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# The old humanities and the new science at 100: Osler's enduring message

*"Twin berries on one stem, grievous damage has been done to both in regarding the Humanities and Science in any other light than complementary."*

—Sir William Osler<sup>1</sup>

**T**HE YEAR 2019 marks the 100th anniversary of Sir William Osler's last public speech. Still reeling from the death of his only son in World War I, he had been asked to give the presidential inaugural address of the Classical Association at Oxford. It was the first time a physician had received the honor, and Osler took the assignment very seriously. He chose to speak about "The old humanities and the new science," and to call for a reunification of the two fields. "Humanists have not enough Science" he warned, "and Science sadly lacks the Humanities...this unhappy divorce...should never have taken place."<sup>1</sup> Later, he said that it was the speech to which he had given the greatest thought and preparation. It was in fact Osler's personal legacy: 2 months later he turned 70, and 7 months later he was dead.

Revisiting the address today, what can Osler teach the high-tech physician of today, when doctors have become "providers" and patients "consumers"? Is Osler's message still relevant to our craft, or has he simply become an icon of professional nostalgia with little value for our times?

## ■ THE NEED FOR THE HUMANITIES IN MEDICINE

Medicine has certainly grown both powerful and successful. Yet it is also confronting hurdles that would have been unimaginable in Os-

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ler's time. Physicians are now the professionals with the highest suicide rate,<sup>2</sup> a burnout rate as high as 70%,<sup>3,4</sup> rampant depression,<sup>5</sup> dwindling empathy,<sup>6</sup> a predominantly negative perception by the public,<sup>7,8</sup> and a disturbing propensity to quit.<sup>9</sup> These, of course, may just be symptoms of an increasingly meaningless environment wherein doctors have become small cogs in a medical-industrial complex they can't control or even understand. Still, is it possible that something more personal may have been lost in the way we now select and educate physicians? Could this, in turn, make us less resilient?

In this regard, Osler's last public speech serves as an enduring reminder of the need for the humanities in medicine. Osler not only believed it, but throughout his life never missed a chance to express in words, writings, and deeds that the humanities are indeed "the hormones" of the profession. In 1919 he warned against the risk of separating our humanistic tradition from the sciences, and urged us "to infect [anyone] with the spirit of the Humanities," since to him that was "the greatest single gift in education."<sup>1</sup>

Unfortunately, the humanities are slippery, not easily quantifiable, hard to define, and seemingly incompatible with an evidence-based approach. Quite understandably, today's data-obsessed medicine views them with suspicion. But besides reminding us that in medicine not all that counts can be counted, and not all that can be counted counts, the humanities are in fact a fundamental component of the physician's skill set.

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In a multicenter survey of 5 medical schools,<sup>10</sup> there was indeed a correlation between students' exposure to the humanities and many of the personal qualities whose absence we lament in today's medicine: empathy, tolerance for ambiguity, emotional intelligence, and prevention of burnout. Most significant was a strong correlation with wisdom, as measured by the 21-item Brief Wisdom Screening Scale.<sup>11</sup> That all these traits may correlate with humanities exposure is intuitive, since the humanities not only teach tolerance and compassion, but also capture the collective experience of those who came before us. Hence, they teach us wisdom. Wisdom is not an ACGME competency, but it's undoubtedly a prerequisite for the art of healing.<sup>12</sup> In fact, wisdom may very well be the fundamental trait that characterizes a well-rounded physician, since it encompasses empathy, resilience, comfort with ambiguity, and the capacity to learn from the past. Not surprisingly, wisdom in the world was Osler's closing wish in 1919.

