

Medical Education and the Culture of Medicine: A Study of Medical School Curricula in France, the United States, and Algeria

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“Sickness is not just an isolated event, nor an unfortunate brush with nature. It is a form of communication – the language of organs – through which nature, society, and culture speak simultaneously.”

~ Nancy Scheper-Hughes and Margaret M. Lock

The most recent debates over healthcare in the United States tend to focus solely on the methods by which Americans pay for healthcare. Policymakers, analysts, and pundits have chosen to look at issues of funding even when comparing healthcare in the United States to healthcare in other countries. Alternatively, this paper starts from the assumption that differences in healthcare reflect variations in culture, and that a distinct culture of medicine exists within a country. The culture of medicine to which this paper will frequently refer is formed and affected by history, belief systems, differences in views of health and the human body, and divergent ideas of what medicine is and what its ultimate goal should be. One example of this phenomenon is evident in a survey taken in South Africa in which condom use between married men and women was minimal due to the idea that “doing so would imply a lack of trust.”¹ However, these are often the relationships that are most at risk: according to the survey, 18% of men and 7% of women reported to having two or more partners in the last three years, which greatly increases the risk of contracting HIV. This data indicates that “a pressing public health priority is to legitimate condom use within [marital and cohabiting] relationships.”² It is apparent that cultural values have the power to dictate preventive measures of healthcare such as condom use.

It is possible that diverse healthcare cultures influence the various methods used to organize and provide healthcare for people within a particular country. Culture may also be a large contributing factor to health outcomes within a society. Conversely, different cultures of medicine may hold very little sway over shaping healthcare systems. This paper will examine variations in medical school curricula as well as applicant standards and requirements as a possible method of identifying a particular culture of medicine. The primary research question is

¹ Edward C. Green, “The Pope May Be Right,” *The Washington Post*, March 29, 2009, <http://www.washingtonpost.com/wp-dyn/content/article/2009/03/27/AR2009032702825.html>.

² J Cleland and P Maharaj, “Condom use within marital and cohabiting partnerships in KwaZulu-Natal, South Africa,” *Studies in Family Planning* 35, no.2 (2004):116-124, <http://www.guttmacher.org/pubs/journals/3015004b.html>.

whether or not there is a relationship between a country's medical culture and the means by which physicians are trained within that country. This paper seeks to uncover the nature of that relationship and what variables, if any, define it. It will also explore the relationship between the culture of medicine of a country and its delivery of health systems.

In comparing the differences in medical education standards around the world, the idea of medicine as culture, in which medicine acts as a signifier of cultural standards will be explored. The analysis of medical education standards in different countries will be examined against a backdrop of political, economic, and sociological factors that have affected the path of medicine and healthcare in each country, as well as the implications for the future of healthcare and the role of the physician. One important dimension to this analysis will be an evaluation of the degree of preventive versus curative healthcare demonstrated in different countries, and the extent to which medical culture has influenced the development of different forms of healthcare. For example, some countries such as the United States regard preventive healthcare as a major priority, but have not been as effective in implementing it due to the enormous pressures of the commercial and industrial sectors that have the monetary power to perpetuate adverse effects on health outcomes. Examples of this will be discussed in greater detail in support of the analysis of medicine as culture.

Some of the most important issues being debated in the international medical education arena are the merits of different methods of teaching, the duration of education, and the emphasis upon cultural and community-centered learning. This paper will look at medical school admissions standards and curricula from three countries; the United States, France, and Algeria. Similarities and differences between medical school admissions standards and student curricula, length of time spent in residencies or internships, and emphasis placed on community-based

learning and problem-solving as opposed to more classical methods are a sample of variables that will be analyzed. Other issues that are relevant to this analysis are the questions raised by government's role in medicine: what, if any, are the benefits of socialized medicine? How will attitudes toward healthcare reform in the United States impact the future of medical education and number of physicians in the country? Why are so many countries facing a shortage of licensed primary care physicians? What is the future of modern medicine, and what role, if any, does culture play on the path that medicine will take? Are the methods by which students are taught a reflection of the culture of that nation, or are they increasingly becoming a product of international pressures and the homogenization of medicine? By looking at the development of medicine and medical education in the United States, France, and Algeria, and comparing medical school requirements and curricula, this paper will address whether culture does indeed play a role in the formation of the physicians of tomorrow, and what its influence is on the dynamic role of healthcare and medicine in modern societies.

Medicine's Roots in Culture

Early medicine in what is now considered the Western world had its origins in the belief that a sickness was indicative of an imbalance or corruption of the four basic humors: blood, phlegm, black bile, and yellow bile.³ Many of the early African medical traditions emerged as adaptations of ancient hunting and gathering processes that were unique to a tribe or community.⁴ In contrast to the Europeans who colonized Africa between the seventeenth and early twentieth centuries, African belief systems tend to be more holistic, in which the spiritual realm and the material world have little separation in social life and consciousness. According to

³ John Duffy, *From Humors to Science*, (Chicago: University of Illinois Press, 1993), 7.

⁴ Susan Rasmussen, *Health Knowledge and Belief Systems in Africa*, ed. Toyin Falola and Matthew M. Heaton (Durham: Carolina Academic Press, 2008), 3.

Susan Rasmussen, “there is a complex, dynamic interaction between diverse forces: human, superhuman, and natural.”⁵ In the past, healers took the forms of herbal specialists and diviners (those who presided over rituals such as trance possession, mediumship, and sacrifice).⁶ Much of African medicine has come to a unique place where it must effectively integrate local rituals and healing techniques with Western allopathic medicines. Rasmussen argues that the introduction of European allopathic medicine did not supplant the traditional African traditions of healing, but that both exhibit varying states of coexistence across Africa, some showing more resistance and tension than others. The central themes of her book are contingent upon the idea that culture plays a considerable role in the evolution of belief systems, and it is those belief systems that ultimately determine society’s conception of healthcare and medicine.

Familiarizing oneself with the political and social history of a country may enable a clearer understanding of the means by which a culture of medicine can develop in that country. But to what extent does culture influence the developments of medicine and medical education in different countries? According to Thomas Bonner, “Differences in social structure, the pace of industrialism, the level of state intervention, national prosperity, the market economy, better educational systems, and the impact of different styles of leadership and personality had an important and sometimes decisive impact on both the spread of change and the forms of institutional life in the various countries.”⁷ These forms of institutional life include the development and management of centers for medical education in the training of physicians. His presentation of the development of medical education in France, Germany, Great Britain, and the United States serves to highlight the importance of culture in the formation of physicians in each

⁵ Ibid., 4.

⁶ Ibid., 3.

⁷ Thomas Neville Bonner, *Becoming A Physician: Medical Education in Britain, France, Germany, and the United States, 1750-1945* (Oxford: Oxford University Press, 1995), 11.

country. However, Bonner does not look outside the realm of European or Western medicine, limiting the scope of his discussion to the role of government in the regulation of medical education, and to historical events such as war and conflict that played a part in the formation of nations. There is little to no mention of spirituality or belief systems in his analysis of the culture of medicine of Western nations, which is an essential parameter of culture of medicine when comparing the development of medical education in Algeria, the United States, and France.

In Deborah Lupton's book *Medicine as Culture*, she also makes the argument that culture plays an important role in the development of medicine and healthcare practices. The book discusses the intricacies of the relationship between culture and medicine in the Western world. She states, "The institution of medicine has an important part to play in social control, in shaping the regulation of human action, the deportment of human bodies and the construction of subjectivity."⁸ Lupton blames the nature of medicine and views of healthcare in the Western world on increased secularization, a dependence on rationality and individualism, an increase in life expectancy, and a reliance upon biomedicine and technology to eliminate or prevent illness and disease.⁹ She presents three different viewpoints for analyzing medical sociology in Western societies: functionalism, the political economy perspective, and social constructivism. The first of these defines social relations in the healthcare setting as "products of a consensualist society, in which social order and harmony are preserved by people acting in certain defined roles and performing certain functions."¹⁰ The political economy perspective states that good health is not only the state of physical or emotional well-being, but it is defined as "access to or control over the basic material and non-material resources that sustain and promote life at a high level of

⁸ Deborah Lupton, *Medicine as Culture: Illness, Disease, and the Body in Western Societies*. 2nd ed. (London: SAGE Publications, 2003), 21.

⁹ Ibid., 1.

¹⁰ Ibid., 7.

satisfaction.”¹¹ The role of healthcare from a social constructivist point of view states that “the reality of disease, illness states, and bodily experiences are known and interpreted via social activity and therefore should be examined using cultural and social analysis.”¹² This last theoretical perspective is most similar to the ideas presented in this paper concerning the ability to discern a unique culture of medicine from one country to another as a product of history and divergent belief systems.

In Elizabeth D. Whitaker’s compilation, *Health and Healing in Comparative Perspective*, the “critical medical anthropology” (CMA) approach is used to focus on “large-scale structures and forces that produce or maintain inequalities in power and wealth and shape conditions of health and disease.” One of the forces to which the book speaks is the force of culture, and with that the influence of innate and learned behaviors on society’s perception of medicine. In the chapter by Nancy Scheper-Hughes and Margaret M. Lock, the central argument presented is that the body can be used as a tool for analyzing cultural constructs related to health and general well-being.¹³ The authors also postulate that meaningful symbols and experiences have the power to influence the causes and cures of illness. They begin from the assumption that the body is both a physical and symbolic artifact, one that is both naturally and culturally produced, as well as firmly rooted in a historical moment. The authors state, “The body in health offers a model of organic wholeness; the body in sickness offers a model of social disharmony, conflict, and disintegration. Reciprocally, society in ‘sickness’ and in ‘health’ offers a model for understanding the body.”¹⁴ The article pits Western thought – defined by mind versus body, nature versus culture, natural versus supernatural, and real versus unreal – against the holism of

¹¹ Ibid., 9.

¹² Ibid., 12.

¹³ Nancy Scheper-Hughes and Margaret M. Lock, *Health and Healing in Comparative Perspective*, ed. Elizabeth D. Whitaker (Upper Saddle River: Pearson Education Inc., 2006), 296.

¹⁴ Ibid., 298.

non-Western culture in order to underline their elemental differences. This has the effect of placing their argument within the framework that distinct cultures of medicine exist and play a large role in determining society's views of healthcare and the human body.

Medical anthropology is the study of the ways in which culture and society are influenced by or organized around issues of healthcare and medicine. It seeks to uncover the very heart of the belief that medicine may act as a cultural signifier, and thus is highly relevant to this paper. Medical anthropology has its origins in general anthropology that viewed ethnomedical practices and individual medical systems as separate entities differentiated by bounded cultures.¹⁵ Today it has transformed into a multi-faceted discipline with “Foucauldian, feminist, deconstructionist, and political economy influences.”¹⁶ The term “ethnomedicine” refers to a specific kind of practiced medicine that has been specifically shaped by the cultural and sociopolitical histories of a particular region. In the book *Medical Anthropology: Regional Perspectives and Shared Concerns*, Francine Saillant and Serge Genest present a collection of writings concerning medical anthropology and its development from a discipline that once focused on the nature of the doctor-patient relationship to one that seeks to understand practices as a flow of meaning carried by a network of actors.¹⁷ The book also proposes the idea that biomedicine, or Western medicine, has transformed into a mediascape that threatens to approach the status of “medical hegemony.” According to Saillant and Genest, “Like Coca-Cola, jeans, and Celine Dion CDs, [biomedicine's] most effective ambassadors have been the electronic media through advertising, video clips, television series, and news entertainment.”¹⁸ Their central argument relates to the idea that culture plays a role in defining society's perceptions of healthcare, thus upholding the

¹⁵ Francine Saillant and Serge Genest, *Medical Anthropology: Regional Perspectives and Shared Concerns* (Oxford: Blackwell Publishing, 2007), xxi.

