ORIGINAL RESEARCH

Exploring the Realities of Curriculum-by-Random-Opportunity: The Case of Geriatrics on the Internal Medicine Clerkship Rotation

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ABSTRACT

Background

While major clerkship blocks may have objectives related to specialized areas such as geriatrics, gay and lesbian bisexual transgender health, and palliative care, there is concern that teaching activities may not attend sufficiently to these objectives. Rather, these objectives are assumed to be met "by random opportunity".[1] This study explored the case of geriatric learning opportunities on internal medicine clinical teaching units, to better understand the affordances and limitations of curriculum by random opportunity.

Methods

Using audio-recordings of morning case review discussions of 13 patients > 65 years old and the Canadian geriatric core competencies for medical students, we conducted a content analysis of each case for potential geriatric and non-geriatric learning opportunities. These learning opportunities were compared with attendings' case review teaching discussions. The 13 cases contained 40 geriatric-related and 110 non-geriatric-related issues. While many of the geriatric issues (e.g., delirium, falls) were directly relevant to the presenting illness, attendings' teaching discussions focused almost exclusively on non-geriatric medical issues, such as management of diabetes and anemia, many of which were less directly relevant to the reason for presenting to hospital.

Results

The authors found that the general medicine rotation provides opportunities to acquire geriatric competencies. However, the rare uptake of opportunities in this study suggests that, in curriculum-by-random-opportunity, presence of an opportunity does not justify the assumption that learning objectives will be met.

Conclusions

More studies are required to investigate whether these findings are transferrable to other vulnerable populations about which undergraduate students are expected to learn through curriculum by random opportunity.

Key words: geriatrics, curriculum-by-random-opportunity, clinical clerkship, core competencies

INTRODUCTION

In undergraduate medical training, there are too many subjects and subspecialties to teach in depth, either in the classroom or in dedicated clinical rotations.[2] Terms like "curriculum rationing" and "time accounting" are employed to describe how medical schools might make crucial decisions about prioritizing knowledge, allocating teaching resources, and optimizing learning hours in a saturated curriculum.[3,4] Faced with growing subjects and static curricular time, curriculum planners have tended to assume that medical students will encounter specialized or "non-essential" subjects—for example, palliative care,[5] preventive medicine,[6] women's,[7] and community health,[8] elder care,[9] or content related to lesbian, gay, bisexual or transgendered patient care[10]—under the auspices of core rotations, such as internal medicine. This "education-by-random-opportunity",[1] the reasoning goes, will ensure that learning around such issues continues to occur in "lean" times.[2]

This assumption has received little scrutiny. Studies have described the kinds of patients that students encounter on major rotations[11] and documented non-clinical curricular time devoted to special populations.[10,12] Other research has suggested that simply seeing patients without the structure of an explicit curriculum, especially those typically understood to comprise "specialized" populations, may not sufficiently equip students to care for their particular needs.[13] However, no research has explored the relationship between the learning opportunities afforded by patients seen in a curricular area encountered by "random access opportunity"[14] within a core rotation and the actual teaching that occurs around these patients. Such work is necessary to critically explore the assumption that simply seeing certain patient populations equates to learning to competently care for them. This article explores the case of geriatric learning opportunities on internal medicine clinical teaching units, to better understand the affordances and limitations of curriculum-by-random-opportunity.

METHODS

To better understand how curriculum rationing might impact undergraduate medical education (UME) around vulnerable populations, the authors sought to document the teaching and learning opportunities that occur with respect to older adults on a General Internal Medicine (GIM) ward at a mid-size Canadian university teaching hospital. Our two-fold approach aimed: 1) to explore what attending physicians raise in teaching discussions when reviewing older patients (> 65 years) during case review the morning following admission in the GIM context, and 2) to determine the relationship between those teaching discussions and the 20 geriatric core competencies (GCCs) (Appendix A) for undergraduate medical students proposed by the Canadian Geriatrics Society in 2009. University Health Sciences Research Ethics Board approval was obtained (REB# 18949E).

