WHAT CURRICULUM CONTENT CONTAINS INFORMATION AND EDUCATION ABOUT PERSONS WITH DISABILITIES AT YALE'S, QUINNIPIAC'S, AND UNIVERSITY OF CONNECTICUT'S SCHOOLS OF MEDICINE?

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Final- Individual Research Project
May 07, 2021

Abstract

People with disabilities account for sixty-one million adults in the United States, which is about one in four adults (CDC, 2019). People with disabilities visit the doctor's office more frequently, experience many health disparities, and receive poorer quality of health care, when compared to those without disabilities in the United States (Seidel et al., 2017). The federal government has identified the need for improved disability awareness education for future healthcare professionals and the solution is to include this education in the medical school curriculum (Seidel et al., 2017). However, many challenges have kept this education from entering the medical school curriculum. This paper explores the medical school curriculum in three Connecticut schools of medicine for their inclusion of information and education on persons with disabilities.

Introduction

One in four adults in the United States have a disability, which means twenty-six percent of adults in the US has a disability (CDC, 2019). Thirteen-point seven percent of adults have a mobility impairment and ten-point eight percent have a cognitive disability (CDC, 2019). This means that people with disabilities are the largest minority group in the United States (Seidel et al., 2017). People with disabilities are more likely to have obesity, be a smoker, cardiovascular disease, and diabetes, when compared to people without disabilities (CDC, 2019). Individuals with disabilities visit the doctor's office more frequently and experience many health disparities and inequities in the healthcare system (Coret et al., 2018; Seidel et al., 2017). People with disabilities receive poorer quality of health care and self-report being unsatisfied with the quality of care that they

receive (Coret et al., 2018; Seidel et al., 2017). Most commonly people with intellectual and developmental disabilities report experiencing disrespectful staff, traumatic encounters with healthcare professionals, and lack of knowledge about their condition and complexities that they may have on the part of the provider (Coret et al., 2018). One in three adults with a disability do not have a primary care physician and have unmet health needs due to the cost of healthcare services (CDC, 2019). This leads to people with disabilities experiencing health disparities in preventative care and health maintenance (Seidel et al., 2017). There are many barriers that cause these health disparities that go beyond the chronic medical condition or co-morbidities that people with disabilities may have. These barriers include physical accessibility to sources of healthcare services, economic instability (poverty, unemployment, or low socioeconomic status), communication barriers, health literacy level, health insurance inaccessibility, and stereotypes about disability (professional and lay person attitudes) (Holder et al., 2009; Seidel et al., 2017). Providers that have negative attitudes towards people with disabilities that are either implicit or obvious leads to inadequate physical examinations being performed and diagnostic tests being ordered, as well as poorer quality supervision of the individual's preventative care (Symons et al., 2014).

The federal government has identified the need for improved disability awareness education (Seidel et al., 2017). The Office of the Surgeon General issued a report in 2002 and 2005, where they specifically address the health disparities and goals to improve the health and wellness of people with disabilities. In both Calls to Action, the Office of the Surgeon General cites the "lack of provider training as a major barrier to high-quality health care for this population (people with disabilities)" (Office of

the Surgeon General, 2002; Office of the Surgeon General, 2005). As a response to the Call to Action in 2002, the United States Commission on Dental Accreditation in 2004, adopted a new standard for dental schools and dental hygiene curriculums (Holder et al., 2009). The Commission on Dental Accreditation now requires that dental program graduates be “competent in assessing the treatment needs of patients with special needs” and “patients with special needs” has been defined as, people with developmental disabilities, special healthcare needs, physical limitations, but also any patient that requires a modification to the normal dental routine due to a medical, physical, psychological, or social situation (Holder et al., 2009). However, there has been no similar response from the medical field.

