive learning theory suggests that learners pass through stages as they develop from novice to expert. How information is processed and then used for decision making changes with practice and experience.[28] Providing novice doctors with a framework with which to conceptualise how they use their medical knowledge can guide this transition.

Martin's Map

With this thought in mind, a conceptual framework of a patient-centred medical interview was constructed to bridge the identified gap between medical knowledge and practice. Martin's Map does *not change, alter or add to* the content of the traditional medical history. It embeds this history in a framework that allows students to broaden their conceptualisation of what, where, when and how questions can be asked. The first map has been expanded for teaching purposes (Fig. 1), while the second map, used in everyday practice, is visually less cluttered, allowing learners to easily orient themselves during clinical encounters (Fig. 2). Martin's Map deliberately depicts the interview as having a beginning, middle and end, with each part serving a different purpose.

The purpose of the beginning of an interview is to establish an agenda, which means gaining as comprehensive as possible an understanding of why the patient is in the surgery and what they are hoping for. Students are taught that the beginning of the interview is predominantly intended to allow the patient to share information, ideas and concerns. It is the doctor's job to elicit this agenda, facilitate elaboration and clarify expectations. More direct questioning to elicit more specific information about the patient's history of their present illness and illness experience begins only after the patient has had an opportunity to state in their own words why they came in. Finding common ground begins now. When the student feels they have a comprehensive understanding of why the patient came in, they then reflect this back for clarification and verification. When moving to the middle of the interview, students are encouraged to signal a change of direction by using transitional/bridging statements.

The purpose of the middle of the interview is to continue gathering relevant information, both verbally and through physical examination, to either confirm or discount hypotheses related to the differential diagnosis. It is also a time for the student to increase their understanding of this patient's specific life context that may impact on treatment and management plans. If the beginning of an interview is considered the 'patient's turn', the middle of the interview is the 'doctor's turn'. By the end of the middle section of the interview, the student should have gained all the relevant information necessary to generate a treatment and management plan based on the patient's particular situation and needs. This includes completing the physical examination. A transitional statement is used once again to indicate a change in direction.

The purpose of the closing is to present the diagnosis, rationale, treatment and management plan based on the history/physical/diagnostic tests. Students are discouraged from treating the closing phase of the interview as 1 'run-on' sentence. Instead, they are encouraged to present 1 issue at a time and not to move on until they have addressed questions and established common ground.

Students are encouraged to leave most health teaching to the closing phase of the interview, after the relevant medical and social history has been collected, so that explanations can be tailored to the patient.

Pockets

Students are taught to think about medical and social history taking by using the metaphor of 'pockets' (Fig. 3). A 'pocket' is a specific piece of bounded information, which contains all the questions related to a distinct part of the history. The middle of the interview has been broken down into several distinct pockets of inquiry, consisting of previous medical history (PMH), history of present illness (HPI), review of systems (ROS), red flags, lifestyle risk factors and social history. Each of these has its own associated set of questions. Some pockets, such as ROS, have several subpockets, each of which has a specific list of affiliated questions (i.e. neurological, constitutional, genealogical, etc.). Once the student goes into a pocket, they are encouraged to mentally scan and then clean out the pocket of all *relevant* questions before moving on. Relevant questions are considered to be those that help