Data Collection

We used a multiple case study approach. Our sample consisted of 13 cases, defined as the admission case review discussion of an older patient (> 65) by the internal medicine teaching team. Average patient age was 80. The 13 cases were drawn from a larger multiple instrumental case study of admission case review involving 19 cases of patients admitted to an internal medicine teaching team.[15] The patient cases themselves were, therefore, a convenience sample, since we included all cases from the larger dataset that 1) involved patients > 65, and 2) were admitted during periods when we had consent from the teaching team to record data.

Data for our study included audio-recordings of the morning case review, during which a clinical clerk or resident presented a newly admitted patient to the attending physician in the setting of the team's morning rounds. We bounded our case around the case review discussion because prior research has suggested that much of the formal, explicit teaching during a clinical clerkship rotation occurs in these morning discussions.[16,17]

Our participants included 6 attending physicians (ranging in experience from 5–12 years in that role, drawn from GIM (4), nephrology (1), and geriatrics (1)) and 12 clinical clerks and residents. The dataset consisted of 75 pages of de-identified transcripts of audio-recorded morning case discussions ("patient reviews") between the attending physician and the care team.

Analysis

Transcripts were entered into NVivo qualitative data management software (QSR International, Melbourne, Australia) for data management purposes. Our analysis was guided by the following questions:

1. What are the issues presented in the case history and do they provide opportunities for geriatric teaching?
2. What is the nature of faculty teaching discussions during presentations and how do they relate to the GCC and non-GCC issues?

The first of these questions was explored using descriptive content analysis[18] to identify the issues in each patient case and organize them according to their association with GCCs. We defined "issues" as any identifiable problem that could be addressed in the patient's case on presentation to hospital. These included all active/on-going problems in the presenting complaint, active problem list, past medical history, medication list (adverse event, non-adherence), as well as abnormal investigations and evidence of functional decline. These issues were coded by two investigators (YH, LD). Disagreements in categorization were resolved by consensus with a third investigator (LL). GCCs are grouped into nine categories pertaining to elder care: cognitive impairment; functional assessment (i.e., self-care capacity); falls, balance and gait disorders; medication management; biology of aging and atypical presentation of disease; adverse events; urinary incontinence; transitions of care; and health-care planning.[19]

The second question was explored using a constant comparative approach to inductively identify key patterns of faculty discussion.[20] The second component of this question was then explored, using content analysis to describe how geriatric core competencies and non-geriatric core competencies were reflected in faculty discussions of the morning patient review.

All analytical steps were conducted in an iterative fashion and reflected qualitative principles of analytical trustworthiness and rigor.[21] We used investigator triangulation[21] by assembling a group of coders, including a medical student research assistant (YH), an experienced clinician and medical educator (LD), and a non-clinician with expertise in communication amongst medical teams (LL). As our analytical interpretations developed, we also reviewed the emerging

results with a fourth researcher (MG) to draw upon his internal medicine perspective.

Analytical memos were recorded throughout the process to capture emerging insights and questions about the nature of geriatric-related teaching and learning opportunities during case discussions of these 13 older patients.

RESULTS

What follows is a detailed description of the results for each of our guiding analytical questions, elaborated through representative examples.

Issues Presented in the Case History and Opportunities for Geriatric Teaching

Each medical issue in the 13 patient reviews was classified as either "geriatric-related" (i.e., a GCC category) or "non-geriatric related" (e.g., abnormal lab results, congestive heart failure, chronic obstructive pulmonary disease, diabetes, hypertension, ischemic heart disease, psychiatric issues). Older patients presented with both geriatric-related and non-geriatric related issues. In total, 40 geriatric-related and 110 non-geriatric–related issues were identified in 13 patient reviews.