There continues to be limited educational opportunities for medical students to learn about caring for people with disabilities (Holder et al., 2009). It is rare for medical students to receive clinical training on providing care to an individual with a disability both while still in medical school and in a residency program (post-graduation from medical school) (Holder et al., 2009). In one study that administered a survey to 167 American medical schools, both MD and DO programs were included, aimed at finding out which of these schools have disability awareness education in their curriculum, showed that of the 75 schools that responded to the survey only 39 had such education in their program (Seidel et al., 2017). The survey results also showed that within the 39 schools that reported having disability awareness education in their curriculum, most schools focused on children and adults with physical disabilities and the most common format for teaching this information was done through guest speakers (Seidel et al., 2017). The results also showed that the most common topic that was discussed, in

regard to disability awareness education, was communication skills and how to communicate with people who have disabilities (Seidel et al., 2017). In another study, the authors evaluated seven American medical schools that have a training program that involved standardized patient's both with disabilities and programs without patient's with disabilities, but had patients portray having a disability (Long-Bellil et al., 2011). These results showed that the most common goals for these training programs was to educate the students on communicating appropriately and effectively with an individual with a disability, providing the ability to interact and feel at "ease" with an individual with a disability, and to debunk common myths about individuals with disabilities, such as that they cannot speak for themselves or that they cannot have a good quality of life (Long Bellil et al., 2011). A primary goal for four out of the seven programs was for them to serve as an educational opportunity for the medical students and required no evaluation of the students in how they performed in the training program (Long-Bellil et al., 2011).

Previous research has also demonstrated a wide gap in the views of the inclusion of this education into the curriculum between the administrators of dental and medical programs, as well as the students (Holder et al., 2009). In a survey that was administered to medical students that attended the World Congress on Disabilities, results showed that fifty-six percent of respondents reported feeling unprepared to care for this patient population after graduation and eighty-one percent reported no clinical training on caring for this patient population (Holder et al., 2009). However, in this study a similar survey was also administered to the deans of medical schools, which showed that sixty percent of the deans reported that graduates from their programs are

competent to treat individuals with disabilities (Holder et al., 2009). Practicing physicians have reported feeling overwhelmed when managing the care of someone with a disability and acknowledged that this was due to a lack of experience and exposure with this population (Coret et al., 2018).

One study integrated a four-year curriculum designed around disability awareness education into already existing medical school curriculum in a school New York (Symons et al., 2014). The integrated curriculum was administered to the first-year class, so the entire class participated in the curriculum for their four years of medical school (Symons et al., 2014). The control group were medical students enrolled in a comparable program in another medical school in the same region (Symons et al., 2014). A pre and posttest was administered to the participants of both groups that was aimed at measuring the student's attitudes and comfort level toward people with disabilities on a Likert-scale (Symons et al., 2014). The results for the pre-test showed that there was no difference between the controls and the students receiving the intervention in their initial responses (Symons et al., 2014). However, in the post-test results the authors showed that for the students receiving the intervention (integrated curriculum on disability), these students reported more comfort in interacting and being around individuals with disabilities than the control group (Symons et al., 2014). Students that received the integrated curriculum, also were more likely to acknowledge that persons with disabilities are just as happy as someone without a disability (Symons et al., 2014). Another important result of this study was that the students receiving the intervention reported that they would be comfortable around someone with a disability in the community setting (outside of the clinical setting) (Symons et al., 2014).

Previous research has identified that there are three commonly reported barriers to implementing information and education on persons with disabilities into the medical school curriculum. The first barrier is no one advocating for the inclusion of this information in the curriculum with in individual medical schools, even though inclusion of this material has been advocated for nationally for over a decade (Seidel et al., 2017). Time is the second largest reported barrier because of how much material is already expected to be taught and mastered in a medical school curriculum (Seidel et al., 2017). In order to implement this information and education into the curriculum, schools should be integrating the information into the already existing curriculum. For example, in an OBGYN class discussing the pelvic exam, a skills workshop can be included that is on different positioning for the exam, so that females in a wheelchair can also be examined (Seidel et al., 2017). Finally, inadequate resources are the third reported barrier to implementation of this information (Seidel et al., 2017). However, even though there are reported barriers to the inclusion of this information and education on persons with disabilities in the medical school curriculum, these do not outweigh the necessity of this information for future medical providers to learn and master. This paper aims to explore the curriculum of Yale University's School of Medicine, Quinnipiac University's Frank H. Netter School of Medicine, and the University of Connecticut's School of Medicine for their inclusion of information and education on persons with disabilities.