The humanities can also nurture the very personal qualities we desire in physicians. For example, observing drama fosters empathy,<sup>13</sup> as does taking an elective in medical humanities.<sup>14</sup> Drawing enhances the reading of faces,<sup>15</sup> and observing art improves the art of clinical observation.<sup>16</sup> Reading good literature prompts better detection of emotions,<sup>17</sup> and reflective writing improves students' well-being.<sup>18</sup> Playing a musical instrument reduces burnout.<sup>19</sup> And an undergraduate major in the humanities correlates with greater tolerance for ambiguity,<sup>20</sup> a highly desirable trait in physicians, since it means openness to new ideas and the capacity to better cope with difficult situations.<sup>21</sup>

In fact, some of the qualities fostered by the humanities even translate into better patient care. For instance, tolerance for ambiguity correlates with more positive attitudes towards patients who have frustrating complaints,<sup>22</sup> with lower use of resources,<sup>23</sup> and with a career choice in direct patient care.<sup>24</sup> Hence, it has been suggested that it should be a prerequisite for medical school admission.<sup>25</sup> Physicians' empathy is also beneficial, since it correlates with a lower rate of complications and better outcomes in the care of diabetic

patients.<sup>26</sup> This should not come as a surprise. As Hippocrates put it 2,500 years ago, "some patients, though conscious that their condition is perilous, recover their health simply through their contentment with the goodness of the physician."<sup>27</sup>

Lastly, studying the humanities may provide crucial antibodies against the pain and suffering that are unavoidable staples of the human condition. To paraphrase Osler, the humanities might vaccinate us against the difficulties of our profession. Hippocrates himself had suggested that "it is well to superintend the sick to make them well, to care for the healthy to keep them well, but also to care for one's self..."<sup>27</sup> That is why many institutions now require medical students to take humanities courses.<sup>28</sup>

## ■ MEDICINE: AN ART BASED ON SCIENCE

Yet this effort may amount to a rearguard action that arrives too late and provides too little. The humanities should probably be taught before medical school.<sup>29</sup> After all, if it's possible to make a scientist out of a humanist (Osler was living proof), the experience of the past decades seems to suggest that it's considerably harder to make a humanist out of a scientist—hence the need to revisit undergraduate curricula and admission criteria to medical school, so that students can receive an adequate foundation in both arenas. Ironically, students express positive attitudes toward a liberal education and think it would actually help them as physicians.<sup>30</sup> Yet they also understand that the selection process remains tilted towards the sciences.<sup>30–32</sup>

For Osler, scientific evidence was important but not a substitute for a humanistic approach. As he reminded students, "The practice of medicine is an art based on science,"<sup>33</sup> whose main goals are to prevent disease, relieve suffering, and heal the sick. To do so, one ought to care more "for the individual patient than for the special features of the disease."<sup>34</sup> But he warned them, "It is much harder to acquire the art than the science."<sup>35</sup> In fact, "The practice of medicine is a calling in which your heart will be exercised equally with your head."<sup>33</sup> Hence the need to "cultivate equally well hearts and heads."<sup>34</sup> Almost

**Wisdom is not an ACGME competency, but a prerequisite for the art of healing**

foreseeing our infatuation with guidelines, he also warned against turning medicine into assembly-line work. There are “two great types of practitioners—the routinist and the rationalist,” he said in 1900, and “into the clutches of the demon routine the majority of us ultimately come.”<sup>36</sup>

Like most great people, Osler was a man of lights, shadows, and contradictions, probably not quite the saint we wish to believe. Yet he provides insights that are as valid today as they were for his own times, and possibly even more so. His 1919 speech is a paean to the humanities, but also a potential eulogy. As a Victorian physician, Osler was a blend of the new science and the old humanities. He knew that “the old art cannot possibly be replaced by, but must be absorbed in, the new science.”<sup>35</sup> Yet he could also see the upcoming split between

the two cultures, and he tried to warn us. He could in fact foresee the end of an entire way of life. As he said in his address, “there must be a very different civilization or there will be no civilization at all.”<sup>31</sup>

The crisis we face in medicine today may indeed be a symptom of a much larger cultural shift. As Osler himself put it, “The philosophies of one age have become the absurdities of the next, and the foolishness of yesterday has become the wisdom of tomorrow.”<sup>33</sup> Like Osler, we live in times of transition that require us to act. If in 1910 Flexner gave us science,<sup>37</sup> Osler in 1919 reminded us that medicine also needs the humanities. We ought to heed his message and reconcile the two fields. The alternative is a future full of tricorders and burned-out technicians, but sorely lacking in healers. ■