¹⁶ *Ibid.*, xxi.

¹⁷ *Ibid.*, xxiii.

¹⁸ *Ibid.*, xxiv.

central theme of this paper that medicine acts as a cultural signifier, and supporting the belief that there is a unique culture of medicine from one country to another.

A Historical Perspective

In order to place in context the comparison of medical education curricula in France, the United States, and Algeria, this paper will outline a brief history of the development and institution of medical education in the selected countries. The purpose of this is to emphasize the idea that an understanding of a nation's culture of medicine must stem from that nation's political and social histories which have a significant effect on shaping distinct cultures. By tracing the development of medical education in France and the United States, as well as a brief political history of Algeria, a framework is established in which to analyze the central argument of this paper, which is that it may be possible to discern a country's culture of medicine from the methods by which they instruct and prepare their physicians to the requirements for admission to medical school.

Arguably some of the most important advancements in medical education took place in the 18th century in the wake of the scientific revolution of the previous one hundred years.¹⁹ During this time, medicine and surgery drew closer together, there was a noticeable shift toward more practical physician training, hospitals were reformed, and several absolutist states were setting new standards of medical study and practice.²⁰ Europe in particular witnessed a breakdown of the medieval order, which according to Thomas Bonner in his work, *Becoming a Physician*, referred to the dissolution of a medicine that had, until that point, been "a learned occupation, studied principally in universities, based on the classics of medicine and literature,

¹⁹Bonner, *Becoming a Physician*, 6.

²⁰ Ibid., 6-7.

rooted in the universal language of Latin, and divorced from the practical, hands-on work of the surgeons, the pharmacists, and other healers.”²¹ A transformation occurred in which the traditional university lost its importance as the primary site of medical learning, and schools specifically for training healers emerged across the greater part of Europe, with the exception of Germany.²² The institutional transformations coupled with the introduction of new subjects such as chemistry, botany, and physiology surfaced in many countries during this time of change, and the influence of distinct national differences concerning the direction of medical education became apparent.²³ In particular, of the European countries, France experienced the most drastic changes as a result of the revolution that ravaged the nation.

Under the Old Regime, there was a remarkable amount of diversity in medical education facilities across France, primarily at the university level. A royal edict in 1707 had tried to standardize the variety of curricula and examinations that divided the French universities, but with little to no success.²⁴ According to one historian: “Of the sixteen faculties of medicine offering courses and degrees at the time of the revolutionary convention, no two were alike in the range of subjects taught, the amount of practical instruction offered, or the length and difficulty of examinations.”²⁵ Each faculty had high degrees of independence. At some institutions, three years of study were required along with two years of practical experience in a hospital, but other faculties required as little as three to six months of practical learning.²⁶ Schools in larger cities had different requirements and standards than the provincial institutions. In Paris, a student was expected to complete a program of liberal study at the university before enrolling in medicine,

²¹ Ibid., 14.

²² Ibid., 7.

²³ Ibid., 14-15.

²⁴ Ibid., 38.

²⁵ André Finot, *Les facultés de médecine de province avant la révolution* (Paris, 1958), quoted in Bonner, *Becoming A Physician*, 38.

²⁶ Bonner, *Becoming A Physician*, 38.

whereas provincial schools could be known to require as little as a year or two of “preliminary preparation.”²⁷ These discrepancies reflect the nature of society at that time; cities acted as the cultural, social, and political epicenters of life in a particular region and dictated norms and societal roles, allowing room for a large degree of deviation between them.

The role of the government as well as the level of institutional regulation are integral elements of the history of medical education in France. In the aftermath of the revolution, the discrepancies that existed amongst medical institutions that had once prevailed to such a large extent became significantly less pronounced. A strengthening of the central government post-revolution was key in the establishment of national standards for medical education. Changes were made regarding the separation of medicine and surgery, and using hospitals as a primary site for education became a way to highlight the importance of practical elements in the teaching program. For example, three practical courses of medicine were created to be stationed out of hospitals in Paris. This allowed students a “progressively larger role in examining patients, preparing them for surgery, and keeping records of individual cases.”²⁸

These changes did not take long to implement, due primarily to the fact that the preparation for this institutional adjustment had begun years before the violence of the revolution overwhelmed the nation. Those in power correctly assumed that a large volume of well-trained and adept physicians would be desperately needed in the reconstruction of society. However, those government officials involved in the planning and execution of this new strategy in medical education had not thought out all the particulars of such an undertaking. The intention of placing increased emphasis on the practical aspects of medical education was admirable at that

²⁷ Charles Courty, “Medical Education in France from the Beginning of the 17th Century to our Day,” (Vienna: unpublished manuscript, Institut für Geschichte der Medizin, 1968), 8, quoted in Bonner, *Becoming A Physician*, 38.

²⁸ Mireille Wiriout, “L’enseignement clinique dans les hopitaux de Paris entre 1794 et 1848” (med. diss., University of Paris, 1970), 30-32, quoted in Bonner, *Becoming A Physician*, 106.

time in history; however, a shortage of professors as well as a lack of resources prevented this from happening to a beneficial degree. Hospital clinics were not adequately prepared for large numbers of students to participate in bed-side instruction, as was the case in populous cities such as Strasbourg, Paris, and Montpellier. One image of this phenomenon depicts one hundred and fifty to two hundred pupils gathered around a patient bed, attempting to witness the professor examine the patient.²⁹ This strategy was clearly ineffective, and as P.G.J. Cabanis said, “The pupils see nothing, learn nothing, and the patients are terribly disturbed and exhausted.”³⁰

In spite of the failures and setbacks of the initial widespread implementation of practical and clinical elements of medical education in France, there were positive outcomes that developed as a result. These were mostly found in private courses, as well as the *internat* (students who lived in the hospitals) and *externat* programs that were offered only to a select few medical students.³¹ This bedside *conférence* “brought together the new anatomical conceptualization of disease, the brilliant techniques of percussion and auscultation pioneered in France after 1800, the varied resources of a large hospital, and Enlightenment ideas about learning by doing.”³² Unfortunately, this type of education was not accessible to all students, and only benefited those fortunate enough to be offered a spot as an intern or extern in association with a clinic. As a result, Paris became the most sought-after center for practical training in the medical world.³³

²⁹ Bonner, *Becoming A Physician*, 107.

³⁰ P.G.J. Cabanis, “Rapport fait au conseil des cinq-cents sur l’organisation des ecoles de medecine,” in *Oeuvres completes* (Paris: Bossanges, 1823), 380-82, quoted in Bonner, *Becoming A Physician*, 107.

³¹ Bonner, *Becoming A Physician*, 109.

³² L.S. Jacnya, “Au Lit des Malades: A.F. Chomel’s Clinic at the Charité, 1828-9,” *Medical History* 33 (1989): 422, quoted in Bonner, *Becoming A Physician*, 108.

³³ Gabriel Richet, “Le sens de la responsabilité medicale: Son acquisition par la pedagogie clinique” (Unpublished paper), quoted in Bonner, *Becoming A Physician*, 108.

This immediately triggered questions about the nature of the relationship between the hospital clinic and the medical faculty that would be operating within it. Could the clinics be organized as a part of the educational structure independently from hospital clinic administration? The Paris school wanted to control the teaching that took place in the hospitals independent from any authority outside of itself.³⁴ Ultimately, it was the absence of funds to create the separate educational clinic for the benefit and use of the school as well as distrust of academic authority on the part of the hospitals that caused the Paris school to “lose the struggle and France never had its university clinics.”³⁵ The development of the “demonstrative clinical lecture” after 1800 became a central component of French clinical education, and eliminated the possibility of bedside-learning envisioned in 1794. This served to render the French system quite ineffective in terms of practical, clinical training.³⁶

One response to the lack of quality medical education that was as much practical as academic in nature was the appearance of “secondary schools” in both France and Germany in the 1820s. These schools made medical education accessible to a broader range of people; for those who were not fortunate enough to be a part of the elite group that was able to reap the benefits of private courses and hospital appointments, the formation of these secondary schools offered an education that was comparable to that of the *écoles de médecine*.³⁷ In Bordeaux, the secondary school had sixty pupils and a faculty of eight professors, and students were taught courses in anatomy and physiology, medical chemistry, pathology, obstetrics, natural history,

³⁴ Bonner, *Becoming A Physician*, 108.

³⁵ Marie-Jose Imbault-Huart, “Concepts and Realities of the Beginning of Clinical Teaching in France in the Late 18th and Early 19th Centuries,” *Clinical Teachings, Past and Present*, vol. 21, ed. H Beukers and J. Moll, (Amsterdam: *Clio Medica*, 1987-1988), 64, quoted in Bonner, *Becoming A Physician*, 108.

³⁶ Bonner, *Becoming A Physician*, 109

³⁷ *Ibid.*, 122.

hygiene, legal medicine, and instruction at the local hospital.³⁸ By the year 1820, a total of eighteen similar schools cropped up in cities like Amiens, Caen, Dijon, Marseilles, and Nancy. These were supported financially by municipal funding but received supervision from the educational authorities in Paris.³⁹ Other schools that were not university-associated were military schools of medicine that taught similar courses of study with a stronger priority placed on military hygiene and battlefield diseases.⁴⁰

Across the Atlantic Ocean, a sense of isolation, independence, and new conditions and needs in America allowed for variations of the traditional British practices to develop concerning medical education.⁴¹ A majority of the health needs of the colonies were met by practically trained midwives, druggists, lay practitioners, and those who called themselves doctors without the university-trained credentials.⁴² In lieu of university-based licensure, apprenticeships were the most common method of pursuing a career in medicine in early America, even after the first medical schools had appeared in cities like Philadelphia and New York in the 1760s.⁴³ There was a sharp differentiation between those who called themselves “physicians” and those who were “surgeons.” Being a physician entailed that one had been trained by a university, whereas surgeons were men who worked with their hands, had learned the trade through apprenticeships, and were considered tradesmen and “theoretically subject” to the physicians.⁴⁴

The formation of some of the first academic institutions in America, the College of Philadelphia in particular (now the University of Pennsylvania) “departed from the theological

³⁸ G. Prey, *Histoire de la faculté de médecine de Bordeaux et de l’enseignement médical dans cette ville, 1441-1888*. (Paris: O Doin, 1888). 258, 301, quoted in Bonner, *Becoming A Physician*, 122.

³⁹ Jacques Leonard, “Les études médicales en France entre 1815 et 1848,” *Revue d’histoire modern et contemporaine* 13 (1966): 89, quoted in Bonner, *Becoming A Physician*, 123.

⁴⁰ Bonner, *Becoming A Physician*, 124.

⁴¹ *Ibid.*, 15.

⁴² *Ibid.*, 20.

⁴³ *Ibid.*, 20.

