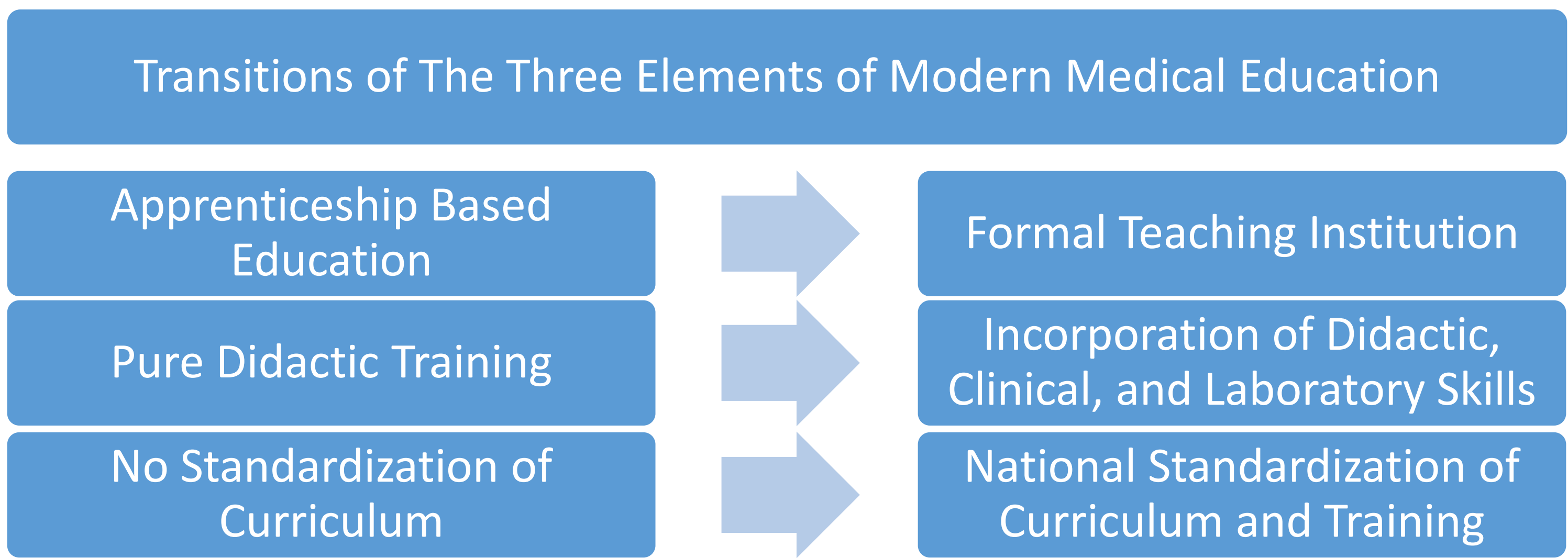


Overview and History of Medical Education in Germany, France, United Kingdom, and the United States

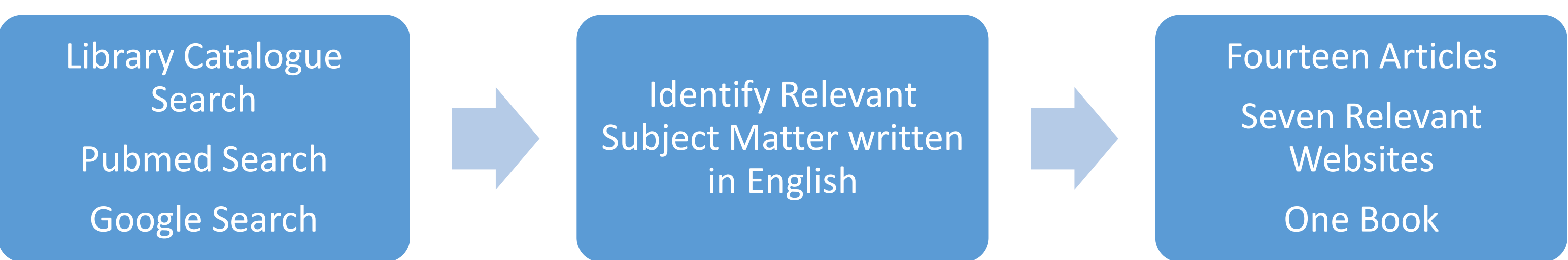
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Abstract: The modern Western undergraduate medical education system involves the incorporation of three main teaching methods: didactic classroom learning, clinical skills practice, and laboratory training. The extent to which each method has been formally emphasized has varied between countries and time periods. From the early 1700s until the early 1900s, three main changes in medical education were identified that define the transition from the pre-Age of Enlightenment methods of teaching to the modern day medical education systems in the United States and Western Europe. These are: 1. The abandonment of apprenticeships in favor of more formal training in universities and teaching hospitals. 2. The combination of didactic learning, laboratory training, and clinical skills practice. 3. The standardization of medical school curricula and the granting of medical licenses to reduce variation in the competencies of different physicians. These three changes occurred in different countries at different times, but the general trend seen indicates that most educational innovation occurred first in the German states before being adopted by its neighbor France. The United Kingdom and the United States were the last major Western countries to adopt the three changes and enter the modern era of medical education.