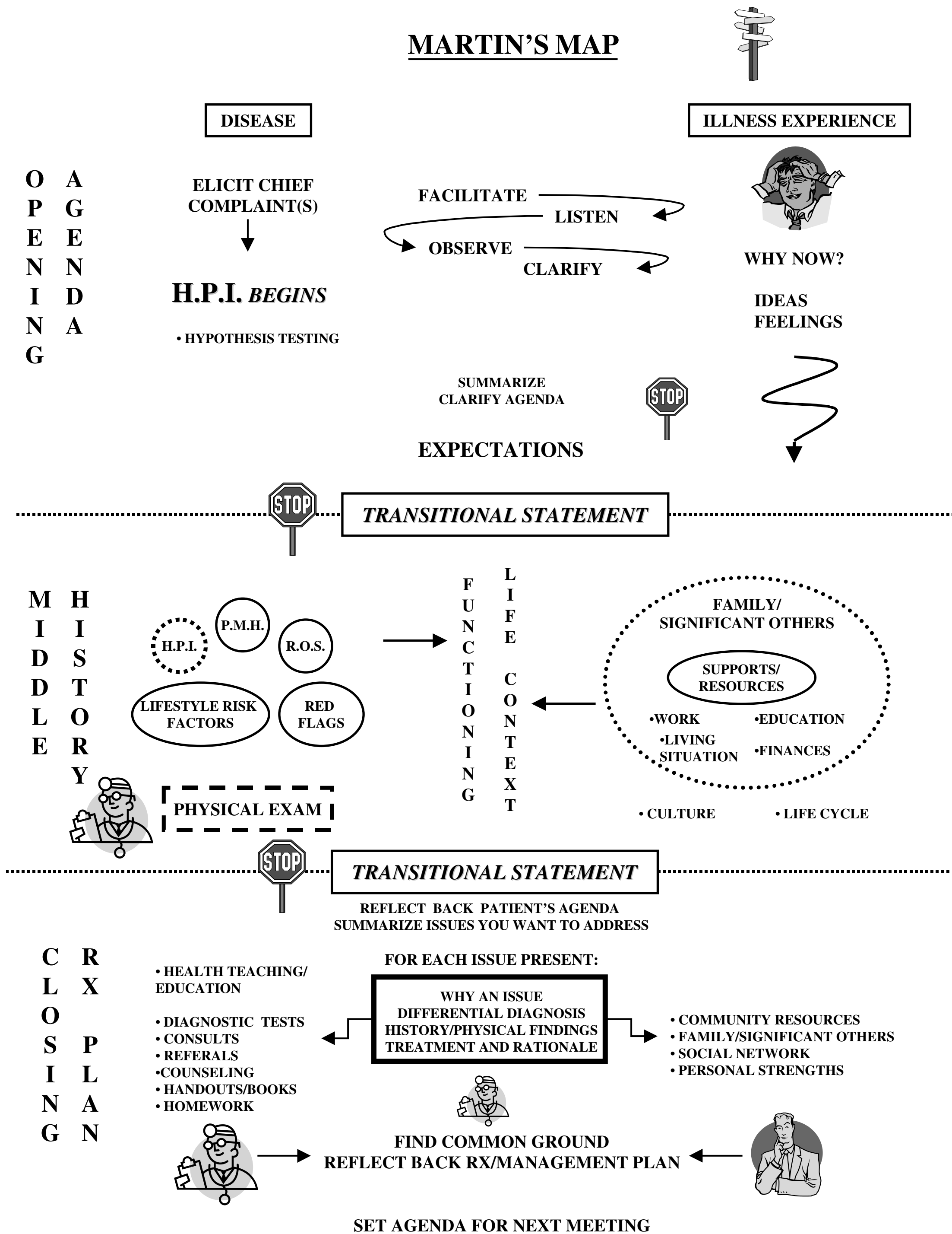

Figure 1 Teaching map.

to determine the diagnosis and tailor the treatment and management plan specifically to the patient. Students are discouraged from asking redundant questions, treating pockets as 'to do' lists and jumping back and forth disjointedly between pockets. Medical interviews are not linear events where every question and moment can be predicted and controlled. Patients often present clues (direct or indirect comments about personal