Faculty Teaching Discussions and How They Map Onto GCC

Faculty engaged in three main types of teaching discussions during case review: clarifying/prompting questions, probing questions, and thinking out loud/providing direction. Clarifying/prompting questions were defined as those that sought additional knowledge about the patient, such as "Do you know how often she checks her sugar?" [Attending #36]. Probing questions were defined as those that inquired into student understanding of an issue. These were often rhetorical questions to which the asker already knew the answer, as when a faculty member asked: "So pip-tazo, that'll cover her for enterococcus, which she's had in the past; Klebsiella, anything that pip-tazo wouldn't cover in this lady coming from a nursing home?" [Attending #0408]. Thinking out loud/providing direction was defined as those discussions in which a faculty member verbalized their train of thought along recognizable "teaching scripts," such as the following: "So A-fib is very common. We get very good at rate control, clotting management, but when it's a new cause or when it's a new presentation, it's good to take a step back and think: `Okay I can control it, I can manage in the future'. But I wonder, in this person, is it idiopathic or is there a secondary cause for A-fib that I can actually treat?" [Attending #1010].

Overall, non-geriatric issues were more likely to be the subject of teaching discussions than geriatric-related issues even when the GCC-related issue was central to the presenting problem. Faculty generated 10 clarifying/prompting questions and 12 thinking-out-loud discussions regarding geriatric-related issues in the 13 case reviews. There were no probing questions associated with geriatric-related issues. By contrast, non-geriatric related issues generated 79 clarifying/prompting questions, 10 probing questions, and 83 thinking-out-loud discussions across the 13 patient case reviews.

Analysis of single cases also illustrated this pattern of opportunities for geriatric teaching coupled with preference for non-geriatric teaching. The case of Mrs. Jones is representative of recurrent features across the 13 cases, such as a combination of geriatric and non-geriatric related issues, and disconnect between the opportunities available to teach about the GCCs and the uptake of those opportunities. In this case, 4 geriatric- and 6 non-geriatric–related issues were present (Figure 1), and opportunities to teach around GCCs were evident in the initial patient description:

> *[Clerk #42:] Okay, next we have [Mrs. Jones]. Her code status is DNR. She's an [80–90] year-old lady from a nursing home. She has dementia, and had an unwitnessed fall in the morning. And, the fall resulted in a . . . mass on her right knee, which is very tender and painful.*

Geriatric-related issues were explored in the single clarifying/prompting question during this case review:

> *[Attending #13:] So that's the big question: "Did she have a mechanical fall, or did she have a medicine-related fall?"*
> *[Senior Resident #36:] We spoke with the daughter and she said, she was getting dressed and she tripped. So it sounded mechanical. But there wasn't anyone witnessing it . . . and she can't really give a record.*

However, while this case provided an opportunity to teach GCC-related topics such as delirium, dementia, atypical-presentation-of-disease and falls, the teaching discussion focused on hemarthrosis (bleeding in the knee):

> *[Attending #13:] The only other question I have is, it sounds like a big hemarthrosis.*
> *[Senior Resident #36:] Yeah.*
> *[A:] Did orthopaedic see her?...*
> *[SR:] So, I spoke with emerg about it and they said, well unless it gets infected, they're not going to do anything about that.*
> *[A:] Well, unless there's an underlying fracture, because if she's osteoporotic they're not going to see much here. But why does she have such a big hemarthrosis, I guess would be the question.*
> *[SR:] Yeah. I mean did go ahead and put her on hemoprophylaxis.*
> *[A:] And just leaving the blood in there, what's the problem?*

