

# The Case for Medical History in Physicians' Education: A Survey of What Physicians and Physicians-in-Training Think



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Although medical historians have long promoted medical history as an important component of physicians' knowledge, reasoning, and clinical practice,<sup>1</sup> they have made no effort to determine what physicians or physicians-in-training themselves think of or know of medical history. We conducted the present survey to fill this informational void.

## MATERIALS AND METHODS

### Study Population

Our study population consisted of 156 incoming first-year medical students (MS1), 127 graduating fourth-year students (MS4), and 29 alumni of the University of Maryland School of Medicine. Each participant completed and submitted anonymously a paper-based survey instrument.

### Survey Instrument

The survey instrument consisted of 5 parts. Part 1 examined subjects' attitudes regarding the value of medical history in physicians' education. One question asked respondents if they believed knowledge of the history of medicine could make them better physicians; another series of questions asked them to endorse which of several possible items of clinical practice (eg, medical ethics, taking a patient history) they believed might be enhanced by knowledge of medical history. Part 2 concerned the era/year of key historical events; part 3 the country/region in which important events took place; part 4, authors of

critical publications; and part 5, how particular works/discoverers influenced the evolution of medical knowledge. Each of these sections followed a "match column A with column B" format.

### Statistical Analysis

Survey responses were entered into Excel 2016 (Microsoft Corporation, Redmond, Wash.) and checked for accuracy. In Part 1, we determined the frequency with which each item was endorsed by respondents. For parts 2 through 5, we determined the frequency of correct responses for each item for all respondents overall, as well as stratified by respondent type (eg, educational group, gender, specialty). Differences in the frequency of correct responses between the various strata were assessed using chi-squared and Fisher exact tests using SAS (version 9.3; SAS Institute, Cary, NC).

## RESULTS

The demographic characteristics of the respondents are shown in **Table 1**, their attitudes regarding the value of medical history in physician education in **Table 2**. Almost all of the respondents (99.4% of MS1, 95% of MS4, and 96.6% of alumni) answered "yes" to the question: "Do you believe knowledge of the history of medicine can make you a better doctor?"

Of the ways in which medical historians claim that knowledge of medical history benefits physicians, most subjects endorsed proposals that such knowledge helps reveal the limitations of current evidence (75.7%; 156 of 206 total responses), encourages openness to change (79.1%, n = 163), places clinical practice in proper context (72.8%, n = 150), and promotes humanism (74.8%, n = 154). Few were inclined to accept the contention of medical historians<sup>1</sup> that knowledge

**Funding:** None.

**Conflict of Interest:** None.

**Authorship:** All authors had access to the data and a role in writing the manuscript.

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**Table 1** Demographic Characteristics of Survey Respondents (N = 312)\*

Characteristic	Educational Group†		
	MS1 % (n/Total Responses)	MS4 % (n/Total Responses)	Alumni % (n/Total Responses)
Number of respondents	156	127	29
Average age, years (SD)	23.1 (1.9)	26.9 (2.1)	66.6 (14.3)
Male	41.6 (64/154)	46.0 (58/126)	71.4 (20/28)
Non-US-born	20.0 (31/155)	12.8 (16/125)	6.9 (2/29)
Science undergraduate major	89.1 (139/156)	88.2 (112/127)	100 (29/29)
Most frequent specialties	Undecided (50.3%; 78/155)	Medical, 28% (35/125) Other, 32% (40/125)	Medical, 24.1% (7/29) Surgical, 24.1% (7/29)

MS1 = first-year medical student; MS4 = fourth-year medical student; SD = standard deviation.

\*Note: denominators of demographic characteristics differ from overall number of survey respondents as not every participant answered all demographic questions.

†Participants represent graduates of 108 different undergraduate institutions, 69 private and 39 public.

of medical history improves history taking (37.9%, n = 78) or discourages excessive commercialism (32.5%, n = 67).