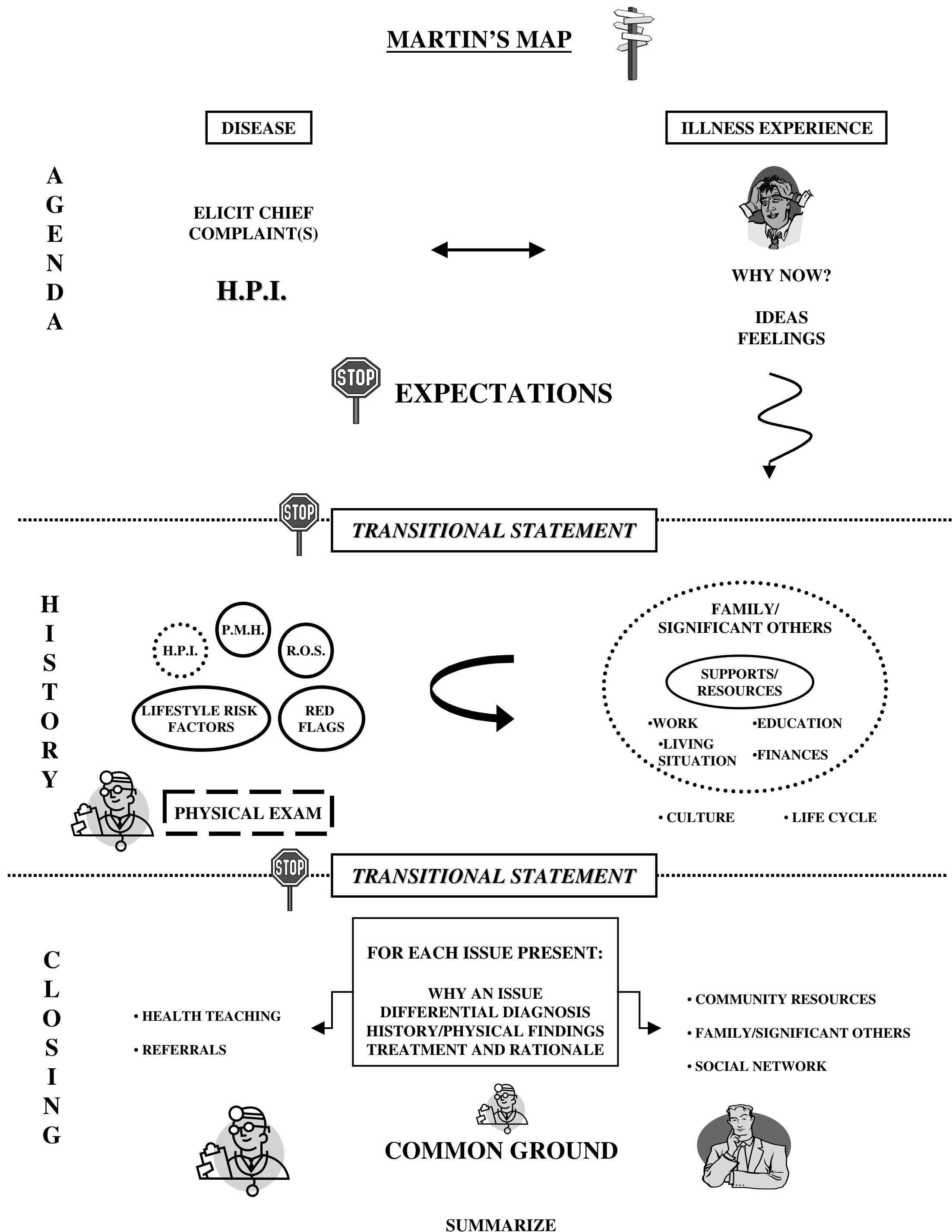

Figure 2 Clinical encounter.

aspects of their lives or their emotions)[29] to their doctors and questions may fall into more than 1 pocket. For example, screening questions related to domestic violence may be asked early in the interview, as part of the PMH pocket, or delayed until the social history pocket. Students are encouraged to recognise and explore these clues as they present themselves and not to rigidly adhere to a single path.