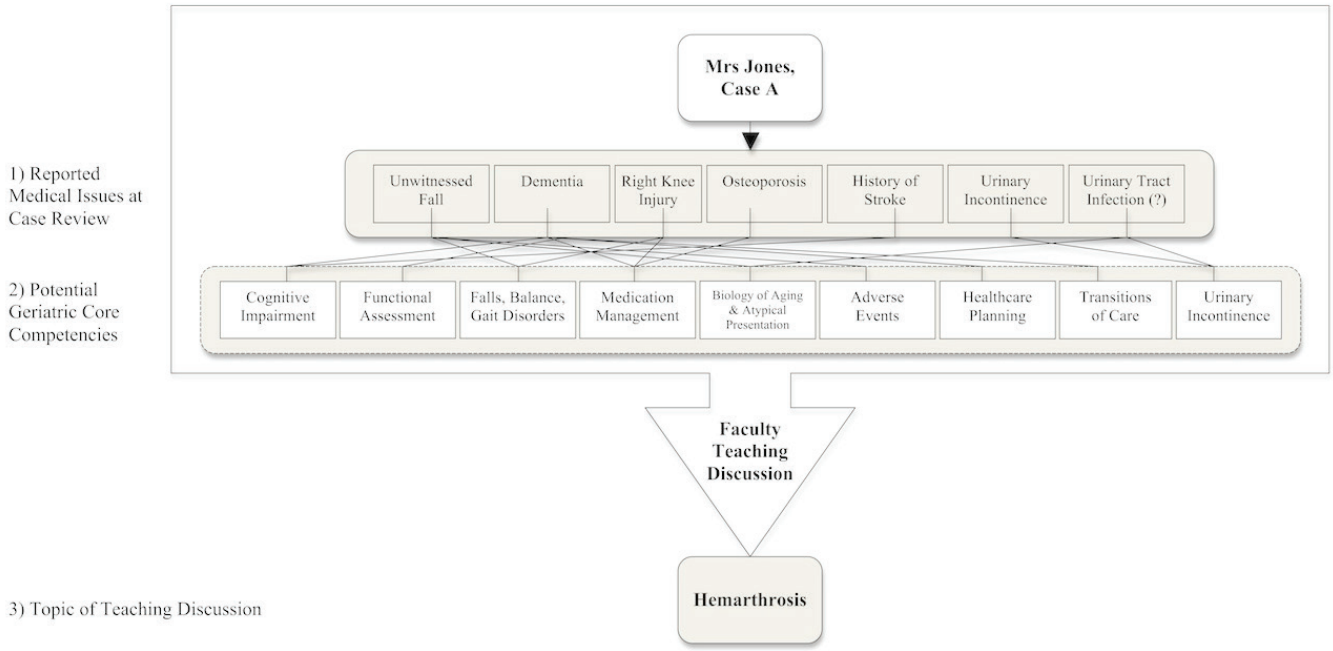

FIGURE 1. Representative patient review indicating: 1) reported medical issues at case review, 2) potential geriatric core competencies, versus 3) topic of teaching discussion

[Clerk #42:] It can deposit in the . . . synovium. Or in the . . .
[SR:] What was the other risk we talked about?
[Clerk:] Oh, and it can get infected.
[A:] Yeah, and it can damage to the synovium. So if it's a young person, they definitely ask for a hemarthrosis so you're not left there with a gigantic . . . I had one myself.
[SR:] When I looked at her, I went over to the emerg docs and I was like, "Do we not do anything for massive hemarthroses?" And they were like, nope, if it's not infected we don't touch it.
[A:] I don't know, I think that's probably a matter of opinion. If you got one of those today because you were skating, I think they'd aspirate it. I think because she's 80–90, they're probably not aspirating it. But, it's [unclear] unusual.
[SR:] If we want to get a look at it we can certainly get it looked at.

This dialogue is a representative example of the extent of teaching that took place in the 13 cases with regard to non-geriatric issues. By contrast, none of the 13 cases contained similar depth of teaching regarding core geriatric issues.

DISCUSSION

This study employed the geriatric example to explore whether curriculum-by-random-opportunity translates into 1) learning opportunities related to a specialized patient population, and 2) teaching during case review related to this population's particular clinical issues. Our results suggest that, while multiple teaching and learning opportunities exist, faculty discussions concerning older patients on a general clinical teaching rotation rarely focus on geriatric core competencies (GCCs), despite the fact that GCC-related learning objectives are embedded within the general medicine teaching ward objectives.