## REFERENCES

1. Osler W. The old humanities and the new science: the presidential address delivered before the Classical Association at Oxford, May, 1919. *Br Med J* 1919; 2(3053):1–7. pmid:20769536
2. Agerbo E, Gunnell D, Bonde JP, Mortensen PB, Nordsen M. Suicide and occupation: the impact of socio-economic, demographic and psychiatric differences. *Psychol Med* 2007; 37(8):1131–1140. doi:10.1017/S0033291707000487
3. Shanafelt TD, Hasan O, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc* 2015; 90(12):1600–1613. doi:10.1016/j.mayocp.2015.08.023
4. Dyrbye LN, Thomas MR, Massie FS, et al. Burnout and suicidal ideation among US medical students. *Ann Intern Med* 2008; 149(5):334–341. pmid:18765703
5. Mata DA, Ramos MA, Bansal N, et al. Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *JAMA* 2015; 314(22):2373–2383. doi:10.1001/jama.2015.15845
6. Hojat M, Mangione S, Nasca TJ, et al. An empirical study of decline in empathy in medical school. *Med Educ* 2004; 38(9):934–941. doi:10.1111/j.1365-2929.2004.01911.x
7. Flores G. Mad scientists, compassionate healers, and greedy egotists: the portrayal of physicians in the movies. *J Natl Med Assoc* 2002; 94(7):635–658. pmid:12126293
8. Imber JB. *Trusting Doctors: The Decline of Moral Authority in American Medicine*. Princeton, NJ: Princeton University Press; 2008.
9. Krauthammer, C. Why doctors quit. *The Washington Post*. May 28, 2015. [https://www.washingtonpost.com/opinions/why-doctors-quit/2015/05/28/1e9d8e6e-056f-11e5-a428-c984eb077d4e\\_story.html?utm\\_term=.aa8804a518db](https://www.washingtonpost.com/opinions/why-doctors-quit/2015/05/28/1e9d8e6e-056f-11e5-a428-c984eb077d4e_story.html?utm_term=.aa8804a518db). Accessed March 4, 2019.
10. Mangione S, Chakraborti C, Staltari G, et al. Medical students' exposure to the humanities correlates with positive personal qualities and reduced burnout: a multi-institutional US survey. *J Gen Intern Med* 2018; 33(5):628–634. doi:10.1007/s11606-017-4275-8
11. Glück J, König S, Naschenweng K, et al. How to measure wisdom: content, reliability, and validity of five measures. *Front Psychol* 2013; 4:405. doi:10.3389/fpsyg.2013.00405
12. Papagiannis A. *Eliot's triad: information, knowledge and wisdom in medicine*. Hektoen International. Spring 2014. <https://hekint.org/2017/01/29/eliot-triad-information-knowledge-and-wisdom-in-medicine/>. Accessed March 4, 2019.
13. Hojat M, Axelrod D, Spandorfer J, Mangione S. Enhancing and sustaining empathy in medical students. *Med Teach* 2013; 35(12):996–1001. doi:10.3109/0142159X.2013.802300
14. Graham J, Benson LM, Swanson J, Potyk D, Daratha K, Roberts K. Medical humanities coursework is associated with greater measured empathy in medical students. *Am J Med* 2016; 129(12):1334–1337. doi:10.1016/j.amjmed.2016.08.005
15. Brechet C, Baldy R, Picard D. How does Sam feel? Children's labelling and drawing of basic emotions. *Br J Dev Psychol* 2009; 27(Pt 3):587–606. pmid:19994570
16. Naghshineh S, Hafner JP, Miller AR, et al. Formal art observation training improves medical students' visual diagnostic skills. *J Gen Intern Med* 2008; 23(7):991–997. doi:10.1007/s11606-008-0667-0
17. Kidd DC, Castano E. Reading literary fiction improves theory of mind. *Science* 2013; 342(6156):377–380. doi:10.1126/science.1239918
18. Shapiro J, Kasman D, Shafer A. Words and wards: a model of reflective writing and its uses in medical education. *J Med Humanit* 2006; 27(4):231–244. doi:10.1007/s10912-006-9020-y
19. Bittman BB, Snyder C, Bruhn KT, et al. Recreational music-making: an integrative group intervention for reducing burnout and improving mood states in first year associate degree nursing students: insights and economic impact. *Int J Nurs Educ Scholarsh* 2004; 1:Article12. doi:10.2202/1548-923x.1044
20. DeForge BR, Sobal J. Intolerance of ambiguity in students entering medical school. *Soc Sci Med* 1989; 28(8):869–874. pmid:2705020
21. Ghosh AK. Understanding medical uncertainty: a primer