Martin's Map is meant to act as a guide that presents the most effective and efficient route to a generic medical

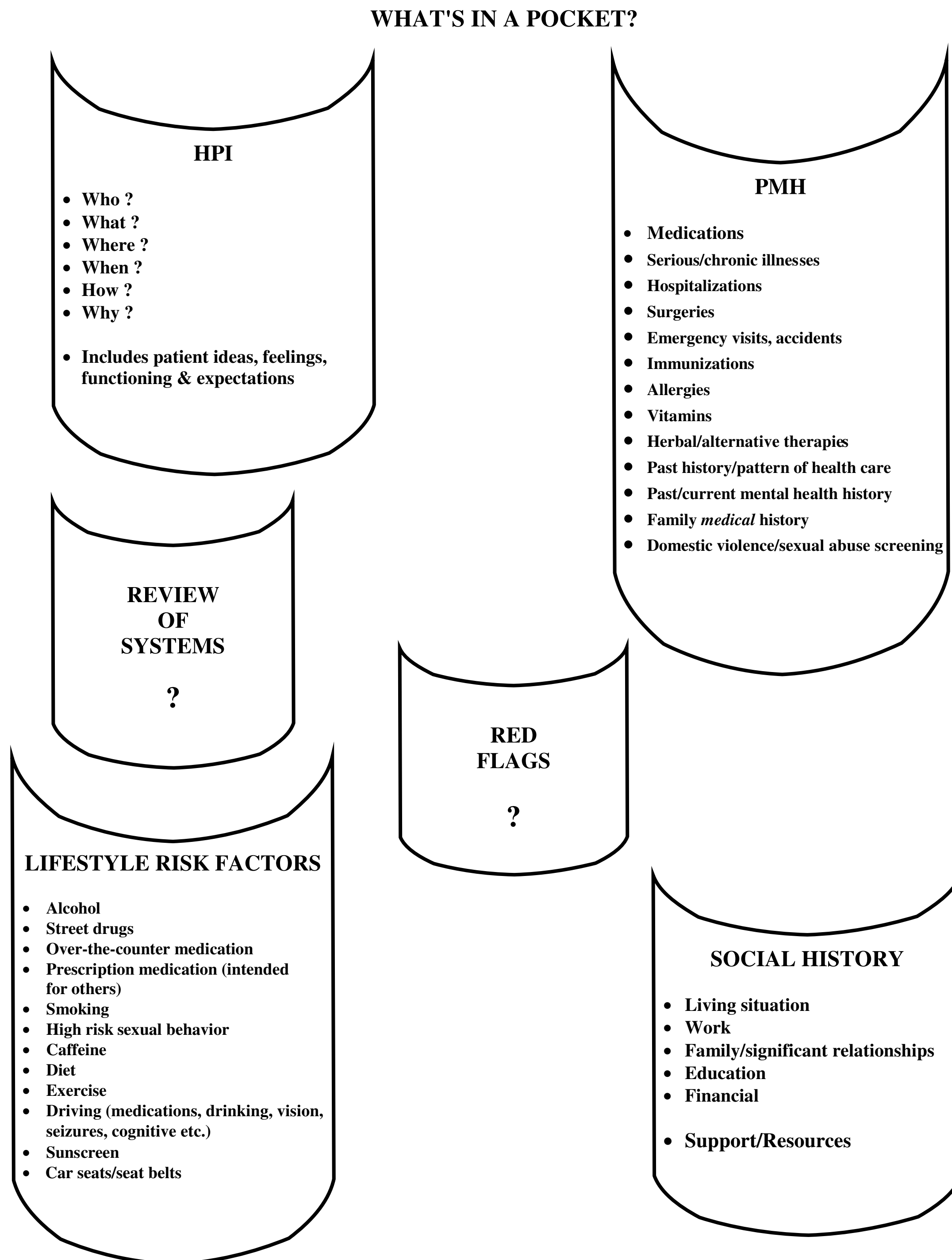

Figure 3 Pockets.

interview under ideal conditions. For example, in most clinical encounters during history taking, *relevant* PMH questions should be asked first. Culturally, patients expect to answer questions related to their medical health; therefore, retrieval of medical information is perceived as less sensitive than retrieval of social history and consequently serves to build rapport. Information retrieved here may help to inform questions in other pockets. For instance, information on previously prescribed medications can often advise doctors of a

patient's current/past medical conditions. The HPI follows PMH and appears in the middle of the interview as a pocket for the purpose of *completing* any unfinished HPI questions that were not presented or retrieved at the beginning of the interview. The scope of questions is continually modified throughout the interview, according to patient-elicited information and physical findings. Because ROS follows later in the interview, much of the relevant information required by the pocket may be sourced from the data obtained earlier.