Methods

University of Connecticut's Library Database was used to conduct a literature review. Curriculum reports were obtained through the publicly available Annual Medical School Questionnaire results that are available on the Association of American Medical

Colleges website. This questionnaire is administered to all 154 MD medical school programs and the curriculum report has a content documentation topic search option, so that a curriculum topic can be selected, and the data results are then presented in a bar graph. In order to explore the curricula of the three schools of medicine, this was done by reviewing available information on the individual school's curriculum websites. Finally, existing resources that are available for implementing this information into the curriculum was researched.

Results

The content documentation portion of the AAMC Curriculum Reports was used to search disability related topics. Only two topics were disability related. The first was the topic of Developmental Disability. **Figure 1** shows a screen shot of the bar graph that is produced, when the data is filtered to this topic. This shows that out of the 153 MD schools that responded to the 2019-2020 annual survey 146 schools report including this topic in a required course and/or in an elective course for students (AAMC, 2021). 137 schools report having this topic in a required course and/or an elective that is offered to students as a pre-clerkship opportunity and 124 schools report offering this topic in a required and/or an elective during the clerkship opportunity of medical school (AAMC, 2021). The second topic related to disability that could be selected is Rehabilitation/Care of the Disabled. **Figure 2** shows a screen shot of the bar graph that is produced, when the data is filtered to this topic. Of the 153 schools that responded to the annual survey for the 2019-2020 school year, 151 report including this topic in a required and/or an elective course (AAMC, 2021). 113 schools report that this topic is

discussed in pre-clerkship courses and 140 schools report this topic in clerkship courses (AAMC, 2021).

Results: Yale University's School of Medicine

Figure 3 shows a screenshot of the four-year curriculum for Yale's School of Medicine that is supplied on their curriculum website. Year one and half of year two is spent in the classroom. In the second half of year 2 the medical students transition to their clerkship opportunities (Yale School of Medicine, 2019). The last half of year 2 transitions the students into their sub internships, electives, and research, which continues into year 4 (Yale School of Medicine, 2019). Yale's curriculum includes eight master courses, three longitudinal courses, and nine longitudinal themes (Yale School of Medicine, 2019). The master course titles are the following: Introduction to the Profession, Scientific Foundations, Genes and Development, Attacks and Defenses, Connection to the World, Energy and Metabolism, Homeostasis, and Across the Lifespan (Yale School of Medicine, 2019). The nine longitudinal themes that are described to be themes across all the courses are the following: biochemistry, cell biology, embryology, genetics, pathology, public health and clinical epidemiology, pharmacology, physiology, and diagnostic methods (Yale School of Medicine, 2019). Upon further exploration of the Yale School of Medicine's curriculum website, the themes for each of the eight master courses were found. These themes were evaluated for their explicit mention of disability or disability related topics (not explicitly mentioning disability). Developmental genetics is a topic discussed in the master course entitled Genes and Development. In the master course, Connection to the World, themes such as Basic Organization and Mechanics of the Nervous System, Spinal Cord and

Brainstem Motor Systems, Cognitive and Behavioral Disorders, and Development may include information and education on persons with disabilities (Yale School of Medicine, 2019). Non-Clinical electives for Year 1 and 2 medical students were listed on the school's curriculum website, along with descriptions on the courses. However, none of the 10 electives titles or descriptions explicitly use disability or disability related topics. **Figure 4** shows the 10 elective course titles.

Results: Quinnipiac University's Frank H. Netter School of Medicine

There are three main requirements for medical students to take in year 1 and year 2, which are the pre-clinical or pre-clerkship years. Year 1 consists of Foundations of Medicine I, Clinical Arts and Science I, and Scholarly Reflection and Concentration Capstone I (Quinnipiac School of Medicine, 2020). Foundations of Medicine I covers basic medical sciences foundational knowledge, covering themes such as human biology and the impact of psychological, social, cultural, and economic factors on human health (Quinnipiac School of Medicine, 2020). Clinical Arts and Science I covers foundational clinical skills and medical student home, which is where the medical student is placed in a clinical setting like a primary care office (Quinnipiac School of Medicine, 2020). Year 2 consists of Foundations of Medicine II, Clinical Arts and Science II, and Scholarly Reflection and Concentration Capstone II. Foundations of Medicine II is described as discussing the following themes, knowledge on pathophysiology and epidemiology of disease, behavioral and social sciences, biomedical ethics, epidemiology, pharmacology, and nutrition (Quinnipiac School of Medicine, 2020). Clinical Arts and Science II is described as building on skills learned in CASI and continuing the medical student home (Quinnipiac School of Medicine, 2020).

