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Restoring Oslerian clinical training in place of Flexnerian reductionism in medical education: A historical perspective

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ABSTRACT

This paper addresses the historical transformation of traditional medical education resulting from application of recommendations of Abraham Flexner's seminal report of 1910 with the incorporation of a predominantly reductionist science into the medical curriculum, and assesses the resulting systematic de-emphasis of Sir William Osler's vision of medical students being primarily trained at the bedside of the patient. William Osler was possibly the best combination of a dedicated physician, exemplary teacher and author amalgamated into a versatile and exceptional personality. In comparison, Abraham Flexner's lack of medical training and obsession with the laboratory nurtured by the German proclivity towards research, served to transform traditional medical education by selectively projecting scientific reductionism at the cost of the natural and existing reality of holism of the human as a living and functioning entity both in states of health and disease. This paper reinforces the concept that Oslerian bedside training should once again form the mainstay of medical education rather than the Flexnerian curricular prioritization with reductionist science and that the step would restore the primacy of clinical bedside training to its historical glory, reconfigure medical education and rejuvenate it towards the fundamental ethos of skillful competence, and simultaneously offer the best form of respect that dedicated medical teachers and physicians can pay as homage to the excellence and exceptionalism of Sir William Osler on the hundredth anniversary of his death.

Key words: William Osler–Abraham Flexner–Reductionist medicine–Medical education–Medical curriculum.

"The practice of medicine is an art not a trade a calling not a business a calling in which your heart will be exercised equally with your head." – Sir William Osler

1 INTRODUCTION

The Hippocratic oath by which physicians were required to transmit their art to forthcoming generations without fee or stipulation, has been progressively undermined by overindulgence with reductionist science, technocracy and the corporate business model. This has been the inevitable consequence of following Abraham Flexner's recommendation on transformation of conventional medical education with scientific reductionism thus devaluing William Osler's mission and belief that medicine is best taught at the bedside of the patient and not principally in laboratories. Flexner is credited with introducing reductionist science into medical education partly because he was not a physician himself and partly because his supporters were mostly not clinical academicians either, and there was a serious lapse in the vision and extent of his report that haunts

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medical education to this day by subjugating teaching and learning to research as institutional priorities. By banning the practitioner and relying on salaried researchers to train doctors, Flexner divided the profession and contributed to its decline in the public eye (Burnham, 1982). Many now see physicians as more interested in the displaced belief in reductionist science and technocracy advanced through re-search in medicine than in the primacy of care and welfare of patients, which is one of the principal reasons as to why millions have been opting for alternative care options worldwide. Attributing ill-deserved kudos to research while simultaneously disparaging the importance of clinical medicine taught at the bedside of patients has brought about a decline in interest in producing well-trained physicians and surgeons (generalists) so central to the profession, one that is expected to provide community-based primary medical care, and indoctrination with a belief system that specialization is the key to medical practice and therefore clinical training is best provided during the residency phase. Medical institutions in general and medical curricula in particular that are essentially expected to produce doctors who are 'fit to practice' are in reality graduating doctors who are just 'fit to pass' and thus medical education in the real sense, is seemingly in danger of collapse.

Flexner's recommendations reveal a major reason for the successful implementation of the report, the fact that it was backed with the inducement of massive financial incentives provided by the Carnegie and Rockefeller Foundations, and later other philanthropic beneficiaries of the massive un-taxed wealth accumulated by the industrial oligarchs of America's Gilded Age, then often called "robber barons". Indeed, the way in which the wealth of two of these philanthropists, in particular Carnegie and Rockefeller historically named as the 'steel magnate' and 'oil czar' respectively, was funneled from the first great philanthropic foundations un-der the guidance of a handful of ordinary bourgeois professional advisers in order to decisively reshape cultural and educational institutions has deserved a study of its own (Bonner, 2002). In today's era of comparable unequal distributions of wealth and enfeebled state support for cultural institutions, the capacity for radical interventions in modes of cultural transmission by small and well-financed elites for good or ill, is instructive. (McClelland, 2013).

Both William Osler and Harvey Cushing (his mentee), believed that the focus of such physicians would be too narrow, they would live lives apart with other thoughts and other ways. Osler was apprehensive that a generation of clinical prigs would be created, individuals who were removed from the realities and messy details of their patients' lives and the boundary of whose horizon would be the laboratory, and whose only human interest was research (Osler, 62). Osler believed that the Flexnerians had their priori-ties wrong in projecting the advancement of knowledge as the overriding aspiration of the academic physician, and he projected the welfare of patients and the education of students to that effect as more important priorities, although he reverenced the centrality of scientific knowledge in that regard. Harvey Cushing, voiced the same sentiments while basing his reservations on his background of several generations of practicing physicians. Their voices were hushed by the irresistible seduction of large sums of money tied to implementation of the full-time system. Osler's voice also was near silenced and no longer a force in this matter following his move to Oxford at the time this controversy was taking place. William Welch, the Carnegie and Rockefeller foundations, and Abraham Flexner were successful in the task they had set out to accomplish (Duffy, 2011).