Red flags are those key diagnostic questions that narrow the focus of inquiry by quickly ruling in or out low probability, but acute, diagnoses. For example, if a patient presented with a new onset of low back pain, there is a high probability that the diagnosis is related to muscle skeletal problems. Red flag questions to rule out a more acute diagnosis would be: 'Are you experiencing any leg weakness?' and 'Have you experienced any loss of bowel or bladder control?' Red flag questions might also include the necessary screening questions to uncover potential risk factors for a proposed treatment such as: 'Do you have any history of blood clots?' or 'Any history of liver disease?' when trying to decide whether to prescribe birth control pills.

Lifestyle risk factors tend to be associated with the patient's beliefs and values about their health, which can be at odds with medical recommendations. As a result, this pocket of inquiry can be very sensitive, despite the fact that it consists of a routine set of questions for doctors. Collapsing risk factors into 1 pocket helps the student recall the relevant questions and diminishes the patient's potential perception that they are being judged. Questions related to health prevention have been included in this pocket because they are linked to lifestyle. This pocket is positioned after the medical history pocket but before the social history pocket because positive answers to lifestyle screening questions may influence questions related to social history.

Students are deliberately encouraged to explore a patient's social history after they have completed a medical history and inquired about lifestyle risk factors. The rationale behind this is based on the fact that the beginning of the interview and subsequent medical history taking lay the foundation for rapport building, while the information gathered can help the student to more sensitively and accurately inquire about how the patient's disease/illness experience is affecting their ability to function. Although social history taking is often taught as if it consisted of a collection of individual questions, in reality these areas are often entangled and represent the life context of the patient. Questions are often generated as the patient tells their story and the student gains a better understanding of how the disease process may personally impact on the patient's life context. The student is encouraged to constantly scan and listen for how a patient is coping and what strengths/resources they have. The information gleaned from the social history should help shape the treatment and management plan.

There is no standardised set of questions related to cultural determinants and life cycle stages, although these factors directly influence diagnostic, treatment and management decisions. As a result, they appear on the map not as pockets, but as reminders.

Martin's Map provides a conceptual framework for integrating interview content with process. This means the pockets themselves and associated content can vary depending on the purpose of the interview. For instance, a pocket that might appear in a palliative care interview, but not a routine office encounter, might include symptom management. The associated areas of inquiry within this pocket might include appetite, sleep, shortness of breath, constipation, etc.

Discussion

Martin's Map has been used successfully for almost 10 years to teach medical clerks, family medicine residents, practising doctors and international medical graduates the art of conducting a clinical interview. The map has generated many 'aha' experiences and students express increased confidence in their interview abilities. Faculty members comment on a marked improvement in student interview efficiency and effectiveness after the map has been introduced and feel they are providing more consistent feedback using a common interview template. Students are able to visually see how they should synthesise a focused medical and social history using a patient-centred approach. Consequently, this seems to help organise their thinking and approach during the medical encounter. This framework *does not* add anything new to the individual history taking components of the medical encounter. It *does* integrate the various components and lend a framework for conceptualising how the pieces fit together. It reflects how experienced doctors organise the medical interview by using a patient-centred approach in everyday practice.[19] This framework is not meant to be used as a static, linear interpretation of the interview. It visually expands the interview framework horizontally, more closely approximating the 3-dimensional nature of the clinical interview. It provides a way to conceptualise how to flexibly organise and integrate a patient-centred approach to history taking that did not previously exist.

Strategies in teaching communication skills vary widely among and within medical schools. There seems to be little consensus about what is and is not important. There is abundant literature documenting how faculty members view the same medical interviews and interpret them from different perspectives.[30–32] In fact, it has been suggested that evaluations of communication skills are based on the subject's likeability rather than on objective, specific interviewing skills.[33] As well, faculty often do not feel as confident/comfortable in their ability to comment on process and organisation as they do on medical history taking. This leads to many teachable moments going unnoticed or being passed by, which further undermines the relationship between process and content.