Specifically, the curriculum website describes CASII as being dedicated to advancing the student's ability to perform the physical examination, as well as advancing their communication skills with a focus on delivering unwelcoming news and sharing medical information (Quinnipiac School of Medicine, 2020). **Figure 5** shows a screen shot of the Year 1 and Year 2 Foundations of Medicine course schedule broken up by organ system (Quinnipiac School of Medicine, 2020). The capstone course is a four-year course, which is designed around a topic the student is passionate about (Quinnipiac School of Medicine, 2020). Year 3 and Year 4 include clinical requirements, as well as electives, sub-internships, and continuing the capstone project. In year 3, students are required to have a clerkship in the following topics: internal medicine, OBGYN, pediatrics, primary care, psychiatry, and surgery (Quinnipiac School of Medicine, 2020). There are opportunities for students to participate in electives in Year 3, but they have to meet specific requirements prior to approval for an elective course (Quinnipiac School of Medicine, 2020). Finally, in Year 4, students are required to choose a clerkship in either emergency medicine or critical care, and one sub-internship (Quinnipiac School of Medicine, 2020).

Results: University of Connecticut's School of Medicine

The University of Connecticut's School of Medicine recently published a new curriculum, which is called the M Delta Curriculum for the Class of 2020 and Beyond. This was the only curriculum that was explored, as the Legacy Curriculum for classes prior to 2020 is still available to explore on the website. In the new curriculum there are three stages. The first stage is spent in the classroom and has the following courses: Case Oriented Essentials, Fabric of Anatomy and Biology Lab, Delivery of Clinical Care,

Clinical Home (this is very similar to the medical student home offered at Quinnipiac's School of Medicine), Clinical Longitudinal Immersion in the Community, Vertically Integrated Teams Aligned in Learning and Scholarships, Discovery and Scholarship, and Individualized Learning Opportunities (Wallace, 2020). In reviewing the course descriptions offered on the curriculum website none of the classes specifically mention disability or disability related topics. The Case Oriented Essentials is described as covering basic medical and biopsychosocial sciences (Wallace, 2020). The Fabric of Anatomy and Biology Lab was described as covering anatomy and microanatomy that is clinically relevant to structures of the human body (Wallace, 2020). In stage 2, the students transition to clinical clerkships in March and stage 3 is advanced clinical experiences with the transition into residency (Wallace, 2020). The graduate course catalog for the current semester was accessed and filtered for the medical school classes, then searched for the term disability, which returned 0 results. There is one elective that is known to be offered to the medical students, which is titled Caring for Children with Disabilities: The Medical Home. This course is offered as a Medical School Elective through the University Center for Excellence in Developmental Disability.

Available Resources

The website for the American Academy of Developmental Medicine and Dentistry was explored for their recommendation on the implementation of information and education on persons with disabilities into the medical school curriculum. AADMD's mission is to "improve the quality of healthcare for individuals with intellectual and developmental disabilities (IDD)" (AADMD, 2021). In 2009, AADMD developed a

National Curriculum Initiative in Developmental Medicine. The purpose of this national curriculum initiative is to “define and integrate the concepts of Developmental Medicine into the medical school curriculum of every medical school in the US” (AADMD, 2021). Developmental medicine focuses on persons with IDD across their lifespan and this is considered a medical specialty (AADMD, 2021). Quinnipiac’s Frank H. Netter School of Medicine is listed as a medical school partner for the curriculum’s initiative as Cohort 4 for the year 2020 (AADMD, 2021). The website has links to educational toolkits designed for providers to learn more about ways to help improve the healthcare for persons with IDD, as well as links to resources that the national curriculum initiative has compiled that they believe to be helpful, these include a link to Special Olympics Inclusive Health and an Inclusive Health Overview video (AADMD, 2021). There is a section for toolkits under the National Curriculum Initiative in Developmental Medicine’s section of the website, but these are not published on the website at this time.