One of Osler's most famous essays, "Aequanimitas", was first delivered to newly graduated doctors in 1889 as a valedictory address at the Pennsylvania School of Medicine. Through this speech Sir William Osler introduced the terms 'imperturbability' and 'equanimity' as essential characteristics of personality which he referred to "calmness amid storm, clearness of judgment in moments of grave peril", and "moderated emotion and tolerance necessary for physicians" respectively. In full development, it has the nature of a divine gift, a blessing to the possessor, a comfort to all who come in contact with him" (Johns Hopkins Medicine).

2 DISCUSSION

"Common sense in matters medical is rare, and is usually in inverse ratio to the degree of education". – Sir William Osler

William Osler, who was a brilliant innovative teacher, a scholar of medicine and natural history of disease, revolutionized the art of learning medicine at the bedside of his patients. He was idolized by medical students and practitioners for whom he personified the ideal doctor. But more than a physician, Osler was a devoted humanist. Flexner on the other hand, held a baccalaureate in Greek and Latin, and had been a school teacher with scant training in science and none whatsoever in medicine. The Carnegie & Rockefeller Foundation for the Advancement of Teaching, entrusted Abraham Flexner, who with his obsessive prior-ity of the laboratory over training through the practice of bedside medicine, visited 155 US and 5 Canadian medical schools in one year, followed no fixed method of procedure and never used a questionnaire. Flexner's report written in commission for the Carnegie Foundation for the Advancement of Teaching in Washington, DC, also had a major influence on complementary and alternative medicine (CAM), that seriously resulted in closure of so many CAM-oriented hospitals, colleges, and medical teaching programs following the publication of the Flexner Report in 1910 (Beck, 2004).

From the beginning, Flexner, was closely associated with Johns Hopkins University and its dean, Dr. William Welch, a pathologist. Welch and several of his colleagues, most of whom were basic scientists, had visited Germany, whose scientific superiority at the time was widely acknowledged. They were impressed by the German notion, bluntly put by Rudolf Virchow, the father of pathology that "medical practice is nothing but a minor offshoot of pathological physiology as developed in laboratories of animal experimentation" (Altschule, 1989). Incorporation of reductionist science into universities dates back historically to the founder

of the modern research university, Wilhelm von Humboldt of the University of Berlin in the 19th century (McNeely, 2002). Hermann von Helmholtz a Physicist and Physiologist in 1847 sought to purge biology of vitalism with his studies on how material exchange takes place in the body. He completed a materialistic and mechanical program to study organic phenomena by leading the German reductionist revolt in the 1840s that aspired to reduce organic phenomena to the reductionist principles of chemistry and physics (Galaty, 1974). In other words, medicine could be studied only as a laboratory science. Flexner, with his deep influence of these scientists and with his own biased observations, reached the same conclusion and published his seminal report to revamp medical education.

This science-based form of academic education had a lasting effect on Flexner's views about the status of mod-ern medicine, who incessantly promoted this new scientific paradigm of medical education and research. To him, illegitimate "nonscientific" approaches in the medical marketplace (psychologists, naturopaths, homoeopaths, chiropractors, and osteopaths) were actively competing with the scientific paradigm of research and education represented at major American and Canadian universities at the time (Bonner, 2002). Flexner developed a great reservation against the reliability and value of other "nonconformist" approaches in medicine and psychiatry which he pejoratively attacked as "charlatanism" and "quackery," wanting to weed them out from the modern canon of North American medicine (Stahnisch, 2012). Flexner became adamant in his strive and polemics against all training facilities that offered education and postgraduate work in the above-mentioned fields and advocated for the closing of nearly eighty percent of all the contemporary programs in homeopathy, naturopathy, eclectic therapy, physical therapy, osteopathy, and chiropractic. He had listed these programs in his report under the pejorative titles of the "medical sects" and stated that he openly aimed to "antagonize" them through the publication of his report which the Canadian medical historian Don G. Bates has so critically analyzed thus, "Recently, and for slightly different reasons, this unusual modern, scientific form of medicine (as it had developed during the 19th century) has also given rise to another term: biomedicine. The bio, of course, is meant to point to its strong biological and therefore material and scientific orientation, but the term is frequently used in a critical, even mildly pejorative sense, in order to emphasize the ways in which this caricature fails to make adequate provision for the social and cultural complexities that form part of any medical practice" (Bates, 2000). Flexner was criticized for his superficial survey, cavalier attitude, and narrow basis of what constituted appropriate standards (Rothstein, 1987). The reductionism made William Osler to essentially reject the Flexner report (Maulitz, 1979) warning against the appointment of faculty based on research accomplishments as opposed to interests in students and patients, both because of the danger of diverting students to the laboratory and the purported inadequacy of scientists as clinical teachers (Osler, 1962). In Osler's view, researchers should be in re-search institutions and not corrupt the clinical interaction that is fundamental to medical education. Flexner's ideological position was argued at the highest levels of medical academic politics. William Welch's position was rigorously opposed by Osler, who idealized the opposite pole of medicine's foundation. He was not opposed to scientific objectivity applied to medicine, but rigorously resisted a scientific ethos imposing itself between physician and patient.