⁴⁴ Duffy, *From Humors to Medical Science*, 7.

design” of the sectarianism and missionary zeal that surrounded institutions such as Harvard, Yale, and Dartmouth, and became leaders in the “culture of advanced ideas” that distinguished the academic institutions in America from those of Great Britain.⁴⁵ One of the leading thinkers of medical education reform at that time was a man by the name of John Morgan, who gave a commencement speech at the college in May 1765 concerning the institution of medical schools in America. The main points of his address, which later became known as the Morgan plan, included his idea of what subject matter should be made compulsory as well as necessary considerations in the implementation of cogent medical schools in America. These included:

(1) A systematic classification of the various branches of medical knowledge and the order in which they should be studied, (2) The importance of education preliminary to the study of medicine, (3) A general view of the state of physic in America, and the “effects of ignorant and presumptuous practice,” (4) The arguments for the circumstances favoring the institution of a medical school, (5) The recommended mode for practicing physic, (6) Advantages to be expected from the proposed institution, (7) Counsel to prospective students of medicine, and (8) Words of gratitude and encouragement to the trustees.⁴⁶

Morgan believed there was a great need for organized premedical education in America, and that achieving a university-affiliated medical degree was the only way to obtain a sense of “just reasoning” in order to “deduce practical inferences,” therefore undermining those physicians who were apprentice-trained.⁴⁷ In spite of the scope and good intentions of his ideas and the fact that he founded the first medical school in America, most who practiced some form of medicine in the colonies continued to be practically trained without a university degree in order to meet the health needs and demands of the people.

⁴⁵ Willam Frederick Norwood, *Medical Education in the United States Before the Civil War* (London: Humphrey Milford, 1944), 1-2. (“Physic” refers to the practice of medicine).

⁴⁶ *Ibid.*, 4.

⁴⁷ John Morgan, *A Discourse Upon the Institution of Medical Schools in America; Delivered at Public Anniversary Commencement, Held in the College of Philadelphia May 30 and 31, 1765*, quoted in William Frederick Norwood, *Medical Education in the United States Before the Civil War* (London: Humphrey Milford, 1944), 7.

According to Thomas Bonner, the Edinburgh system of medical education appealed to those in America who felt that English or Continental systems did little to address the need for a medical education that was as much practical as it was educational.⁴⁸ The Edinburgh system required three years of study, and an examination conducted in Latin that covered subjects such as anatomy, surgery, chemistry, botany, materia medica and pharmacy, and theory and practice of medicine.⁴⁹ Bonner writes that “the great appeal of the [Edinburgh] university lay in its willingness to instruct students at various stages of preparation...[and] among the students enrolled were some who had served an apprenticeship or practiced medicine, others who held a medical degree from another university, some who were just starting, and still others who intended to complete their educations in London or Paris.”⁵⁰ The nature of life in the colonies made this type of approach to medical education an attractive one. The social hierarchy that characterized Great Britain did not exist to the same degree in America; the presence of the royal corporations and university-trained members that presided over medicine and medical education in Britain held little sway over the colonies in the early years.⁵¹ For example, the European distinction between physicians and barber-surgeons did not survive in the colonies due to the rugged nature of life and the demand for those who were practiced in some form of the healing art.⁵²

It wasn't until much later that John Morgan's suggestions for medical education reform would become a reality in America. According to William Frederick Norwood in *Medical Education in the United States Before the Civil War*, “The first law to make any provision for the

⁴⁸ Bonner, *Becoming A Physician*, 42.

⁴⁹ Ibid., 41.

⁵⁰ J. Johnson, *A Guide for Gentleman Studying Medicine at the University of Edinburgh* (London: Robinson, 1792), 54-55, quoted in Bonner, *Becoming A Physician*, 41.

⁵¹ Ibid., 17

⁵² Norwood, *Medical Education in the United States*, 9.

examination of candidates for the [medical] profession was passed by the Assembly of New York in 1760, and was intended to regulate medical practice in New York City.”⁵³ But even that did not indicate that formal instruction had become a mainstay for most forms of medical education at the time. Military medicine from Great Britain brought with it to the colonies notions of an organized, formal instruction with a set curriculum and path of study. The medical officers who accompanied the English military expeditions provided resources and healthcare to the lay people of the early colonies. Additionally, young colonial men who were interested in learning about medicine learned a great deal from the English military doctors by observing the work of and receiving instruction from these skilled practitioners in the hospital as well as in the field.⁵⁴ This aspect of early American life would eventually lead to a desire for the institutionalization of formalized instruction of medicine. But a lack of state authority over medical education in America led to the creation of a large number of “practical schools” that differed in terms of setting standards for graduation and licensing, establishing control over hospitals for teaching purposes, fostering innovations in teaching, and opening medical schools to women.⁵⁵

In 1830, apprenticeship training was still the main route to a practical medical education in America, but new medical schools were appearing all over the country at a rate faster than in Britain.⁵⁶ The requirements for each of these institutions were varied, and there was little government oversight or regulation. Independent medical schools had cropped up throughout the country as a result of “the continued movement of the American population, the thinness of settlement in many areas, the scarcity of hospitals of the European type, and the hands-off

⁵³ Ibid., 29.

⁵⁴ Ibid., 57.

⁵⁵ Bonner, *Becoming A Physician*, 9.

⁵⁶ Ibid., 175.

posture of the government.”⁵⁷ Another important distinction of American medical education at this time was that a person was able to practice medicine almost immediately after graduation without any additional examinations. The role of the institution was to supplement the practical experiences of apprenticeship, and not to replace it entirely with a system of organized instruction, and as a result, a majority of practitioners in 1830 had never attended a single course of medical lectures.⁵⁸

Turning attention now to Africa, it is no surprise that medical education in countries like Algeria did not have beginnings similar to those in France or the United States. With a population of more than 34 million inhabitants, Algeria is located in the northern region of Africa known as the “Maghreb.” The population is a mixture of Arab and indigenous Berbers, and according to a publication by the Federal Research Division of the Library of Congress, the people are “largely integrated with little or no social stratification along racial or ethnic lines.”⁵⁹ Algeria did not receive its independence from France until July 5, 1962, and thus much of its developmental history is bound to the fact that it was a French colony for many years. The country study published by the American Library of Congress lists under the “Health and Welfare” summary that tuberculosis, trachoma, and venereal infections are the most serious diseases in the country, and that the national healthcare system is based on universal, “almost free” healthcare.⁶⁰ Additionally, the summary states that a modified social security system was inherited from the French colonial administration and expanded in 1971 to provide “sickness and

⁵⁷ Ibid., 175.

⁵⁸ Frederick C. Waite, *The Story of a Country Medical School: A History of the Clinical School of Medicine and the Vermont Medical College, Woodstock, Vermont, 1827-1856* (Montpelier: Vermont Historical Society, 1945), 22, quoted in Bonner, *Becoming A Physician*, 176.

⁵⁹ Helen Chapin Metz, ed., *Algeria: A Country Study*. 5th ed. (Washington, DC: Library of Congress Cataloging-in-Publication Data, 1994), xviii.

⁶⁰ Ibid., xix.

disability insurance, old-age pensions, and family allowances to all workers in formal economy.”⁶¹

However neat and contained these statistics are, they do not speak to a specific culture of medicine, nor are they able to show how such a culture of medicine could come about in terms of cultural history and belief systems. This is not to undermine the history of French presence in the region, because much of what is modern-day Algeria still greatly feels the effects of French influence, especially in government and political affairs.

What is more pertinent to this argument is what the health knowledge and belief systems in Algeria were before the French colonized the country, and what they came to be as a result of colonization. It is this sort of information that sheds insight on how a culture of medicine may have developed in Algeria that would distinguish it from other countries. The African continent is a good example of a region where belief systems and knowledge are difficult to distinguish, because much of “certain knowledge” is contested depending on the belief system from which one approaches it.⁶² According to Falola and Heaton, “Knowledge about health which a person or group chooses to believe, affects the way that health-seeking behavior, health-treatment options and discourses on health issues are pursued.”⁶³ Not much is known about the history of medical education in Algeria before the era of French imperialism, but a look at the history that shaped Algeria may make it easier to understand the ways in which medical professionals are taught today.

Glancing briefly through Algerian history, violence and unrest are a remarkably large part of the country’s heritage. The region in Northern Africa that is now known as Algeria came

⁶¹ Ibid., xix.

⁶² Toyin Falola and Matthew M. Heaton, *Health Knowledge and Belief Systems in Africa* (Durham: Carolina Academic Press, 2008), xxi.

⁶³ Ibid., xxi.

under the influence of Islam and the Arabs in 642 A.D. following conquests by the Romans, the Vandals, and the Byzantines.⁶⁴ A large majority of the population – nearly 80 percent – is Arab as a result. The French invasion of Algeria in 1830 was purportedly a result of an alleged slight to the French consul by a local ruler, which led to the imposition of French rule that lasted from 1830 to 1962.⁶⁵ Numerous uprisings took place through the years, eventually leading to the formation of the National Liberation Front (Front de Libération Nationale – FLN) in 1954. This group would lead the colony in a War of Independence, which began November 1, 1954 and ended July 1, 1962.⁶⁶ Algeria was able to achieve independence, but it was at the cost of nearly 300,000 Algerian lives. Since then, Algeria has borne witness to numerous regimes and overthrows of government that have left the citizens of the nation little assistance in dealing with issues of food and housing shortages.⁶⁷

Socially, men and women occupy different niches in society. Due to the Arab influence on the region and the predominance of Islam, the men and women of Algeria are “bound by the same culture values, traditions, and beliefs and the same closeness between generations found in other parts of the Middle East.” It wasn’t until the War of Independence in 1962-65 that the position of women changed in Algeria: girls were persuaded to attend school, and many went on to study in universities, especially in cities and urban centers.⁶⁸ In terms of education, the Algerians were privy to the French system of education until independence, after which time Algerians set out to revamp the education system through “indigenization, arabization, and an emphasis on scientific and technical studies.” Other goals of the reformed systems included increasing literacy rates, providing free and accessible education, an effort to make primary

⁶⁴ Ibid., xxvii.

⁶⁵ Ibid., xxviii.

⁶⁶ Ibid., xxviii.

⁶⁷ Ibid., xxix.

⁶⁸ Ibid., 100.

school attendance mandatory, and replace the original French with Arabic as the primary language of instruction.⁶⁹

At the time of Algerian independence, there was only one physician per 33,000 people, which meant an estimated 300 doctors existed in the entire country.⁷⁰ Most occurrences of disease in the early 90s were related to nutritional deficiencies, crowded and unsanitary living conditions, shortages of water, and insufficient knowledge of personal sanitation and modern health practices. Medicine at this time was largely curative rather than preventive. According to the Library of Congress's country study, in 1984 the Algerian government adopted a new healthcare plan with the intention of transforming the entire health sector from a curative system to a preventive one "more suited to the needs of a young population."⁷¹ The Algerian government decided to make medical education a priority after independence and established institutions with schools of medicine, dentistry, and pharmacy located in Algiers, Annaba, Constantine, and Oran. Public health schools for paramedical personnel also existed in Algiers, Constantine, and Oran. The total number of students enrolled in the 1988-89 academic year was 27,472.⁷² Today, at the University of Algiers alone, 41,078 students are enrolled, and approximately 15,000 of those are affiliated with the Faculty of Medicine.⁷³

Medical Education Curricula in the United States, France, and Algeria

In selecting the most current and pertinent information about medical school admissions standards, prerequisites for applicants, as well as example curricula, it was necessary to understand the nature of medical education from one country to another. For example, there is

⁶⁹ Ibid., 113.

⁷⁰ Ibid., 118.

