Physician organisations recognise that searching quality knowledge resources at the point of care is important for continuing medical education (CME). However, those physicians inclined to occasionally search for an answer to a clinical question do not have systems such as a CME module to integrate the key tasks of searching for clinical information in their electronic medical record (EMR) and reporting CME outcomes for credit. In regard to the task of searching for information, we acknowledge that some clinical questions remain difficult to answer, while other search tasks have become simpler (table 1). Among barriers to searching at the point of care is the perception that knowledge resources are too complicated to use. This perception is supported by an ethnographic study of general practitioners at work. However, knowledge resources are continuously improving and bandwidth is no longer an issue; so this perception may be regarded as anachronistic.

**HOW DO WE FACILITATE THE PROCESS OF SEARCHING IN THE CLINICAL ENCOUNTER?**

One way to facilitate searching in the encounter is to conceptualise the EMR as a venue for documentation of learning. By EMR, we mean a system whose primary function is the documentation of clinical encounters and the management of related patient health information including laboratory results and referral letters. In North America, organisations that accredit CME programs encourage physicians to earn credits by reflecting on clinical information they retrieved in a search. Bringing these CME programs into the EMR will make it easier for physicians to participate.

**A CME MODULE IN THE EMR TO FACILITATE SEARCHING FOR ANSWERS TO**
CLINICAL QUESTIONS

Imagine what could happen when a physician has access to a CME module in their EMR. A need for information arises, for example, when a patient with impaired glucose tolerance agrees to take metformin to delay the onset of type 2 diabetes. This scenario then gives rise to a search for an answer to the following question: What is the recommended dose of metformin to prevent diabetes mellitus in patients with impaired glucose tolerance?

From the patient record, the physician enters search terms into the search box of their CME module. The module then executes this search within favourite knowledge resources. Once relevant clinical information is acquired, it can be applied to the care of the patient. The characteristics of this search (e.g., patient ID and date/time) are automatically captured in a learning diary or portfolio. Reflecting on each search using a validated questionnaire stimulates further learning and documents any outcome(s) of that search for that patient. Documentation of this learning episode links the retrieved clinical information to decision-making, and allows the physician to earn credits that are automatically transferred to the relevant organisation(s). So, by a CME module in the EMR, we mean (1) the capacity to document knowledge resource searches that are initiated within the patient record and (2) the capacity to use a validated questionnaire to reflect on these searches for CME credit. Of course, not all clinical questions need to be answered during the consultation. It is possible to note a clinical question arising at the point of care and search for the answer any time after the encounter.

HOW CAN WE CONCEPTUALISE THE BENEFIT OF PHYSICIAN SEARCHES, FOR PATIENTS?

In research situated in primary healthcare settings, family physicians, family medicine residents, nurses and pharmacists report health benefits for their patients as a consequence of applying clinical information retrieved in a search.4–6 The most commonly reported type of health benefit associated with searching a knowledge resource was ‘avoiding an unnecessary diagnostic test, treatment or specialist referral’. Other types of reported health benefits for patients associated with clinical information retrieved in a search include ‘helping to prevent a disease or worsening of disease’ and ‘improving patient health, function or resilience’. In particular, the avoidance of diagnostic tests, treatments or specialist referral has been documented in nine other studies situated in hospitals or community settings.7–15 In all of these studies, searches by health professionals were performed without the help of a librarian. However, librarian-mediated searches have been associated with similar types of benefits.16

A CME MODULE IN THE EMR TO FACILITATE RESEARCH ON THE PROCESS OF EBM
To our knowledge, no study has linked a search for clinical information in one patient encounter in primary care to objectively documented health outcomes for the patient. In theory, improved patient outcomes are to be expected; but what matters here is not theory but practice. After all, the stated aim of Evidence-Based Medicine (EBM) is to improve practice. A CME module in the EMR will enable research into the process of EBM, as follows. First, physicians will use content-validated questionnaires to earn CME credit for reflecting on their searches. Data on patient health outcomes linked to these searches will then become available for scrutiny. In partnership with research organisations, the search-related patient health benefits that are documented in each physician’s portfolio can be objectively confirmed in EMR or health administrative databases. For example, a family physician searched on the topic of screening for prostate cancer and reported not ordering a PSA test for a specific patient as a result of that search. In this case, the EMR database will confirm no PSA test result for that patient. Another example—when a family physician reports not making a referral, scrutiny of an administrative database should confirm that no specialist visit took place. Thus, it is possible to empirically evaluate the use of clinical information for its effect on patient care and other process outcomes, such as improving patient participation in decision-making and decisional conflict.17 We believe research is needed to confirm the self-reported benefit of physician searches documented in the literature, in part because self-reported data are at high risk of bias. Another reason we need to study this process is to better understand its effect on patient care. For example, if physician searches in the encounter truly help to avoid unnecessary tests, treatments or referrals, better promotion of this process will help tackle the overuse of health services and sustain publicly funded health systems. Promoting physician searches in the encounter may even reduce harm, for example, by minimising overdiagnosis.18

Training to improve EBM skills will further enhance the benefits for patients when physicians search during the encounter. In one general hospital, an improvement of prescribing practice was observed after the delivery of a multifaceted educational intervention targeting EBM skills. After this intervention, 13% more inpatients were prescribed therapies proven to be efficacious in randomised controlled trials.19

In conclusion, a CME module in the EMR is important because it can facilitate the process of applying evidence in practice and help researchers study patient outcomes associated with searches conducted in the encounter. The health professionals inclined to occasionally search for an answer to a clinical question may welcome a CME module that seamlessly integrates into their workflow.

COMPETING INTERESTS
None.
REFERENCES


### Table 1
The complexity of searching during the consultation and relative frequency of task performance

<table>
<thead>
<tr>
<th>Task (during the consultation)</th>
<th>Cognitive burden (complexity)</th>
<th>Frequency of task performance (in the office practice of a generalist physician)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single drug look up e.g., what is the dose of drug A for disease X?</td>
<td>Low</td>
<td>High frequency e.g., once or twice per work day(^7)</td>
</tr>
<tr>
<td>Searching a knowledge resource to answer a therapy question e.g., in the elderly, is drug A better than drug B for outcome X?</td>
<td>Medium</td>
<td>Moderate frequency e.g., once or twice per work week(^20)</td>
</tr>
<tr>
<td>Searching a knowledge resource to answer a question about diagnosis e.g., what is the likelihood of disease X among patients with this collection of symptoms and signs?</td>
<td>High</td>
<td>Low frequency e.g., less than once per week</td>
</tr>
</tbody>
</table>