Respondents' performance on selected items contained in the 4-part questionnaire is summarized in **Table 3**. Overall, their performance was modest, though better on questions concerned with recent history than ones dealing with people, events, and publications prior to the 20<sup>th</sup> century. Alumni performed better than either first- or fourth-year students, whose performances were nearly equivalent. There was no significant difference between men and women, respondents with undergraduate science

degrees vs those with liberal arts degrees (including ones in history), or those in, or intending to go into, one specialty or another in terms of their performance on the questionnaires. Respondents in internal medicine or intending to become internists were more likely than other specialists to correctly identify Laennec as the inventor of the stethoscope (21.0% [13 of 62 of the former giving correct responses] vs 10.9% [5 of 46 of the latter specialists]). Surgeons and would-be surgeons, however, were no more likely than nonsurgeons to identify Lister as the father of antiseptic surgery (28.3% [13 of 46 surgeons] vs 29.3% [78 of 266 other specialists]).

**Table 2** Attitudes Regarding the Value of Knowledge of Medical History in Physician Education\*

Survey Item	Educational Group		
	MS1 n = 156 % Endorsing (n)	MS4 n = 21† % Endorsing (n)	Alumni n = 29 % Endorsing (n)
Can make you a better doctor	99.4 (155)	95.2 (20)	96.6 (28)
Helps identify what/how to investigate	75.0 (117)	42.9 (9)	65.5 (19)
Effective antidote to professional hubris	51.3 (80)	61.9 (13)	34.5 (10)
Compliments bioethics	75.0 (117)	57.1 (12)	55.2 (16)
Improves history taking	40.4 (63)	9.5 (2)	44.8 (13)
Reveals the limitation of current evidence	78.9 (123)	61.9 (13)	72.4 (21)
Promotes professional virtues/values	66.7 (104)	61.9 (13)	65.5 (19)
Enhances judgment	64.1 (100)	23.8 (5)	51.7 (15)
Encourages openness to change	84.6 (132)	61.9 (13)	62.1 (18)
Helps put clinical practice in proper context	70.5 (110)	90.5 (19)	72.4 (21)
Enhances critical thinking	64.7 (101)	66.7 (14)	48.3 (14)
Promotes humanism	76.3 (119)	66.7 (14)	72.4 (21)
Contributes to professional identity	60.3 (94)	57.1 (12)	79.3 (23)
Encourages civic responsibility	66.7 (104)	42.9 (9)	48.3 (14)
Discourages excessive commercialism	36.5 (57)	19.0 (4)	20.7 (6)

MS1 = first-year medical student; MS4 = fourth-year medical student.

\*Percentage (number) of subjects endorsing each item as a potential benefit of knowledge of medical history. The possible benefits of medical history included in the list are ones that have been proposed by medical historians in promoting the discipline (see references<sup>1-6</sup>).

†Only 21 of 127 MS4 respondents completed part 1 of the survey due to inadvertent exclusion of part 1 from the survey packet.

**Table 3** Respondents' Performance in Correctly Answering Questions Presented in Parts 2-5 of the Survey (N = 312)

Survey Item	% of Respondents Selecting Correct Response by Educational Group		
	MS1 n = 156 % (n)	MS4 n = 127 % (n)	Alumni n = 29 % (n)
Average respondent score*			
Overall performance (41 questions)	29.3 (12/41)	29.3 (12/41)	36.5 (15/41)
20 <sup>th</sup> /21 <sup>st</sup> -century history (9 questions)	50.0 (4.5/9)	55.6 (5/9)	67.8 (6.1/9)
Pre-20 <sup>th</sup> -century history (32 questions)	23.4 (7.5/32)	21.9 (7/32)	29.4 (9.4/32)
Example items:			
Human genome (year deciphered)	90.4 (141)	85.0 (108)	93.1 (27)
Human genome (country deciphering)	79.5 (124)	75.6 (96)	89.7 (26)
Human genome (person credited)	32.1 (50)	39.4 (50)	31.0 (9)
Hippocrates (lifetime)	35.3 (55)	29.9 (38)	44.8 (13)
Hippocratic corpus (author)	9.6 (15)	8.7 (11)	0.0 (0)
First polio vaccine (year)	80.1 (125)	74.0 (94)	100 (29)
First polio vaccine (person credited)	46.2 (72)	75.6 (96)	75.9 (22)
Doctors without borders (country)	44.9 (70)	42.5 (54)	34.5 (10)
Discovery of penicillin (country)	35.3 (55)	39.4 (50)	58.6 (17)
Discovery of penicillin (person)	38.5 (60)	52.8 (67)	62.1 (18)
Father of modern anatomy	20.5 (32)	21.3 (27)	27.6 (8)
Inventor of the stethoscope	9.6 (15)	12.6 (16)	41.4 (12)
Father of antiseptic surgery	19.9 (31)	36.2 (46)	48.3 (14)