Our study builds on prior research published on the phenomenon of faculty teaching discussions[17] and interruptions.[15] However, ours is the first to analyze the content and transmission of geriatrics-related teaching and learning opportunities in the clinical context where they are assumed to be addressed.

This study contributes to existing knowledge of how teaching decisions are made during case review and what topics clinical teachers choose to focus on.[22] Despite the fact that curriculum planners assume that GCC-related objectives will be taught in a general clinical teaching rotation, non-geriatric–related issues might attract more teaching attention because geriatric-related issues (e.g., dementia-related falling) are more often chronic syndromes than acute conditions (e.g., hemarthrosis), making them less amenable to efficient teaching scripts regarding diagnosis, treatment, and management. Structural factors such as patient numbers and limited time may influence decisions to focus on discrete and measureable medical issues, because they are viewed as treatable.[23] Furthermore, attitudinal barriers toward the elderly and chronically sick have been well documented in both medical students[24] and clinicians,[25] and combined with time pressures, this may contribute to avoidance behaviours associated with systemic ageism within the medical profession.

Medical school admissions procedures and pedagogical approaches may also play a part in perpetuating preferences for acute rather than chronic conditions. Standard features of UME (including problem-based learning (PBL)) condition students to solve single or limited-pathway clinical problems, effectively training patient complexity out of the curriculum.[26] Moreover, in their evaluation of teaching and learning during a clinical placement, Young et al.[27] identified considerable divergences in what teachers and learners saw as valuable educational content and what was most easily delivered in the clinical context. Such findings pose a serious concern for subspecialties in which patient complexity demands a managerial, rather than curative, approach to health care.

Despite calls to improve UME by way of "crosscutting themes"[3] and integrated curriculum building, certain subjects and their core competencies remain on the sidelines. By employing the case of geriatrics to explore the affordances and limitations of curriculum by random opportunity, we aim to provoke further investigation of the unspoken—and until now, undetected—realities of curricular rationing. Significantly, the role of "informal learning" in workplace environments, and especially undergraduate clinical training, has generated considerable discussion.[28] By shaping learning opportunities around the interests of the team and the comfort level and specialty of the attending as opposed to discipline-specific core competencies (i.e., in the geriatric case, conditions such as delirium and dementia), clinical teaching discussions may well be cordoning off significant learning opportunities regarding the needs of vulnerable patient populations. If geriatric core competencies are rarely addressed without the structure of explicit curriculum, similar results may hold true for other marginalized subspecialties or patient populations. Further research and larger-scale studies are urgently needed to assess whether similar findings occur in other subspecialties that are also taught through informal curriculum exposure.

Our findings are limited by several factors. First, our data were collected from a small number of cases from one hospital site and only one type of clinical service ward (internal medicine). Future research should extend this sample and explore distinctive characteristics of general rotations that may influence results. Second, our data were drawn from a pre-existing dataset with its own purposes. While the geriatric cases drawn from this larger dataset were appropriate and relevant for our study purpose, we are currently gathering new data to create a larger set of geriatric case review discussions, from which we expect to extend and refine our current findings. Third, the case study boundary of morning case review did not permit us to comment on teaching outside of this discussion; further teaching almost certainly would have occurred at the bedside or in the hallway, or on subsequent days, in other teaching rounds, or in seminar format. While research into such additional teaching contexts might also be beneficial, we believe the morning rounds are a crucial venue, given evidence that this is where the bulk of junior doctor learning occurs, and that this aspect of the curriculum plays a key role in professionalizing medical training.[29] Fourth, we recognize that our consent process and study information may have potentially influenced all participants to increase their geriatric core competency teaching discussions during the simulated case review. Despite this, geriatricians were still more likely to discuss issues related to geriatric core competencies than non-geriatrician internists. Finally, we acknowledge that teaching provided by attending physicians is necessarily supplemented by other members of the care team (e.g., overnight senior residents). Future research might broaden the observational scope of this study by including other teaching and learning environments or conversations, thus providing greater insight into the affordances and limitations of curriculum by random opportunity.