A common, agreed upon framework on which discussion of the clinical interview can be hinged is needed so that learners do not continue to receive contradictory and conflicting messages.[34] Unfortunately, medicine does not have this much-needed, basic, conceptual framework for teaching and learning a patient-centred approach to medical history taking. Such a framework would provide experienced doctors with a means for sharing how they make decisions and organise and think about the interview. A framework would enhance their ability to assess a learner's clinical thinking, decision making and organisation, as well as providing a broader context for more specific feedback. In addition, key interview components imparted early in the curriculum would be reinforced and made relevant to practice, rather than being missed or forgotten.

Perhaps most importantly, a framework would provide medical educators with a standardised tool for guiding the ongoing development of a student's approach to the clinical encounter from the outset of training. The alternative to this is that students will continue to see patients as disease puzzles to be solved rather than as people to listen to, despite the introduction of taught communication skills.[35]

Efficient and effective patient-centred medical interviews do have structure and organisation. They are not passive, haphazard events. Martin's Map has been derived and substantiated through existing medical, teaching and learning literature and research[36] and further authenticated through the observation of many real and simulated student and doctor medical interviews.

Conclusion

The enculturalisation process that occurs in undergraduate years, transforming the student into a doctor, necessitates, among other things, the assimilation, understanding and application of vast quantities of scientific knowledge. It is the time when building the foundation for learning an approach to using this knowledge begins. It should be considered as a window of opportunity when good patterns of practice can be instilled and can positively influence behaviour, values and beliefs. The medical profession, educators and society each have a vested interest in helping nascent doctors develop a patient-centred approach to the clinical interview. A map that outlines directions on how to get there might be a step in the right direction.

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References

1 Cohen L, Manion L, Morrison K. *Research Methods in Education.* 5th edn. New York: Routledge/Falmer 2002.
2 Stewart M, Brown JB, Weston WW, McWhinney IR, McWilliam CL, Freeman TR. *Patient-Centred Medicine – Transforming the Clinical Method.* 2nd edn. Oxford: Radcliffe Medical Press 2003.
3 Rotor D. The enduring and evolving nature of the patient–physician relationship. *Educ Counselling* 2000;**39**:5–15.
4 Preven DW, Kachur EK, Kupfer RB, Waters JA. Interviewing skills of first-year medical students. *J Med Educ* 1986;**61**:842–4.
5 Barbee RA, Feldman SE. A three-year longitudinal study of the medical interview and its relationship to student performance in clinical medicine. *J Med Educ* 1970;**45**:770–6.
6 Cohen SJ. An educational psychologist goes to medical school. In: Eisner EW, ed. *The Educational Imagination: On the Design and Evaluation of School Programs.* 2nd edn. New York: Macmillan 1985.
7 Helfer RE. An objective comparison of paediatric interviewing skills on freshman and senior medical students. *Pediatrics* 1970;**45**:623.

8 Thistlethwaite JE. Integrating communication skills and history taking. *Med Teacher* 1999;**21**:83–4.

9 Platt R. Two essays on the practice of medicine. *Manchester University Med School Gazette* 1947;**27**:139–45.

10 Peterson MC, Holbrook JH, DeVon H, Smith NL, Staker LV. Contributions of the history, physical examination and laboratory investigation in making medical diagnoses. *West J Med* 1992;**156**:163–5.

11 Hasnain M, Bordage G, Connell KJ, Sinacore JM. History taking behaviours associated with diagnostic competence of clerks: an exploratory study. *Acad Med* 1997;**76**:14–7.

12 Stewart M, Brown JB, Donner A, McWhinney IR, Oates J, Weston WW, Jordan J. The impact of patient-centred care on outcomes. *J Fam Pract* 2002;**49**:796–804.

13 Kurtz S, Silverman J, Draper J. *Teaching and Learning Communication Skills in Medicine.* Oxford: Radcliffe Medical Press 1998.