⁷¹ Ibid., 118.

⁷² Ibid., 120.

⁷³ Algiers University, *Students Registered*, http://www.univ-alger.dz/univ_ang/index.php/students-registered.html.

not a large degree of variation in curricula between medical schools in the French system due to government regulation and national standards for receiving a license to practice medicine.

However, in the United States, each medical school has the freedom to determine the nuances of its curriculum outside of government control. Two schools were selected as examples of medical schools from the United States, one a privately funded institution and the other public. In comparing curricula from both a public and private school it is possible to determine what differences, if any, exist between them and what this indicates about the culture of medicine in the United States. All information presented in the Appendix was found based on the availability from internet sources and each individual school's website.

The first sample curriculum from the United States is taken from Johns Hopkins University. This curriculum has been in development since 2003, and is titled "Genes to Society" (Table 1, Appendix). This title emphasizes the goal of the program, which is to supply students with the essential knowledge and foundations of medicine including anatomy and physiology, pathology, and patient care, but it also seeks to integrate the basic sciences and clinical sciences with the social sciences.⁷⁴ The new curriculum also seeks to highlight individual variability among patient cases and diseases, in an effort to move away from the idea of "normal" versus "abnormal" in the clinical setting.

The public school curriculum selected from the United States was taken from the University of Michigan at Ann Arbor. This is an example of a school that is more competitive than other public schools, with high academic standards for matriculating students. The school boasts of an early exposure to patient care in the clinical setting, with faculty mentors advising

⁷⁴ Johns Hopkins University, *What's Innovative About Hopkins's Curriculum?* <http://www.hopkinsmedicine.org/admissions/innovat.html>.

the student every step of the way. The Clinical Simulation Center at the University of Michigan offers students a unique, hands-on experience in preparation for the rigorous demands of the medical profession. Adult and pediatric models are used for simulating births, endoscopies, vascular intervention, and more.⁷⁵ In addition, the University of Michigan owns its own hospital which enhances the medical student's experience by facilitating constant proximity to real-life patients. The entire curriculum for students in the 4-year M.D. program at the University of Michigan is located in the Appendix (Table 2).

In the United States, after a student graduates from the 4-year program and has completed all the steps of the United States Medical Licensing Examination (USMLE) they apply for acceptance into a national matching program that places medical school graduates into residency programs. These programs range from three to seven years based upon the desired specialty. Areas of specialization include family practice, pediatrics, internal medicine, neurology, anesthesiology, dermatology, emergency medicine, and obstetrics and gynecology among many others. After the residency is completed, before a physician is allowed to practice, they must obtain a license to practice medicine from a state or jurisdiction within the U.S. in which they would like to practice.⁷⁶ After a series of exams, physicians can apply for a permanent license to practice medicine. There is also the option of becoming board certified, which many physicians practicing in the United States decide to do. Becoming board certified means that “the doctor has been tested to assess his or her knowledge, skills, and experience in a specialty and is deemed qualified to provide quality patient care in that specialty.”⁷⁷ This type of certification requires re-certification after a period of six to ten years, depending on the specialty. Once this process is

⁷⁵ University of Michigan, *M.D. Program*, <http://www.med.umich.edu/Medschool/edu/md.htm>.

⁷⁶ American Medical Association, *Becoming A Physician*, <http://www.ama-assn.org/ama/pub/education-careers/becoming-physician.shtml>.

⁷⁷ Ibid., <http://www.ama-assn.org/ama/pub/education-careers/becoming-physician.shtml>.

complete, physicians are often required to continue their education throughout the rest of their lives by completing “Continuing Medical Education” (CME) credits. These vary by state, and some states may require different numbers of credits per year.⁷⁸

There is a noticeable trend in the United States in which the schools that boast of being the “top” schools or “best” schools tend to place a larger emphasis on the practical aspect of medicine, characterized by actual interaction with patients and learning by doing. Less renowned schools tend to rely more heavily on traditional curricula based heavily on memorization and lecture-based learning. Much of the debate surrounding medical education involves the need to bring practical learning into the forefront, and rely less heavily on previous mechanisms such as the memorization of large quantities of information as a way to measure the amount that a medical school student has learned. Health care reforms in the United States will undoubtedly ignite reforms in medical education. The current medical education environment emphasizes the individual patient in specialized inpatient settings, but with predicted changes in healthcare reform, increased service-learning experiences in medical education will be the only means to ensure there are enough physicians prepared to meet new healthcare demands. Service-learning “extends the classroom into the community, and thus creates a physical space that brings together people with differing social, ethnic, and professional backgrounds, and with correspondingly diverse perspectives.”⁷⁹ The changes made to the structure of medical education in the United States are likely to be implemented in other countries for similar reasons.

In France, the path to becoming a doctor is noticeably different than in the United States, especially when comparing medical school policies, programs, and requirements. One of the

⁷⁸ Ibid., <http://www.ama-assn.org/ama/pub/education-careers/becoming-physician.shtml>

⁷⁹ Deborah Gardner, Andrew Schamess, Doreen Harper, and Denice Cora-Bramble, *Creating Community Responsive Physicians*, ed. Sarena D. Seifer, Kris Hermanns, and Judy Lewis (Washington, DC: American Association for Higher Education, 2000), 20.

biggest differences between medical education in France and the United States is the presence of *numerus clausus*, which acts as a quota system to control the number of new doctors allowed to be licensed each year. This number is determined by the French government in order to prevent there being a large number of physicians that exceeds demand.

Medical education in France today is regulated jointly by both the ministries of education and health. The first year of medical school, known as PCEM1 (Première Cycle des Etudes Médicales) is open to anyone who has completed the baccalauréat examination in the sciences. As opposed to in the United States where there is a rigorous and demanding application process in order to select only the strongest medical school candidates, this difficult selection process does not take place until after the first year of medical school in France with an examination known familiarly as “le concours.” Ministerial decree determines the number of students who are allowed to progress from PCEM1 to PCEM2, the second year of medical studies in France. This number is established according to the principles of *numerus clausus*. For example, if there are 144 spots in the PCEM2 class as determined by the ministries of education and health, then only the 144 students who score the best on the “concours” will be admitted into PCEM2. Out of a class of a few thousand, this number represents only ten to twenty percent of the total number of students studying in PCEM1. This process makes it very difficult for people to progress beyond the first year of medical school. In 2007, only 16% of the PCEM1 class matriculated into PCEM2.⁸⁰ Those who are not admitted into PCEM2 are sent to study midwifery, or massage therapy, the latter which greatly resembles doctors of osteopathic medicine in the United States.

⁸⁰ Campus France, *Medicine*, 2009, 1. www.campusfrance.org.

These specialists learn about ways of manipulating the body in the treatment of certain illnesses.⁸¹

The next level of education is known as the Deuxième Cycle des Etudes Médicales (DCEM). This stage lasts four years, during which time students focus on pathology, an evaluation of health practices and systems, and ethics.⁸² Once the second stage is completed, the student is awarded the “Certificate of clinical and therapeutic synthesis,” and then national classifying exams are taken in order to place students into the correct residency programs. In France, test scores determine the selection of specialties from which a student may choose.⁸³ To pass from the second to the third stage of medical education in France, it is necessary to pass a series of exams known as “L’examen National Classant” that tests theoretical knowledge of medicine and determines which specialty a student will pursue and in what city they will complete their residency.⁸⁴ The students with top ranked scores have first choice as to which specialties they would like to pursue and in what cities they want to complete their residencies.

The third stage of medical education is when students specialize in either general medicine or one of about 30 specialty areas. In general medicine, the student receives a “diplôme d’études spécialisées” (DES, or diploma of specialized study).⁸⁵ Residencies for general medicine last three years, and all other specialties last four to five years. During this time, candidates perform full-time hospital functions and spend at least six months in each department.

⁸¹ Faculté Libre de Médecine, *Les études de masso-kinésithérapie*, <http://flm.icl-lille.fr/cursus/cursus-masso-kinesitherapie.asp>

⁸² Faculté Libre de Médecine, *Le Deuxième Cycle des Etudes Médicales*, <http://flm.icl-lille.fr/cursus/cursus-dcem1.asp>.

⁸³ Ibid., <http://flm.icl-lille.fr/cursus/cursus-dcem1.asp>.

⁸⁴ Ibid., <http://flm.icl-lille.fr/cursus/cursus-dcem1.asp>.

⁸⁵ Ibid., <http://flm.icl-lille.fr/cursus/cursus-dcem1.asp>.

Some DES degrees can be supplemented by further training, resulting in a DESC (diplôme d'études spécialisées complémentaire or diploma of complementary specialized study). With a DES or DESC, candidates are required to defend a thesis before a jury in order to be awarded the *diplôme d'état de docteur en médecine*.⁸⁶ This means that French people have 6 years of formal education followed by 3-5 years of residency training before receiving license to practice. For an example of the curriculum utilized for the PCEM1 and PCEM2, see Table 3 in the Appendix.

Medical schools in Algeria have a lot of administrative similarities to the medical schools of France. This is no coincidence due to the large French presence in the region for over a hundred years. In spite of efforts to localize and “arabicize” education, there are a large number of striking similarities between the French and Algerian medical education systems that still persist. For example, the grading systems of both countries are out of 20, with 20/20 being the highest attainable grade. Algerian students must take also the baccalauréat exam before continuing on to undergraduate and graduate education. The duration of study in Algeria, at the University of Algiers School of Medicine, for example, is seven years, which is comparable to that of France where the medical school curriculum lasts six years. The School of Medicine at the University of Algiers has three departments: medicine, pharmacy, and dental surgery, and it hosts nearly 15,000 students.⁸⁷ The university works in conjunction with four university hospitals, eleven specialized hospital structures, and seven health centers in neighboring provinces of Algiers. It is clear that this institution is one of the most important in providing healthcare to the country of Algeria.

The University of Algiers Faculty of Medicine was established on August 4, 1857. During that time it was known as the Preparatory School of Pharmacy and Medicine. A law

⁸⁶ Ibid., <http://flm.icl-lille.fr/cursus/cursus-dcem1.asp>.

⁸⁷ University of Algiers, *The Faculty of Medicine*, http://www.univ-alger.dz/univ_ang/index.php/medicine.html

passed on December 20th, 1879 and transformed the institution into the School of Medicine and Pharmacy.⁸⁸ In the 1886-1887 academic year, the school had a total of 278 students, and by 1930 there were 327 medical students and 222 in pharmacy program.⁸⁹ After Algerian independence from France in 1962, several administrative changes were made following the Reform of Higher Education Act that went into effect in 1971. The Faculty of Medicine at the University of Algiers in Algeria has the largest number of students in medical school in the nation.

The systems of education and the curricula in France and Algeria possess some degree of similarity. A comparison of the subjects studied in the Faculté Libre de Médecine and the Faculty of Medicine at the University of Algiers indicates that much of the course material is comparable, in particular a focus on the semiology of healthcare and medicine. Semiology can be defined as the philosophical theory of the functions of signs and symbols.⁹⁰ The curriculum for the Faculty of Medicine at Algiers is available in Table 4 of the Appendix.