Francis Peabody, Chairman of the Harvard Medical Service at the Boston City Hospital, warned in 1922 that "the laboratory never can become and never should become the predominating factor in the practice of medicine" (Peabody, 1922), and that the most common criticism made by practicing doctors was that students were taught a great deal about mechanisms of disease (more scientific) but very little about the practice of medicine, and that this indictment was a serious one concurred in by numerous recent graduates. Disease in man is never exactly the same as disease in an experimental animal, for in man the disease at once affects and is affected by what we call the emotional life. Thus, the physician who attempts to take care of a patient while he neglects this factor is as unscientific as the investigator who neglects to control all the conditions that may affect his experiment. The good physician knows his patients through and through, and his knowledge is bought dearly. Time, sympathy and understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine. One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient. (Peabody, 1927). He was dismayed at the prospect that the medical schools and teaching hospitals are producing 'laboratory men' instead of clinicians. The art of medicine is being crowded out by the scientific approach to practice. We must not sacrifice the art on the altar of research, chemistry and the ultramicroscope. He later wrote a short guide to the doctor-patient relationship, which revealed the significant weakness of the Flexner re-port. (Peabody, 1962). But as reality stands, everything is finally won through the power of money, and it was the lure of money offered by Carnegie and Rockefeller foundations that primarily and finally made the emphasis on the laboratory, heavy reliance on the objective and quantifiable data, the overwhelming concern with disease as a malfunctioned component oriented the Flexner-influenced schools shift increasingly towards reductionism and technocracy. The General Professional Education of the Physician (GPEP) report alerts us to the general setback in response to the concern that physicians of today are not responding to the total well-being and needs of patients and their families as well and states in its report of 1985 the following, "The panel assessed the current approaches to the education of physicians and concluded that, with new technical advances and the changing face of medicine, our present system of general professional education will be outdated and inadequate without new approaches to learning and teaching. In addition, mounting pressures have been exerted on most faculty to produce research, to generate increasing patient revenues through practice plans, and to actively participate in residency training, with less emphasis on student education.

Therefore, the medical student has the responsibility to in-dependently learn the majority of medical information, since faculty and residents are available to teach for only a limited amount of time (GPEP report, 1985). The GPEP's 1984 re-port is explicitly concerned with the integrity and personal concerns of the patient in the face of expanding technology, increasing specialization, the restructuring of health service organizations along corporate lines, and an 'accelerating' erosion of general education for physicians. This is a serious cause for concern. If the notion had prevailed that a qualified physician could be prepared only by the process of rigorous self-denial, with a specified and rigid regimen of study and interests, we might have swamped our medical schools, and ultimately society, with automatons. How-ever, we have been taught that certain humanistic values and skills are essential in our development as physicians. Possibly, a physician who takes the time to look and even see beyond his stethoscope might discover basic maladies affecting his patient's world also in need of attention (Tauber, 1992).

3 CONCLUSION

Abraham Flexner's infatuation with the hyper-rational world of German medicine created a status of excellence in science that denigrated all other established methods of cure, was not balanced by a comparable excellence in clinical caring. Flexner's corpus was all nerves without the life blood of caring. Osler's warning that the ideals of medicine would change as "teacher and student chased each other down the fascinating road of research, forgetful of those wider interests to which a hospital must minister" has proven prescient and wise (Chesney, 1963).