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- for physicians. *J Assoc Physicians India* 2004; 52:739–742. pmid:15839454
22. **Merrill JM, Camacho Z, Laux LF, Thornby JJ, Vallbona C.** How medical school shapes students' orientation to patients' psychological problems. *Acad Med* 1991; 66(9 suppl):S4–S6. pmid:1930523
  23. **Allison JJ, Kiefe CI, Cook EF, Gerrity MS, Orav EJ, Centor R.** The association of physician attitudes about uncertainty and risk taking with resource use in a Medicare HMO. *Med Decis Making* 1998; 18(3):320–329. doi:10.1177/0272989X9801800310
  24. **Gerrity MS, Earp JAL, DeVilles RF, DW Light.** Uncertainty and professional work: perceptions of physicians in clinical practice. *Am J Sociol* 1992; 97(4):1022–1051. <https://www.jstor.org/stable/2781505>. Accessed March 6, 2019.
  25. **Geller G.** Tolerance for ambiguity: an ethics-based criterion for medical student selection. *Acad Med* 2013; 88(5):581–584. doi:10.1097/ACM.0b013e31828a4b8e
  26. **Hojat M, Louis DZ, Markham FW, Wender R, Rabinowitz C, Gonnella JS.** Physicians' empathy and clinical outcomes for diabetic patients. *Acad Med* 2011; 86(3):359–364. doi:10.1097/ACM.0b013e3182086fe1
  27. **Hippocrates.** Precepts. Section 8, Part VI. Perseus Digital Library. <http://perseus.uchicago.edu/perseus-cgi/cite-query3.pl?dbname=GreekFeb2011&getid=1&query=Hipp.%20Praec.%208>. Accessed March 4, 2019.
  28. **Kidd MG, Connor JT.** Striving to do good things: teaching humanities in Canadian medical schools. *J Med Humanit* 2008; 29(1):45–54. doi:10.1007/s10912-007-9049-6
  29. **Thomas L.** Notes of a biology-watcher. How to fix the premedical curriculum. *N Engl J Med* 1978; 298(21):1180–1181. doi:10.1056/NEJM197805252982106
  30. **Simmons A.** Beyond the premedical syndrome: premedical student attitudes toward liberal education and implications for advising. *NACADA Journal* 2005; 25(1):64–73.
  31. **Kumar B, Swee ML and Suneja M.** The premedical curriculum: we can do better for future physicians. *South Med J* 2017; 110(8):538–539. doi:10.14423/SMJ.0000000000000683
  32. **Gunderman RB, Kanter SL.** Perspective: "how to fix the premedical curriculum" revisited. *Acad Med* 2008; 83(12):1158–1161. doi:10.1097/ACM.0b013e31818c6515
  33. **Osler W.** *Aequanimitas with Other Addresses to Medical Students, Nurses and Practitioners of Medicine.* Philadelphia, PA: Blakiston; 1904.
  34. **Osler W.** Address to the students of the Albany Medical College. *Albany Med Ann* 1899; 20:307–309.
  35. **Osler W.** The reserves of life. *St Mary's Hosp Gaz* 1907; 13:95–98.
  36. **Osler W.** An address on the importance of post-graduate study. Delivered at the opening of the Museums of the Medical Graduates College and Polyclinic, July 4th, 1900. *Br Med J* 1900; 2(2063):73–75. pmid:20759107
  37. **Flexner A.** *Medical Education in the United States and Canada.* New York, The Carnegie Foundation 1910.

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Marionette of Dr. William Osler, as created by Roberto Comin, Venice, Italy, for Dr. Salvatore Mangione. Photo by S.M.