Medical education in Algeria is structured so that the first two years comprise the “preclinical cycle” which includes theoretical knowledge of the basic sciences, anatomy and physiology, and an introduction to ethics in medicine. After the second year, students in medical school in Algeria enter the “clinical cycle.” However, there is little evidence of the extent of patient contact or practical learning during this period, until year seven which is designated as the “Internship.” During this time, students have the opportunity to learn more about general medicine, surgery, obstetrics/gynecology, and pediatrics. Exposure to other specialties is limited. Students then pass into “Graduate Studies” which is a 4-5 year residency if the student wishes to become a practicing physician, or 4-5 years of additional study to obtain a Doctorate degree in Medical Science. The only available information about requirements and pre-requisites for

⁸⁸ Ibid., http://www.univ-alger.dz/univ_ang/index.php/medicine.html.

⁸⁹ Ibid., http://www.univ-alger.dz/univ_ang/index.php/medicine.html.

⁹⁰ *World Net Search*, “Semiology,” <http://wordnetweb.princeton.edu/perl/webwn?s=semiology>.

medical school in Algeria is that students must have taken the baccalauréat or an approved equivalent.⁹¹ This curriculum places a lot of emphasis on classroom and lecture learning during the first six years of education, and it's not until much later that the student is exposed to the clinical learning environment.

A summary table of the medical education information and individual school requirements is presented below to aid in comparing the three countries discussed in this paper.

Table 1. Comparison Chart of Medical Education in the United States, France, and Algeria

Country	United States	France	Algeria
Length of Classroom/Lecture Training	4 years	6 years	6 years
Length of Practical/Clinical Training	3-7 years depending on specialty (Surgeons have longest residencies: 7-8 yrs)	Internships begin in the 2 nd year 3 year paid residency upon success on the National Classifying Exams	1 Year Undergraduate 4-5 Years Graduate
Total Number of Years Required for License to Practice	Varies based on specialty: 7-12 years	Varies based on specialty: 9-11 years	Varies based on specialty: 11-12 years
Examination Schedule	MCAT for entrance into medical school; USMLE (United States Medical Licensing Examination) taken in 3 steps: taken after years 2 and 4, and before being licensed	Le concours taken after PCEM1; National Classifying Exam after year 6 to place into residencies	Examinations A and B after first year; Yearly examination 2 nd -5 th years; 6 th year: three examinations in Clinical Medicine, Surgery, and Obstetrics ⁹²
Entrance Requirements	Bachelor's Degree from an accredited institution, successful completion of pre-clinical science courses*, Satisfactory MCAT scores	Science Baccalauréat (Completed after high school)	Algerian Baccalauréat or Equivalent (Completed after high school)
Differences in Academic Focuses/Standards	Increased focus on problem-based and service learning, early clinical exposure,	Early exposure to patients; Emphasis on theoretical understanding of medicine (e.g. semiology), foundation courses similar to US	Less problem-based learning and more classical emphasis on pre-clinical knowledge; Late exposure to patients in an internship setting

⁹¹ University of Algiers, <http://africa.isp.msu.edu/AUP/instinfo.php?id=1727>.

⁹² Martena Tenney Sasnett, and Inez Hopkins Sepmeyer, *Educational Systems of Africa: Interpretations for Use in the Evaluation of Academic Credentials* (Los Angeles, CA: University of California Press, 1966).

Cost/Who Finances Medical School?	\$22,199 – public \$39,964 - private	150 €-300 € - public 1 600€ - 5 000€ - private	Information not available
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Is There A Visible Culture of Medicine?

An assessment of whether or not the medical school curricula presented above are indicative of a culture of medicine in each country will be addressed in this section. Looking first at the curricula presented from one public and one private medical school in the United States, an obvious difference seems to be in how soon students are exposed to practical learning and patient interaction. At Johns Hopkins, students don't have their first clinical exposure until January, halfway through the first year. However, at the University of Michigan School of Medicine, students have interactions with patients in the clinical setting as early as the first week of classes. This seems to be an anomaly across the board; in medical schools of many countries the initial years are almost entirely pre-clinical. For example, at the Faculté Libre de Médecine in France, students aren't introduced to clinical aspects of medical education until the second year when hospital internships begin. Introduction to the clinic happens even later at the University of Algier's Faculty of Medicine. Six years of foundation classes are established before students have the opportunity to work with patients and explore hands-on learning in a hospital internship.

This data suggests that as medical education continues to develop and change, more and more people are of the mind that introducing clinical and practical education earlier in the student's medical school experience will serve to produce better, more adept doctors. Major pedagogical shifts in methods of learning and instruction have also taken place throughout much of the Western world. According to one article, "There has been a shift from a traditional teacher-centered, didactic, lecture-based teaching which characterized most medical learning up

to the first half of the 20th century to a student-centered, problem-oriented community-based medical training in the 21st century.”⁹³ In countries that are known to be at the leading edge of medicine and science, such as the United States and France, earlier clinical exposure is apparent as well as the emergence of more problem-based learning. Developing countries such as Algeria appear to adhere more to the classical methods of training which include a large emphasis on lectures and theoretical examinations as opposed to stressing the importance of self-directed and life-long learning skills and personal development.⁹⁴

One article by Isaac D. Gukas highlights Africa’s inability to keep up with the technological advancements of the Western world, resulting in a lag in medical education standards. According to Gukas, “Socioeconomic and political instability, failure to overcome the inertia for change by substituting the old curriculum with a more problem, system, and student-based one and redefining the goals of medical education are some of the issues of concern for Africa, and its ability to keep up in the dynamic world of medical education.”⁹⁵ All of these concerns draw attention to the fact that culture of medicine and healthcare in Africa is struggling to find a balance amidst the influence of and pressure from the medical traditions and practices of the Western world. It is for this reason that the culture of medicine in Africa, with particular respect to Algeria, is not easily discerned by looking at variables such as medical education standards and curricula. There are many factors that contribute to the culture of medicine and healthcare in Algeria including but not limited to a history of spiritual and traditional healing methods, the presence of local healers and treatments in people’s daily lives, a historically curative outlook on healthcare, and the influence of the French during the colonial period. Due to

⁹³ JA Spencer and RK Jordan, “Learner centred approaches in medical education,” *British Medical Journal* 318, (1999): 1280–1283.

⁹⁴ M Jackson and Calman K., “Medical Education past, present and future,” *Medical Education* 40, (2006):190–192.

⁹⁵ Isaac D. Gukas, “Global Paradigm Shift in Medical Education: Issues of Concern for Africa,” *Medical Teacher* 29 (2007): 887-92.

international pressures and the homogenization of medicine, which will be discussed later, culture of medicine in Algeria has become a blend of traditional methods and modern pedagogies, inducing a distinct culture of medicine that may not necessarily be readily visible in the methods by which physicians are selected and trained.

When the curricula from each school are analyzed in turn, there are no extreme differences between them (Tables 1-4 of Appendix). One interesting variation seems to be in the fact that the French and Algerian schools place a larger emphasis on learning the “semiology” or language of symbols of medicine, surgery, and healthcare, which delves deeper into the philosophy of the signs and symbols of medicine than most American medical school curricula. However, some aspects of the Algerian curriculum seem outdated. Gukas states that, “At the time these [curricula] were started, they ensured high standard of medical education which was comparable to the education received in Western medical schools.”⁹⁶ There has been little effort and too few resources to make the changes and updates necessary to keep the curricula fresh and relevant to modern technology and scientific practices of the West.

The private and public medical schools in the United States generally cover the same material, with variations only in presentation and the time frame in which courses are taught. Each school in the United States appears to take a fairly unique approach in the length and frequency of pre-residency internships, as mentioned before. However, France and Algeria possess fewer variations of this nature. In the case of France this is most likely due to national regulation of healthcare. There is more evidence of problem-based learning in the US medical school curricula than in the French curricula, and even less in Algeria. This can be attributed to the fact that Algeria, along with many other African countries, has not been adequately equipped to keep up with the rapidly-evolving Western world. This analysis leads to the conclusion that

⁹⁶ Ibid., 889.

medical school curricula does not vary enormously from school to school and country to country, and is therefore not a good indicator of distinct cultures of medicine.

Comparing medical school entrance requirements is another method of determining whether or not a country possesses a distinct culture of medicine. Who can become a doctor in the United States, France, and Algeria? In the United States, a lot of requirements and pre-requisites exist for those trying to apply. A four year Bachelor's degree must precede entrance into medical school, as well as successful completion of courses in general biology, general chemistry, organic chemistry, physics, calculus, statistics. Applicants must also have taken the Medical College Admissions Test (MCAT) and received a decent score to be considered for admission. However, in France and Algeria these prerequisites and entrance exams are nonexistent. The only requirement for a student wishing to pursue a medical education is completion of a baccalauréat in the sciences, which is normally obtained after high school. Anyone can enter, and cost is not a deterrent as it might be in the United States due to government funding. The French government determines how many students may pass from the first year to the second year of medical school based on the terms of *numerus clausus*. Similar methods exist in Algeria where requirements for first-year admissions are not as stringent, but performance in the first year of medical school determines whether or not one will continue studying.

These requirements for admission reflect the culture of medicine in the respective countries inasmuch as they reflect the role of the government in providing medical education, reducing costs, and controlling the number of physicians. The role of government contributes greatly to an understanding of health outcomes and views of healthcare in each nation, and will be discussed in greater detail in a later section. In France, healthcare is universal. In the United

States, it is privatized. The French government controls how many people can become a doctor each year through *numerus clausus*, but there are few requirements or pre-requisites in applying to medical school. In Algeria, due to issues previously discussed such as lack of access to resources, political and socioeconomic instability, and a shortage in the number of doctors, healthcare is prevented from being “universal.” However, like France, there are few initial requirements for those who want to pursue medicine, but the process of selection occurs after the first year of medical school. The role of the government and national politics is significant in the formation of a culture of medicine as this analysis suggests based on its ability to affect health outcomes and regulate medical practices. This role is reflected in the admissions requirements for medical students in the United States, France, and Algeria.

Using admissions standards and medical curricula to determine if distinct cultures of medicine exist from one country to another is not a simple task. One of the major issues preventing a straightforward analysis of medical culture based solely upon admissions standards and medical curricula lies in the internationalization of medicine. According to the World Federation for Medical Education, “With ease of travel, increasing physician migration and internationalization of hitherto localized diseases, the achievement of Global Standards for medical training should be the minimum expectation from training institutions anywhere in the world.”⁹⁷ While these are the expectations, there are many reasons why so many countries in the world, particularly the developing nations of Africa, are not able to meet the minimum requirements. However, due increased globalization, healthcare is undergoing a period of homogenization. Scholars such as Isaac Gukas advocate that Africa needs the help of developed nations to achieve the quality, availability, and sustainability of healthcare that prevails in the

⁹⁷ World Federation for Medical Education. 2003. *Basic Medical Education, WFME Global Standards for Quality Improvement.*, Copenhagen: WFME Office, University of Copenhagen.

West. According to Gukas, “Partnership with developed countries and schools with established modern medical curricula will help in developing faculty and guiding change.”⁹⁸ Nonetheless, the effects of the homogenization of international medical standards have shown that a thorough analysis of medical school curricula in France, the United States, and Algeria is a poor indicator of unique cultures of medicine that exist in each country. However, admissions requirements seem to be marginally more indicative of cultures of medicine and healthcare, due in part to the relationship of government regulation of medical education standards to medical culture and health outcomes.