CONCLUSION

Current approaches to curricular planning in undergraduate medical education assume: 1) the necessity of curricular rationing, and 2) the effectiveness of medical students' passive uptake of certain areas of knowledge. However, in reality, these assumptions serve to overlook large, underserved, and often vulnerable patient populations. Using geriatrics and geriatric core competencies as a case study, our research suggests that, while opportunities exist to learn about these patients in a general clinical teaching rotation, teaching discussions may not take up these opportunities to attend to subspecialty core competencies. Although our profession faces the very real need to learn in "lean" times, we must critically scrutinize the assumptions underpinning curriculum-by-random-opportunity, to ensure that future physicians are experiencing a curriculum that will support the development of the knowledge and skills to care for the vulnerable populations they will encounter in practice.

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CONFLICT OF INTEREST DISCLOSURES

The authors declare that no conflicts of interest exist.

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APPENDIX

Appendix A. Geriatric Core Competencies for Medical Students as outlined by the Canadian Geriatric Society

A. Cognitive Impairment

1. Perform a cognitive assessment and obtain collateral history relevant to cognitive and/or functional decline.
2. Define, and distinguish between the clinical presentations of delirium, dementia and depression.
3. Diagnose delirium, formulate a differential diagnosis for potential causes, and develop initial plans for evaluation and management.
4. Diagnose dementia, formulate a differential diagnosis for potential causes, and develop initial plans for evaluation and management.

B. Functional Assessment (self-care capacity)

5. Evaluate baseline (pre-morbid) and current functional abilities (both basic and instrumental activities of daily living) using reliable sources of information.
6. Develop initial plans for the assessment and management of patients with functional deficits, including the use of adaptive interventions, in collaboration with interdisciplinary team members.

C. Falls, Balance, and Gait Disorders

7. Construct a differential diagnosis (including risk factors) and initial plans for the evaluation and management of falls.
8. Perform a preliminary gait and balance assessment using accepted standardized assessment tools.

D. Medication Management

9. Obtain a detailed medication history that includes a list of all medications being taken, dosages, frequencies, indications, evidence of benefit, side effects and an assessment of adherence.
10. Outline the pharmacokinetic changes that commonly occur with aging and demonstrate the ability to modify drug regimens to account for age related decreases in renal function.
11. Identify medications that are most likely to cause adverse events in an older individual.

E. Biology of Aging and Atypical Presentation of Disease

12. Describe the usual anatomical and physiological changes seen with aging.
13. Demonstrate the ability to recognize and evaluate atypical presentations of common medical conditions (e.g., acute coronary syndrome, infections, acute abdomen, depression) that can be encountered in an older individual.

F. Adverse Events

14. Identify and participate in efforts to reduce the potential hazards of hospital/institutional care (e.g., delirium, falls, immobility, pressure ulcers, incontinence, indwelling catheters, medication-related adverse events, malnutrition).
15. Describe the indications, risks, alternatives, and contraindications of physical and chemical restraints.

G. Urinary Incontinence

16. List the causes and outline initial plans for evaluation and management of transient (acute) and established (chronic) urinary incontinence.

H. Transitions of Care

17. Communicate the key components of an appropriate transfer or discharge plan (e.g., accurate medication list, need for support services, plans for follow-up).
18. Identify and describe the signs and causes of caregiver stress.
19. Describe the spectrum of community-based care resources and institutional care options available for seniors within their province of training.

I. Health-care Planning

20. Define and describe (including the roles of physicians and substitute decision-makers) advance planning directives dealing with personal and financial decision-making, as permitted by legislation in their province of training.