Introduction: Western medical education has undergone several important changes from the medieval period, dominated by decentralized guilds and diverse apprenticeships, to the modern format, taking place in large universities with highly structured and standardized curriculum. The evolution of our current system was driven by changes occurring in different times over different areas in the Western world. The modern nations of Germany, France, the United Kingdom, and the United States have been the areas most responsible for driving this innovation and change in the West, largely due to their statuses as the most economically and culturally influential countries in the Western World over the past two centuries. Their own individual innovations in medical education influenced and interplayed with each other to create unique modern undergraduate medical education systems in each country that still retain three essential elements to differentiate them from their pre-industrial pasts. These three elements are 1. The transition from an apprenticeship-based education to education in a formal teaching institution, 2. The incorporation of didactic learning, laboratory training, and clinical skills practice into the educational curriculum, 3. The standardization of medical school curriculum and training among their multiple teaching institutions. The goal of this paper is to give an overview of the modern undergraduate educational system within each of the four Western countries, and to give a brief historical overview of how these modern systems came to be.



Methods: The term “history of medical education” as well as minor variations of that term was used to search the library catalogue of the Strauss Health Sciences Library at the University of Colorado Anschutz Medical Campus. One relevant book was identified and utilized for this paper. The online database PubMed was searched for articles, opinions, and reports published until November 2020. The primary focuses of the search was to identify sources for the historical development of medical education as well as the current state of medical education in Germany, France, the United Kingdom, and the United States. Search terms included, but were not limited to “undergraduate medical education,” “history of medical education,” “history of medical education in [relevant country],” “medical education in [relevant country],” “medical school in [relevant country],” “changes in medical education,” and several varying combinations of the mentioned phrases. References found within the articles discovered were searched as well. The “similar articles” suggested by PubMed were often examined and searched as well. Only articles written in English and those that were found to contain relevant subject matter were utilized. Fourteen articles with pertinent subject matter were identified. The author also utilized resources provided by official government published websites from the United States and the United Kingdom, producing seven relevant sources.



Results:

Germany	France
<ul style="list-style-type: none">• Transitioned to university education in Early-1700s• Began standardizing curriculum in Late-1700s• World leader in clinical training in Early-1800s• Began introducing laboratory training in Mid-1800s• Experienced a renewal in clinical focus after the first two decades of 1900s	<ul style="list-style-type: none">• Main source of medical education took place in universities as early as 1600s• Throughout 1700s experienced increasing standardization of curriculum and clinical training• Influenced by German neighbor, began introducing laboratory training shortly after German states
United Kingdom	USA
<ul style="list-style-type: none">• Prior to 1858, clinical education took place in apprenticeships• Medical Registration Act 1858: First major change to standardize medical curriculum and transition education from apprenticeship-based to university based• UK followed France in the adoption of laboratory based education	<ul style="list-style-type: none">• Very little regulation with rapid growth of private medical schools throughout 1800s• No federal oversight of curriculum and training standardization until Early-1900s• 1910 Flexner Report highly critical of medical education in USA• Post-Flexner rapid adoption of standards overseeing curricula, clinical, and laboratory training

Limitations:

- Results biased by use of English written sources only
- Limited access to primary resources

Conclusions:

Adoption of different elements of modern medical education took place at different times in different countries

Countries were often influenced by neighboring nations and by their own historical cultural tendencies

Changes in technology and understanding of disease was a driving factor in the modernization of medical education

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