MS1 = first-year medical student; MS4 = fourth-year medical student.

\*Average score data are presented as: % (number of correct responses/total number of questions for the category).

## DISCUSSION

The near-universal belief among our subjects that knowledge of medical history “can make them better doctors” suggests that physicians and would-be physicians place considerable value on medical history as a component of their education. Our subjects envisioned a number of ways in which knowledge of medical history might enhance their professional performance. They appeared to be particularly committed to the belief that such knowledge serves to reveal the limitations of current evidence, encourage openness to change, place clinical practice in proper context, and promote humanism.

Whereas our subjects expressed great enthusiasm for medical history, their knowledge of critical dates, people, and events in the history of medicine was modest. Some might argue that the ability to correctly identify the persons, places, eras, and publications included in our survey had more to say about our subjects' ability to remember isolated facts than about their insight into medical history. More important than retention of isolated facts, it can be argued, is knowledge of the context in which they evolved and the part they played in the evolution of the profession. And yet, it seems to us that in-depth knowledge of a subject begins with isolated facts critical to the subject.

Why these graduating medical students and alumni were not more knowledgeable of their profession's history, given their firm belief that such knowledge could make them better doctors is, perhaps, the key question raised by our

survey. The nearly equivalent performance of incoming first-year students and graduating fourth-year students suggests that much of their knowledge of medical history was acquired prior to entering medical school and expanded little during their years in medical school. Whether this was due to a lack of exposure to medical history during medical school or because learning the science of medicine left little time to reflect on matters related to the art of medicine could not be determined from this survey.

Although affiliated with a single medical school, participants were a diverse group to the extent that they had received their undergraduate training at 108 different institutions, 69 of which were private and 39 public, and included a nearly equal number of men and women. In addition, there were representatives of all of the medical specialties, as well as both US-born and foreign-born respondents. It is possible that their views or knowledge are not representative of those of the trainees and graduates of other US medical schools. We could not be certain, for example, that our subjects had not been biased in favor of medical history by having had the survey instrument distributed by a medical historian (PAM). Aside from this unlikely possibility, we can think of no reason why their views would not be representative of those of US physicians and physicians-in-training, given the demographic diversity and number of undergraduate institutions represented by our study population. Nevertheless, similar surveys of other medical schools are needed for

comparison, including ones conducted at institutions with formal history of medicine educational opportunities, to determine how closely our findings reflect the views and knowledge of American physicians and physicians-in-training in general.

If, as we suspect, our findings do apply broadly to US physicians and physicians-in-training, they suggest that American medical schools might be giving less attention to the history of medicine within the curriculum or as a subject of life-long learning than the subject deserves. Finding additional time in a curriculum struggling to keep up with a field expanding as rapidly as medicine would be difficult. However, the dividends derived from increased attention to the profession's history might also be substantial. For as Thomas Fuller observed over 3 and a half centuries ago: "Yea, [history] not only maketh things past, present; but enableth one to make a rational conjecture of things to come. For the world affordeth no new accidents ... Old actions return again, furnished over with some new and different circumstance."<sup>6</sup>

## ACKNOWLEDGMENT

The authors wish to thank Mr. Larry Pitrof for assisting in the distribution and collection of survey documents.

Ethical approval: Institutional approval for the survey was provided by the University of Maryland School of Medicine Institutional Review Board.

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