Governments and Healthcare

As previously discussed, a culture of medicine is determined by political, economic, and sociological factors that influence the way in which a particular society views healthcare and medicine. Providing healthcare, education, and other public services in France are viewed as the responsibility of the state. Since the governmental infrastructure of Algeria resembles that of France, similar but not identical cultures of medicine exist due to the influence of government on healthcare outcomes. In France and Algeria, universal healthcare is offered, and the cost of an education is low for the individual but still high in quality. Almost the opposite is true in the United States. Healthcare is privatized and, before the recent reforms of this year, this meant that individuals paid for procedures and medications out of pocket unless they had insurance that covered some, but rarely all of the costs. Under the stipulations of the Health Care Reform Bill however, health insurance will be required for all Americans by 2014, and if they do not take health insurance they will be issued a fine. Additionally, beginning this year, insurance companies will not be allowed to “drop” people who become sick from coverage plans or

⁹⁸ Gukas, “Global Paradigm Shift in Medical Education,” 890.

exclude children from coverage based on pre-existing conditions.⁹⁹ These reforms are moving healthcare in the United States in the general direction of offering more comprehensive health coverage to more people. Insurance coverage will be expanded to cover 32 million Americans, the bulk of who will be expected to receive care from general practice doctors. According to an article by Jessica Johnson, “Within the next decade, the American Academy of Family Physicians predicts a national shortfall of 40,000 primary-care providers.”¹⁰⁰ This is another major issue facing the future of healthcare.

Additionally, attending medical school in the United States can leave a person \$300,000 in debt or more after a four year education and residency. This is because the government does not pay for higher education like it does in European countries. This fact supports the general understanding that the United States government does not fulfill all of the roles of government such as in France, where access to healthcare is universal and costs of higher education are significantly reduced. Is one system clearly better or more effective than the other?

In order to understand the role of politics and government in the formation of cultures of medicine, it is necessary to understand what state-controlled healthcare entails, as opposed to largely privatized healthcare. In an article by Dr. Joseph Slavit, the benefits of socialized medicine are discussed. Slavit believes that the only way to ameliorate the healthcare problems in the United States is to socialize medicine and healthcare. He states, “Reorganization of medical care, practice and remuneration is essential, if the American people are to be assured of proper health care and the American doctors a decent living and unhampered professional

⁹⁹ Telegraph.co.uk, *US Healthcare Reform Bill: The Facts*, <http://www.telegraph.co.uk/news/worldnews/northamerica/usa/barackobama/7495825/US-health-care-reform-bill-the-facts.html>.

¹⁰⁰ Athens Banner-Herald: Online Athens, *Johnson: More Primary Care Doctors Needed*, http://www.onlineathens.com/stories/042510/opi_622352825.shtml.

activity.”¹⁰¹ His article in the *Congressional Digest* mentions four separate approaches to fixing the healthcare industry problems in the United States. These include implementing group medicine, establishing voluntary health insurance, advocating for compulsory health insurance, or creating a program for the socialization of medicine, the last for which he is the strongest proponent.¹⁰² As mentioned in the article, socialized medicine has the capabilities to provide medical care to everyone without fees or premiums, and disregards class, income, or other limitations that exclude those in need of medical attention.¹⁰³ Personal income and work for physicians are assured on a salaried public-official basis under a socialized system. Slavitt states that with socialized medicine, “Planned cooperative scientific practice and medical care replace the chaos, competition, and even commercialism that undermine medicine today.”¹⁰⁴

However, there are those who would argue that the socialization of healthcare is not a magical remedy in fixing the American healthcare debacle. Like in the French system, medical education would be controlled and directed by the state, the practice of medicine would be supervised by the state, and physician salaries would be determined by the state in proportion to responsibilities assumed and skills expended.¹⁰⁵ This has the potential to undermine the skills and role of the physician, and possibly diminish the quality of medical care offered. Dr. Palmer Findley argues that taking away the independence of the medical profession will take away the “happiness and prosperity of doctors.”¹⁰⁶ Another adversary of socialized medicine states that, “If the government assumes control of medicine, that heir of misery, the taxpayer, will find himself paying his own and his indigent neighbor’s medical costs, besides the salaries of a large

¹⁰¹ Joseph Slavitt, M.D., “Would a System of Socialized Medicine Be Practical for America?” *Congressional Digest*, (1935): 204-08.

¹⁰² *Ibid.*, 204.

¹⁰³ *Ibid.*, 206.

¹⁰⁴ *Ibid.*, 206.

¹⁰⁵ Palmer Findley, M.D., “Cons of Socialized Medicine,” *Congressional Digest* (1935): 219.

¹⁰⁶ *Ibid.*, 219.

organization necessary to supervise a national medical service.”¹⁰⁷ So while all citizens of a country would be covered under an insurance plan and have access to nationally-regulated healthcare, this corresponds to paying larger amounts in taxes and potentially lower salaries for physicians and lower quality healthcare. Many would argue that these are some of the trade-offs between public and private healthcare. When comparing the histories of healthcare in the United States and France, these differences are apparent in the large government role in France and the diminished government role in the United States, and represent the fundamental facets of public and private healthcare. However, with the Health Care Reform Bill, the United States seems to be moving in the direction of increasingly regulated healthcare, which in turn means a larger number of Americans will have access to more affordable healthcare. Views of healthcare as supported by the governments of France and the United States have been large contributors to their respective cultures of medicine.

The government of Algeria is a unique blend of French colonial and Arab influence. In the period immediately following independence, Algeria maintained a lot of the aspects of French bureaucracy, but beginning in the late 1970s and early 1980s began to reform many pre-existing policies. Economic reforms in Algeria were implemented in order to strengthen market mechanisms, as well as address problems with the funding of the national health sector.¹⁰⁸ There has been a gradual withdrawal of the state in recent years from administrative and financial management in an attempt to reduce the public deficit and maintain current health systems, but this has also meant that much of the financial burden is transferred to individual households.¹⁰⁹ In Algeria today, healthcare is not free. In fact, patients pay part of the costs in order to “contain

¹⁰⁷ Ibid., 219.

¹⁰⁸ Nouara Kaid Tlilane, "Healthcare Funding Problems in Algeria," *International Social Security Review* 57, no. 4 (2004): 91-110.

¹⁰⁹ Ibid., 91.

public spending on healthcare.”¹¹⁰ As discussed in earlier sections, although Algerians are, in principle, guaranteed the right to healthcare, physical access cannot be guaranteed. Moreover, funding for the health system in Algeria tends to focus solely on curative services in spite of the country’s best efforts to focus more on preventive care. However, all preventive services are provided free, along with services provided to children under the age of 16 and elderly over the age of 65, and there is no charge for the treatment of chronic illnesses.¹¹¹ One of the largest obstacles to achieving competent healthcare in Algeria is insufficient funding. A lack of trust in the healthcare system has been a large contributing factor to the formation of a culture of medicine in Algeria, and one which has negatively impacted health outcomes. According to Nouara Kaid Tlilane, “[Algerians] criticize the facilities provided, the treatment offered and the poor running of healthcare units, which can seriously compromise patient outcomes.”¹¹² Another point of interest in Algerian culture is that it is not customary for people to die in hospitals, and is actually avoided. This is one of the contributing factors to the decreasing demand for hospital care since 1984.¹¹³

Governments play a significant role in the formation of cultures of medicine, as is visible in the United States, France, and Algeria. Governments influence the level of state-regulation on medicine, varying from the high level of regulation in France to comparatively low levels in the United States. Governments determine the resources available to the public and the amount of funding allocated to hospital and outpatient facilities. Another essential governmental role is in determining levels of preventive versus curative care available to the population.

¹¹⁰ Ibid., 92.

¹¹¹ Ibid., 92.

¹¹² Ibid., 92.

¹¹³ Ibid., 93.

Curative care is often regarded as a more archaic practice of medicine. Before humans had an understanding of the origins of sickness and disease, any ailments were treated by prescribing whatever local remedies were available. As medicine has advanced, healthcare has focused more on ways to prevent illness and disease later in life through such methods as immunization, breast and prostate exams, yearly visits to a doctor, and promotion of lifestyle changes. In spite of the wealth and technological savvy of the United States, healthcare and overall population health in the country lags significantly behind other countries, particularly in areas of preventive care. According to Tom Farley and Deborah A. Cohen in *Prescription for a Healthy Nation*, “The United States ranks twenty-fourth among nations for age-adjusted mortality rate in men and thirty-first for women, below Slovenia and Costa Rica.”¹¹⁴ This is a direct result of the culture of medicine in the United States, which is affected by capitalism, commercialism, individualism, and the lack of state-run healthcare.

Preventive healthcare took off in the United States in the 1960s and 1970s, but met some unanticipated outcomes in the 1980s:

“Serious and permanent injuries were attributed to the vaccines used for immunizations. Lifestyle factors were being used as the basis for raising health insurance rates and/or denying consumer eligibility for disability benefits. Preventive screenings had become suspect as potential tools for a range of activities, from denying employment to selective abortion. Lawsuits were brought charging that occupational safety standards were being used to exclude people from certain jobs.”¹¹⁵

Even today, with the creation of organizations such as the US Preventive Services Task Force, national healthcare statistics continue to be substandard. According to Dr. David Nash, “The US healthcare system is grounded in a medical infrastructure wherein care is provided and reimbursed based on a perceived doctor-patient relationship in which “prevention” is defined

¹¹⁴ Tom Farley and Deborah A. Cohen, *Prescription for A Healthy Nation: A New Approach to Improving Our Lives by Fixing Our Everyday World* (Boston: Beacon Press, 2005), xii.

¹¹⁵ David B. Nash, M.D, "Preventive Medicine: A "Cure" For the Healthcare Crisis," *Disease Management* (2006): S1-S16.

simply: ‘eat right, exercise, take vitamins, and see the doctor regularly.’”¹¹⁶ In order to increase the efficacy of preventive healthcare, the United States must be able to alter its culture of medicine and culture of prevention in particular, by first promoting the cause of individualized prevention. This would require a movement of the health delivery system toward providing all necessary preventive services.¹¹⁷ The culture of medicine of a country to a large extent determines, or at the very least influences the varying degrees of preventive or curative health practices.

One unexplored element in the argument that governments influence cultures of medicine is the relationship between preventive healthcare techniques and capitalism. If medicine and healthcare are measured by the number of technological advancements and scientific breakthroughs in biomedicine, then these occur more frequently in industrialized, capitalist countries. However, when determining the efficacy of healthcare using a measurement of the proportion of sick people versus healthy, capitalist nations do not always come out on top. Capitalism and consumerism have been known to have adverse effects on human health in some circumstances, not to mention broader ecological and environmental implications. The American healthcare system will soon be burdened with the aging baby-boomer population, who by 2030 will see a rise in chronic conditions.¹¹⁸ By 2030, 14 million people from this group will be living with diabetes, 26 million will live with arthritis, and over 21 million will be considered obese.¹¹⁹ Longevity does not necessarily mean fewer health problems, and industrialized nations will soon face the challenges of caring for this large number of people which will undoubtedly put strain on the national healthcare system.

¹¹⁶ Ibid., S-7.

¹¹⁷ Ibid., S-8.

¹¹⁸ "Health Care Braces for Boomers; One in Six Will Have Multiple Chronic Illnesses by 2030." *H&HN: Hospitals & Health Networks* 81, no. 6 (June 2007): 71.

¹¹⁹ Ibid., 71.