14 Royston V. How do medical students learn to communicate with patients? A study of fourth-year medical students' attitudes to doctor–patient communication. *Med Teacher* 1997;**19**:257–62.

15 Griffith CH, Rich EC, Wilson JF. Housestaffs' knowledge of their patients' social histories. *Acad Med* 1995;**70**:64–6.

16 Palchik NS, Wolf FM, Cassidy JT, Ike RW, Davis WK. Comparing information-gathering strategies of medical students and physicians in diagnosing simulated medical cases. *Acad Med* 1990;**65**:107–13.

17 Lang F, Floyd MR, Beine LB, Kathleen BP. Sequenced questioning to elicit the patient's perspective on illness: effects on information disclosure, patient satisfaction and time expenditure. *Fam Med* 2002;**34**:325–30.

18 Simpson M, Buckman R, Stewart M *et al.* Doctor–patient communication: the Toronto consensus statement. *BMJ* 1991;**303**:1385–7.

19 Lutz LJ, Schultz DE, Litton EM. Diagnosis formulation by residents and physicians at different levels of experience. *J Med Educ* 1986;**61**:984–7.

20 Ong LM, DeeHaes JCJM, Hoos AM, Lammes FB. Doctor–patient communication: a review of the literature. *Soc Sci Med* 1995;**40**:903–18.

21 Billings JA, Stoeckle JD. *The Clinical Encounter – a Guide to the Medical Interview and Case Presentation.* 2nd edn. Missouri: Mosby 1999.

22 Marvel MK, Epstein RM, Flowers K, Beckman HB. Soliciting the patient's agenda. *JAMA* 1999;**281**:283–7.

23 Beckman HB, Frankel RM. The effect of physician behaviour on the collection of data. *Ann Intern Med* 1984;**101**:692–6.

24 Bandura A. Self-efficacy: toward a unifying theory of behavioural change. *Psychol Rev* 1977;**84**:191–215.

25 Bandura A. Self-efficacy mechanism in human agency. *Am Psychol* 1982;**37**:122–47.

26 Tresolini CP, Stritter FT. Medical students' development of self-efficacy in conducting patient education for health promotion: an analysis of learning experiences. *Teach Learn Med* 1995;**7**:106–9.

27 Schunk DH. Goal setting and self-efficacy during self-regulated learning. *Educ Psychol* 1990;**25**:71–86.

28 Schmidt HG, Norman GR, Boshuizen HPA. A cognitive perspective on medical expertise: theory and implications. *Acad Med* 1990;**65**:611–21.

29 Levinson W, Gorawara-Bhat R, Lamb J. A study of patient clues and physician responses in primary care and surgical settings. *JAMA* 2002;**286**:1021–7.

30 Lynch DJ, Tamburrino MB, Nagel R. Teaching interviewing skills: the effect of instructors' academic department. *Med Teacher* 1992;**14**(1):59–63.

31 Naji SA, Maguire GP, Fairbairn SA, Goldberg DP, Faragher EB. Training clinical teachers in psychiatry to teach interviewing skills to medical students. *Med Educ* 1986;**20**:140–7.

32 Boulet JR, Ben-David MF, Ziv A *et al.* Using standardised patients to assess the interpersonal skills of physicians. *Acad Med* 1998;**73**:94–6.

33 Kalet A, Earp JA, Kowlowitz V. How well do faculty evaluate the interviewing skills of medical students? *J Gen Intern Med* 1992;**7**:202–8.

34 Buyck D, Forrest L. Teaching medical communication skills: a call for greater uniformity. *Fam Med* 2002;**34**:337–41.

35 Lieberman JA. Medical education and patients' psychosocial needs. *J Fam Pract* 1991;**48**:675–6.

36 Smith RC, Marshall-Dorsey AA, Osborn GG *et al.* Evidence-based guidelines for teaching patient-centred interviewing. *Patient Educ Counselling* 2000;**39**(270):36.

37 Mead N, Bower P. Patient-centred consultations and outcomes in primary care: a review of the literature. *Patient Educ Counselling* 2002;**48**:51–61.

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