It is time to review the established flaws of the Flexner's report particularly in relation to undergraduate medical education which due to his report backed by the financial edifices of the Rockefeller and Carnegie foundations to con-vert medical service into a business industry, has reduced the status of undergraduate medical education to a certifiable scientific course without the ethical and moral dimension and is severely restrictive in the degree of patient encounter and practical skills that are required of a general practitioner and as a result, the real clinical training now lies outsourced to the Residency programs. The time has come to seriously reconsider the inappropriateness of the Flexnerian culture of scientific reductionism in undergraduate medical education by returning clinical medicine and its practitioners to their proper place at the leading edge of our profession through prioritized clinical training. This can be accomplished by clinical faculty becoming autonomous self-governing groups within schools, dedicated and devoted to promoting good clinical medicine. This would most graciously advance our view of medical education towards honoring Osler's mission by valuing bedside clinical teaching over the existing predominance of laboratory-based reductionist approach and offer hospital-based clinical training that prepares students to be 'fit to practice' as opposed to 'fit to pass'. By appointment of dedicated clinical faculty, medical schools will be better able to train physicians that society desperately requires while their colleagues who con-sider the laboratory as superior to bedside teaching, focus on research preferably in appropriate institutions.

In the words of Sir William Osler in his famous essay Aequanimitas, "I cannot imagine anything more subversive to the highest ideal of a clinical school than to hand over young men who are to be our best practitioners to a group of teachers who are ex-officio out of touch with the conditions under which these young men will live…..The clinical
teachers belong to the fighting line of the profession, whose ambitions and activities they should share and direct. To seclude the ablest men in their respective departments from this contact would not be possible in the United States, where the profession lives so much in the open; and the attempt would, I believe, defeat itself" (Osler, 1962).

In spite of best intentions, we now risk imposing a new restrictive conformity through application of Abraham Flexner's educational direction and methodology. The cur-rent reductionist view of the modern physician, substantiates the limitations of the Flexner report's absolute and rigid approach to education and training of committed practitioners, whose priority should be the care of the sick and not to be in awe of technocracy that has literally replaced the logical approach of history taking and physical examination at the bedside and replaced it with a heavily loaded two-to-three years of laboratory-based basic science training. The crux of the issue is to maintain a degree of latitude and flexibility in establishing the criteria of the ideal medical practitioner. Standards of excellence must be sought after and maintained wherein we need to be vigilant so as to preserve the highest standards in medicine's intrinsic diversity, and abstain from any insincerity in explicitly defining our educational outcomes. There is a discernible difference between the defining standards and fostering originality. The Flexner report has already taught us the dangers of establishing a biased, restrictive and damaging standard. While the GPEP report appropriately broadens and ad-dresses that concern, we must simultaneously be wary of political correctness in different guises and guard against a potentially restrictive new order, for it is likely that in the years to come, our professional progeny will condemn us for the same myopic mistakes Flexner and Welch committed in their well-meaning though ill-executed curricular direction and zeal.

A quotation from the presidential address given before The Medical Society of Virginia in October, 1927 by Dr. J. Shelton Horsley states that the importance of the clinical dimension and ethical standards of doctors is still appropriate. "Times are changing. The intensely personal relationship which existed between doctors and their patients is waning. Many of the older conditions and customs are passing, and new things are appearing. Whether or not we approve, we cannot ignore this situation. We must meet it as best we can. It is expected of us that we shall not fail in this trust, that we shall hold untarnished above the changes the real purpose of the medical profession, that is, the conquest

of suffering and disease and the saving and prolongation of human life. So long as this ideal is in the forefront and so long as doctors keep other things secondary and subsidiary, no real harm can come to the medical profession" (Horsley, 1961).

The focus of modern medical education with an almost total reductionist approach should be modified to incorporate a more holistic and humanistic approach to patient care with a priority to introduce lifestyle issues and the role of diet in the control of major chronic illnesses among others. Serious mistakes that audits of medical intervention have revealed is worrying and the Institute of Medicine audit has shown medical interventions in bad light (Starfield, 2000). While the human body is a non-linear entity, we continue to use the linear model of deterministic predictability and scientific reductionism to foster scientific advancement thus making it questionable (Lenzer, 2006). There is a fine line between the maintenance of standards and the freedom of fostering originality and diversity. The Flexner report has already taught us the dangers of establishing a confining and damaging standard. We are of the opinion that medical education needs to reflect on the intrinsic fallibility of a predominantly reductionist science circumventing the pre-eminence of bedside clinical teaching as the fundamental and pivotal platform for training undergraduates. Our next area of focus will be the effort to create a novel curriculum, one that incorporates various aspect of the human ethos by incorporating different principles that are required for doctors to be caring and concerned at all aspects of health and disease, and be able to deal with patients holistically, while mainly through the platform of hospital-based bed-side teaching that should form the foundation of a strong undergraduate training.

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