Capitalism and commercialism in medicine have disabled a lot of potential preventive measures in American healthcare. One example comes from the United States and involves a researcher at Harvard, Kilmer McCully. McCully was a scientist unfortunate enough to discover a breakthrough in heart disease research that had the potential to divert attention from the discovery of connections between cholesterol buildup in the arteries and heart disease. Cholesterol theories were at the center of the medical research industry for heart disease at that time, and McCully's findings suggested that homocysteine buildup in the arteries could be an equally important factor in causing heart disease.

Homocysteine derives from methionine, which is an essential amino acid present in large amounts in protein from animal sources like meat, eggs, and milk.¹²⁰ McCully's research found that taking the essential B vitamins could reduce the amount of homocysteine in the blood and therefore reduce the occurrence of arteriosclerosis, which is a narrowing and loss of elasticity of the arteries.¹²¹ As a result of the competition with the more widely accepted cholesterol theory of heart disease, McCully lost his position at Harvard and Massachusetts General Hospital. According to one source, "Not everybody was accepting the cholesterol business, so who wanted to hear about something that would perhaps weaken the argument for cholesterol?"¹²² Much of medical research in developed nations is privately funded, and sometimes by the private commercial sector. The fight for money to carry out research leads to a tendency for results to be kept under wraps or skewed if they suggest findings that are counterproductive or undermine sales in a particular industry. The example of Kilmer McCully illustrates this phenomenon. McCully's findings did not call into question the authenticity of the cholesterol theory, but

¹²⁰ Michelle Stacy, "The Fall and Rise of Kilmer McCully," *New York Times*, August 10, 1997, SM25.

¹²¹ *Ibid.*, 2.

¹²² *Ibid.*, 4.

simply challenged whether it was the only possible explanation for heart disease. Another related example is the cellular phone industry's refusal to post warning labels on phone packaging in spite of significant research having shown positive correlation between using a wireless phone and developing brain tumors after extensive use. As the world continues to globalize, healthcare industries in developing nations will increasingly come in contact with capitalism and the commercial sector and must find ways to combat their motives with intentions to uphold national health and well-being.

This section touches on many important issues in international healthcare today, such as preventive versus curative healthcare, the pros and cons of private versus public healthcare, and the impact of capitalism and commercialism on health outcomes. The role of government, as we have discussed in some detail, is a crucial element in the determination of a country's culture of medicine. While it is an important cultural factor, there are other influences such as history, socioeconomic status, and belief systems that equally impact a society's culture of medicine.

The Future of Medical Education and Healthcare

What do the pedagogical shifts in regards to the focus of medical education mentioned in Isaac Gukas's article mean for the future of the culture of medicine? If the changes that take place are widespread and are not reflective of cultural identities from one country to another, then it can be argued that such changes are causing a homogenization, or internationalization of medicine. Such a phenomenon would supersede any cultural differences in medicine and medical practices and would cause medical education and the practice of medicine itself to take on a similar identity across the globe. Under conditions of true homogenization, a person could expect to get the same level of healthcare in Chile as they could in India or the United States. There is no question that this prospect remains in the distant future, but the beginnings of medical

homogenization are visible even in this study, and are in large part influenced and determined by the Western world. In reference to Francine Saillant and Serge Genest's book about medical anthropology, the world will bear witness to the "medical hegemony" imposed by such countries as the United States and the United Kingdom as the Western world continues to assert its belief that its idea of what constitutes effective medical education is the most merited.¹²³

There are benefits to be had in the internationalization of medical education and specifically in the establishment of international healthcare standards. The hope is that the imposition of international standards of medical education and healthcare will serve to ameliorate the conditions in many developing countries and broaden access to healthcare for billions of people. The World Federation for Medical Education insists that this does not have to mean the establishment of a common curriculum, rather the establishment of a common set of standards by which curricula can be structured to assure high quality education.¹²⁴ According to the WFME, "the quality of medicine worldwide can be improved measurably by everyone's acceptance of a set of international standards for basic medical education."¹²⁵

Health matters a great deal in developing countries, because good health is needed to assist economic development. There are noticeable trends that show a correlation between adequate medical education and overall national health. According to Lenore Manderson in *Health Matters: a sociology of illness, prevention, and care*, without good health, "Workers are absent or inefficient; primary producers are unable to meet production targets; children perform poorly in school and so are unable to meet new workforce needs; women are unable to participate fully in the economy because of time lost as a result of their own ill health and time

¹²³ Saillant and Genest, *Medical Anthropology*, xxiv.

¹²⁴ Jordan J. Cohen, "Defining international standards in basic medical education: the World Federation for Medical Education has initiated a timely discussion," *Medical Education* 34, no. 8 (August 2000): 600. *Academic Search Alumni Edition*, EBSCOhost.

¹²⁵ *Ibid.*, 600.

spent caring for others; and the costs of curative services are crippling.”¹²⁶ By improving medical education, it is thought that access to healthcare and overall health and well-being of a nation will noticeably expand.

In spite of the trends pointing in the direction of homogenization, researchers have noted several problems in using Western teaching tools such as problem-based learning in the Middle East and Far East due to “incompatible cultural attitudes like individualism, difficulty in getting involved in discussions, and exaggerated tendency to be outspoken in some of their students.”¹²⁷ More research is clearly needed to gauge how this type of learning, advocated for so strongly in the West, will be received and how successful it will be in educating future physicians in developing countries due to differences in cultural attitudes and beliefs.

A growing issue in medical schools around the world is achieving balance in the curriculum between the amount of preclinical or biological sciences and clinical science. In the past subjects such as anatomy, biochemistry, and pharmacology have received a large amount of attention, and there is growing concern in the international medical education arena that this may not be the most effective approach to training physicians. No one has yet successfully defined the appropriate ratio or amount these subjects should be taught at the undergraduate level, and least of all in Africa.¹²⁸ The future of medical education reform will undoubtedly address the issues of balance in the curriculum, and the most likely outcome will be a lessening of overall emphasis on anatomy, biochemistry, and pharmacology, and an increased emphasis on problem-based, case-by-case learning.

¹²⁶ Lenore Manderson, “Health matters in developing economies,” in Petersen, Alan, and Charles Waddell, eds. *Health Matters: A Sociology of Illness, Prevention, and Care* (Buckingham: Open University Press, 1998).

¹²⁷ HE Khoo, “Implementation of problem-based learning in Asian medical schools and students’ perceptions of their experience,” *Med Educ* 37 (2003):401–409.

¹²⁸ Leinster S., “Medical education and the changing face of healthcare delivery,” *Med Teach* 24 (2002):13–15.

Another significant problem plaguing healthcare is the shortage of physicians. In France, the system of *numerus clausus* was established by the French government in order to prevent a large surplus of new doctors in environments of low demand. It works in the opposite direction too, and can augment the number of new doctors allowed to move on to PCEM2 in order to increase the supply of doctors if demand is high. In an article by Bui Hang Da Hoan, he states that the system in itself has, in the past, actually been the source of oversupply or shortage of physicians. One example he gives is that in the 1990s there was a fear of oversupply in the next decade, and so numbers of students admitted into the second year declined noticeably, and then in 2000-2001, “the fear of shortage replaced the obsession with oversupply.”¹²⁹ This example underlines the fact that *numerus clausus* can sometimes generate more problems than it solves, simply because the number of students allowed to progress to the second year of studies can cause people to think that there will be a surplus or shortage of doctors in the future. This is yet another example of how the culture of medicine in regards to government regulation can be an indicator of healthcare and health outcomes in a country.

There is also a significant shortage of primary care physicians in the United States that is expected to become more pronounced in the near future. In an article by Jamie J. Gooch, the American College of Physicians stated, “With more people gaining access to affordable coverage and an increasing elderly population, America will need more general internists and other primary care doctors than the primary care physician supply.”¹³⁰ The article also suggests that ways to alter this trend would be to increase the amount Medicare and Medicaid pays to primary care physicians, move paying primary care physicians away from a fee-for-service basis, and

¹²⁹ Bui Dang Ha Doan, "Shortage and Oversupply of Doctors in France: Contribution of Demographic Projections," *Courrier des Statistiques* 13 (2007): 21-24.

¹³⁰ Gooch, Jamie J. "Report Shows Shortage of Primary Care Doctors." *Managed Healthcare Executive E-News* (2010), <http://managedhealthcareexecutive.modernmedicine.com/mhe/News+Analysis/Report-shows-shortage-of-primary-care-doctors/ArticleStandard/Article/detail/665256>.

increasing support for primary care training programs in medical schools.¹³¹ These changes would have to be implemented on the national level, and would require fundamental adjustments of America's culture of medicine to operate effectively.

Conclusion

Because of culture's intrinsic nature, it is impossible to determine exactly what a country's culture of medicine comprises. However, the major components of healthcare that have the power to influence its expression in society are relatively easy to identify. This paper has selected medical education curricula and admissions standards in three countries – France, the United States, and Algeria – as means of identifying some of the major factors that influence the creation of distinct cultures of medicine. The analysis assumes that such a culture of medicine does indeed exist and can be distinguished from one country to another. Culture of medicine can be defined as the belief systems, history, political, sociological, and economic factors that affect ideas of healthcare, the role of the physician in society, and expectations of the delivery of health systems in a country.

The major findings of this study demonstrate that medical education standards and curricula in different countries are not adequate indicators of a culture of medicine. This is a result of increased international pressure for medical standards and medical education to implement “homogenized” curricula in an attempt to reduce discrepancies in healthcare and doctor training. Despite these efforts, discrepancies do exist, particularly in countries like Algeria where a lack of healthcare funding and infrastructural stability prevent universal access

¹³¹ Ibid., <http://managedhealthcareexecutive.modernmedicine.com/mhe/News+Analysis/Report-shows-shortage-of-primary-care-doctors/ArticleStandard/Article/detail/665256>.

to high quality healthcare. However, marginally more information about a country's culture of medicine can be discerned from a comparison of admission standards. In the case of France, Algeria, and the United States, admissions standards reflect the level of government involvement in regulation of medical education and healthcare. Government involvement has been shown to play a large role in health outcomes and the definition of a culture of medicine.

This study has been an effort to show that cultures of medicine do exist, and have a significant impact upon healthcare standards and systems around the world. Further research using more cases for analysis would help build the argument that cultures of medicine exist and can be discerned from the methods by which doctors are selected and trained. This study has attempted to show that the development of healthcare and the establishment of medical education in different countries is a product of a number of intricately related factors. Some of these include the economic, political, and social histories of a region, as well as the level of government involvement in health outcomes. A broader understanding of the role of a country's culture of medicine lies at the heart of implementing infrastructural changes with the power to considerably improve healthcare in developing, as well as developed nations.

Appendix

Table 1. Curriculum for Johns Hopkins School of Medicine, United States –“Genes to Society”¹³²

Year 1	• Seven week course in <i>Anatomy</i> • <i>Scientific Foundations of Medicine</i> – emphasis on basic sciences, social sciences, public health, and information skills • <i>Clinical Foundations of Medicine</i> – an introduction to clinical skills such as interviewing, communication, and physical diagnosis • <i>Genes to Society</i>: (Evidence-based medicine with a public health perspective)– course divided into disciplines, including genes, proteins, cells, tissues, organs, systems, individuals, communities, environments, and societies • (Beginning in January) <i>Longitudinal Ambulatory Clerkship</i>- one afternoon each week spent in an outpatient setting with a preceptor. The course also includes didactic or web-based learning of common outpatient clinical and systems-based topics • <i>Intersessions</i> – one week sessions highlighting how basic science learned is applicable in the clinical environment. Themes include Global Health, Disaster Medicine, Health Disparities, Pain, Patient Safety, End-of-Life Care, Substance Abuse and Prevention
Year 2	• <i>Genes to Society</i> and <i>Intersessions</i> continue until February of Year 2 • <i>Transition to the Wards</i> – a four week course including integrative problem-solving modules, and an introduction to ECGs, radiographs, clinical pathology, safety, pharmacy, information systems, and community resources • <i>Scholarly Concentrations</i> – designed to integrate with summer activities and personal interests. Each student is required to complete one scholarly project in conjunction with a mentor. Possible subjects include basic translational investigation, clinical translational investigation, health policy/public health, history of medicine, and medical humanities
Year 3/4	• Students have two options for fulfilling requirements in the core clinical clerkships. These clerkships include Medicine, Surgery, OB-GYN, Pediatrics, Neurology, and Psychiatry. Option I for fulfilling clerkships is to complete all of them in Year 3. Option II allows students to delay one clerkship until Year 4. • <i>Advanced Clerkships</i> – include a <i>subinternship</i> in Medicine, Surgery, or Pediatrics, a <i>chronic care clerkship</i> (e.g., palliative care, rehabilitation, geriatrics), and a <i>critical care clerkship</i> • Opportunities to take electives such as Radiology, Urology, Orthopaedics, etc. • <i>Intersessions</i> –provide the opportunity to revisit basic science topics where they apply to clinical clerkships • <i>Transition to Residency and Prep for Life (TRIPLE)</i> – final required course prior to graduation. Practical topics include Advanced Cardiac Life Support (ACLS), procedure simulations, teamwork skills, advanced communication skills (e.g., informed consent, breaking bad news, admitting mistakes, and personal safety). Issues outside of the residency covered are leadership training, emotional health, career guidance, and managing finances
Applicant Requirements	• All applicants must have a Bachelor’s Degree • Graduates from foreign universities are generally required to have at least one year of study at a university in the United States • Undergraduate course background should include: one year of college biology with lab; one year of college chemistry with lab; one year of organic chemistry with lab;

¹³² Johns Hopkins School of Medicine Website, <http://www.hopkinsmedicine.org/admissions/innovat.html>.

	one year of calculus or statistics; one year of college physics with lab; and 24 semester hours in the humanities, social sciences and behavioral sciences • Medical College Admissions Test (MCAT) is required • A committee letter, or if none is possible, two letters of recommendation from senior faculty in science departments and one from a non-science faculty member • To those applicants with a year or more of full-time employment, a letter of recommendation from a supervisor or graduate faculty member is required
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Table 2. Curriculum for University of Michigan Medical School (Public Medical School)¹³³

M1 (Year 1) Foundation : students begin seeing patients in the first week of class. The Family Centered Experience, longitudinal cases and clinical weeks are designed to reinforce what students are learning in classes and applying it to a clinical setting	• <i>Patient Populations</i> (3.5 weeks); <i>Cells and Tissues</i> (4 weeks); <i>Clinical Foundations of Medicine</i> (1 week): Doctor/Patient Relationship, Senior Visits, Complementary and Alternative Medicine; <i>Musculoskeletal, Cardiovascular/Respiratory</i> (7 weeks); <i>Clinical Foundations Of Medicine</i> (1 week): Clinical Skills I; <i>Renal, Gastrointestinal/Liver</i> (5 weeks); <i>Endocrine/Reproduction, Immunology</i> (4 weeks); <i>Clinical Foundations Of Medicine: Clinical Skills II</i> (1 week); <i>Central Nervous System, Head and Neck</i> (3 weeks); <i>Clinical Foundations Of Medicine: Clinical Skills III</i> (1 week); <i>Infectious Disease/Microbiology</i> (5 weeks); <i>Clinical Foundations Of Medicine</i> (3 weeks): Clinical Educator Program I, Human Growth and Development
M2 (Year 2) Strengthen Foundation: students continue interdisciplinary study of the organ systems, work on patient histories, physical exams, and presentations under faculty supervision	• <i>Cardiovascular, Respiratory, Renal</i> (8 weeks); <i>Clinical Foundations of Medicine</i>: (2 weeks) Clinical Educator Program I, Electives, EBM; <i>Psychiatry, Neurosciences/Special Senses, Musculoskeletal, Dermatology, Hematology/Oncology</i> (9.5 weeks); <i>Clinical Foundations of Medicine</i> (2 weeks): Clinical Educator Program II, Comprehensive Clinical Assessment Exam I; <i>Gastrointestinal, Endocrine, Reproduction</i> (6.5 weeks); Comprehensive Clinical Assessment Exam I (1 week); USMLE Step 1- United States Medical Licensing Examination™(6 weeks)
M3 (Year 3) Expand Knowledge – students assume increasing responsibility for patient care under faculty supervision	• <i>Core Clinical Clerkships</i>: Internal Medicine (12 weeks); Surgery (8 weeks); Pediatrics and Communicable Diseases (8 weeks); Obstetrics/Gynecology (6 weeks); Psychiatry (6 weeks); Family Medicine (4 weeks); Neurology (4 weeks); Comprehensive Clinical Assessment Exam II (1 week) • For the Duration of Year 3: Standardized Patient Exercises, Professionalism/Doctoring (integrated throughout curriculum), Seminars in Medicine (interdisciplinary topics)
M4 (Year 4) Explore the Future – students expected to discuss epidemiology, pathogenesis, pathophysiology, and relevant social and behavioral issues, in addition to evaluation and treatment	• Advanced Clinical Experiences: Emergency Medicine (4 weeks); ICU and Subinternships (8 weeks); Advanced Medical Therapeutics (4 weeks); Electives, Research (24 weeks) • For the Duration of Year 4: Standardized Patient Exercises, Professionalism/Doctoring (integrated throughout curriculum), USMLE Step 2 – United States Medical Licensing Examination™
Requirements for Admission	• 2 semesters of Inorganic Chemistry with lab, 2 semesters of Organic Chemistry with lab, 1 semester of Biochemistry, 2 semesters of Biology with lab, 2 semesters of Physics with lab, 2 semesters of

¹³³ University of Michigan School of Medicine Website, <http://www.med.umich.edu/Medschool/edu/md.htm>.

	English Composition (Writing), 6 semesters of non-science courses • Applicants must be US citizens or permanent residents of the United States • Each applicant must have completed: ○ At least a four year high school education or equivalent ○ At least three years (90 semester hours) of course work in an accredited college or university within the United States or Canada ○ The Medical College Admissions Test (MCAT)
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* First and second years begin in August, third and fourth years begin in May

Table 3. Curriculum for the Faculté Libre de Médecine in Lille, France¹³⁴

PCEM1 – Year 1 (Broken up into 6 modules)	• M1: Physics and Biophysics • M2: General Chemistry (Structural and Organic), Biochemistry and Molecular Biology • M3: Cellular Biology and Cytology, Histology, and Embryology • M4: Anatomy • M5: Physiology, Statistics • M6: Human and Social Sciences ○ Students take le concours in order to continue to the second year
PCEM2 – Year 2: a deepening of knowledge from PCEM1, but with more practical applications	• Anatomy, Medical English, Biochemistry and Molecular Biochemistry, Sensory Biophysics, Genetics, Histology, Psychology and Sociology, Medical and Surgical Semiology (Semiotics), Fundamental Hematology, Immunology, Biochemical Semiology, Neuroscience, and Optional Electives • One internship of four weeks under the supervision of hospital nurses
DCEM1 – Year 3: a stronger emphasis on apprenticeships within the university clinic and hospital	• General Pathological Anatomy, Special Pathological Anatomy, Bacteriology and Hygiene, Virology, Fundamental Parasitology, Pharmacology, Surgical Semiology, Medical Semiology, Pathology of Locomotive Devices, followed by a Medical Apprenticeship Exercise • One internship of five weeks to learn hospital functions
DCEM2 – Year 4: a stronger emphasis on apprenticeships within the university clinic and hospital	• Studies divided into modules including: An Understanding of Birth; Maturation and Vulnerability; Relationship between Locomotion – The Handicapped and Incapacitated; Ageing; Arteriosclerosis-Thrombosis-Hypertension; Ophthalmology, Endocrinology, and Pneumology • Four full-time hospital internships, two months each
DCEM3 – Year 5: a stronger emphasis on apprenticeships within the university clinic and hospital	• Divided into five modules including: Pain, Palliative Care, and Companionship; Health and the Environment – Transmissible Diseases; Immunopathology – Inflammatory Reactions; Oncology and Onco-Hematology; Abdomen-Pelvis Studies • Three full-time hospital internships at two months each, and one part-time internship of four months
DCEM4 – Year 6:	• One module: Clinical and Therapeutic Synthesis – Emergency Medicine • Four part-time hospital internships of three months each • Upon completion of Year 6, students take the National Classifying Exam which determines the focus of their residency programs
Third Cycle – Residencies that can	• Students who wish to practice general medicine fulfill their residency requirements at the Faculté Libre, and those who want to specialize are

¹³⁴ Faculté Libre de Médecine Website, <http://flm.icl-lille.fr/cursus/cursus-preparation.asp>.

last from 3-5 years	matriculated to the hospital at the Catholic Institute of Lille Residencies require 200 hours of service over a period of six semesters
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Table 4. Curriculum for the University of Algiers, Algeria¹³⁵

Year 1	- Cytology; Human Physiology; Genetics; Organic chemistry; Structural Biochemistry; Biophysical Physiology; Biostatistics; Informatics; Introduction to Medical Ethics - Structural Chemistry; Physics and Biophysics; Human Physiology; and General Embryology
Year 2 – The Preclinical Cycle	- A study of Locomotion; the Motor System and the Peripheral Nervous System - Biophysics II; Metabolic Biochemistry; Anatomy applied to medical imaging, histology and embryology (study of the various organs from the structural, functional, and embryological development perspectives) - The Cardiovascular System; the Respiratory System; Digestive System; Urinary System; Central Nervous System; Nutrition and Metabolism; the Endocrine Glands; and Reproduction
Year 3 –The Clinical Cycle	Microbiology; Parasitological Studies; Pharmacology; Physio-Pathology; Pathological Anatomy; Radiology; Immunology; Semiology; Bacteriology and Virology
Year 4	Cardiology; Pnemo-physiology; Bacteriology; Infectious Diseases; Psychology; and Gynecology and Obstetrics
Year 5	Traumatology; Urology; Pediatrics; Psychology; Psychology; Gynecology and Obstetrics; and Endocrinology
Year 6	Ear, Nose, and Throat; Ophthalmology; Dermatology; Social Medicine
Year 7 – The Internship	- This year comprises four separate internships of a duration of three months each in the fields of General Medicine, Surgery, Gynecology/Obstetrics, and Pediatrics - Each internship requires that the student write a full report on information learned, findings, and reactions to the internship as a part of the requirements for the degree in Medicine
Graduate Level	- This stage of medical education is separated from the first seven years of pre-clinical and clinical studies and separated into general and specialized cycles: - Diploma of Specialized Medical Studies – students train to be a doctor in one of multiple specializations including but not limited to Pediatrics, OB/GYN, Emergency Medicine, and Surgery (4-5 years) - Doctorate in Medical Sciences – Duration 4-5 years

¹³⁵University of Algiers Website, http://www.univ-alger.dz/univ_ang/index.php/medicine/medicine.html.

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