Conclusion and Limitations

In this exploratory paper aimed at describing the curriculum for the three-medical school’s in CT, in terms of their inclusion of information and education on persons with disabilities, the curriculum website for each of the schools explored. The typical schedule for a medical student in terms of the required classes and yearly breakdown was reported in this paper. Descriptions for any required courses were limited to what was available on the curriculum website. For two out of the three websites the electives were not listed, so it is unknown if there are electives that are offered that mention disability. However, this paper shows how in just reporting on the available information on the curriculum websites, there is no mention of disability or disability related topics. A

limitation of this paper is that all the information comes from what is publicly available on the individual school's websites. This meant that specific course syllabi and course catalogs that may include more detailed descriptions were not available to be reviewed. However, this paper highlights the great need for the inclusion of information and education on persons with disabilities in the medical school curriculum and explains the current curriculum being offered at the three medical schools in CT.

Figure 1: Graphic from the Association of American Medical Colleges showing the number of medical schools that include the topic of Developmental Disabilities in a required and/or elective course based off the Annual Medical School Questionnaire.

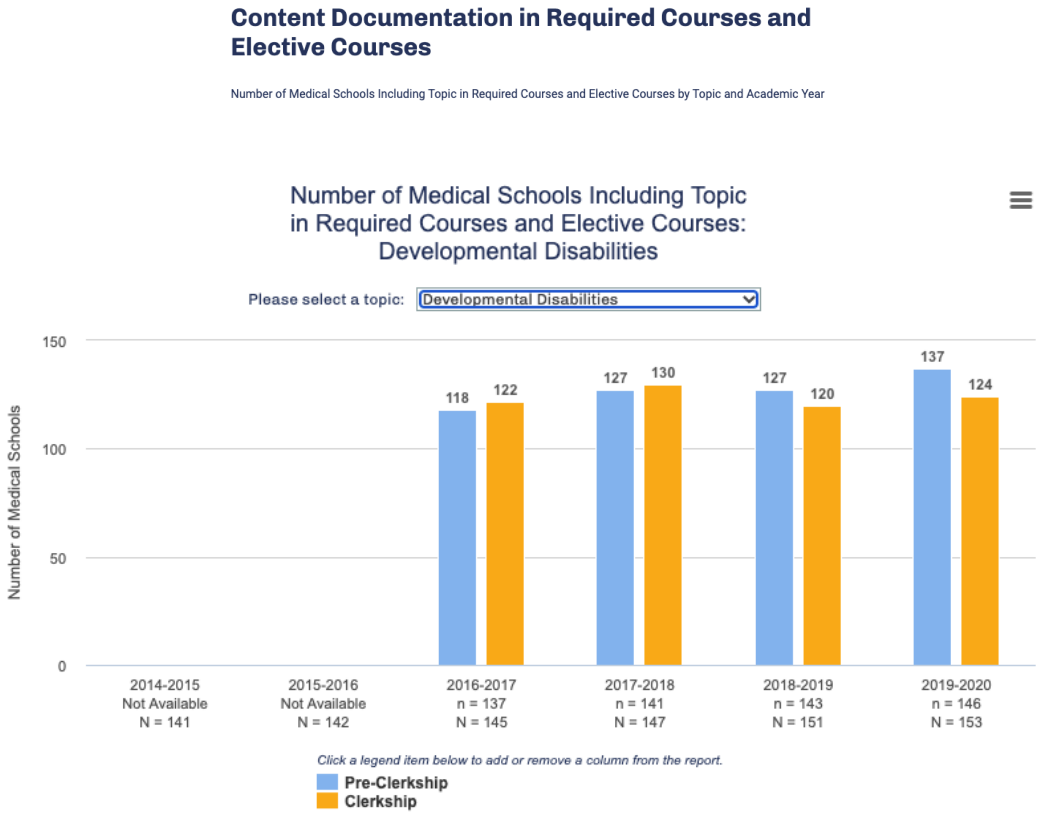

Image from: Association of American Medical Colleges. (2021). *Content Documentation in Required Courses and Elective Courses*. AAMC. https://www.aamc.org/data-reports/curriculum-reports/interactive-data/content-documentation-required-courses-and-elective-courses

Figure 2: Graphic from the Association of American Medical Colleges showing the number of medical schools that include the topic of Rehabilitation/Care of the Disabled in a required and/or elective course based off the Annual Medical School Questionnaire.

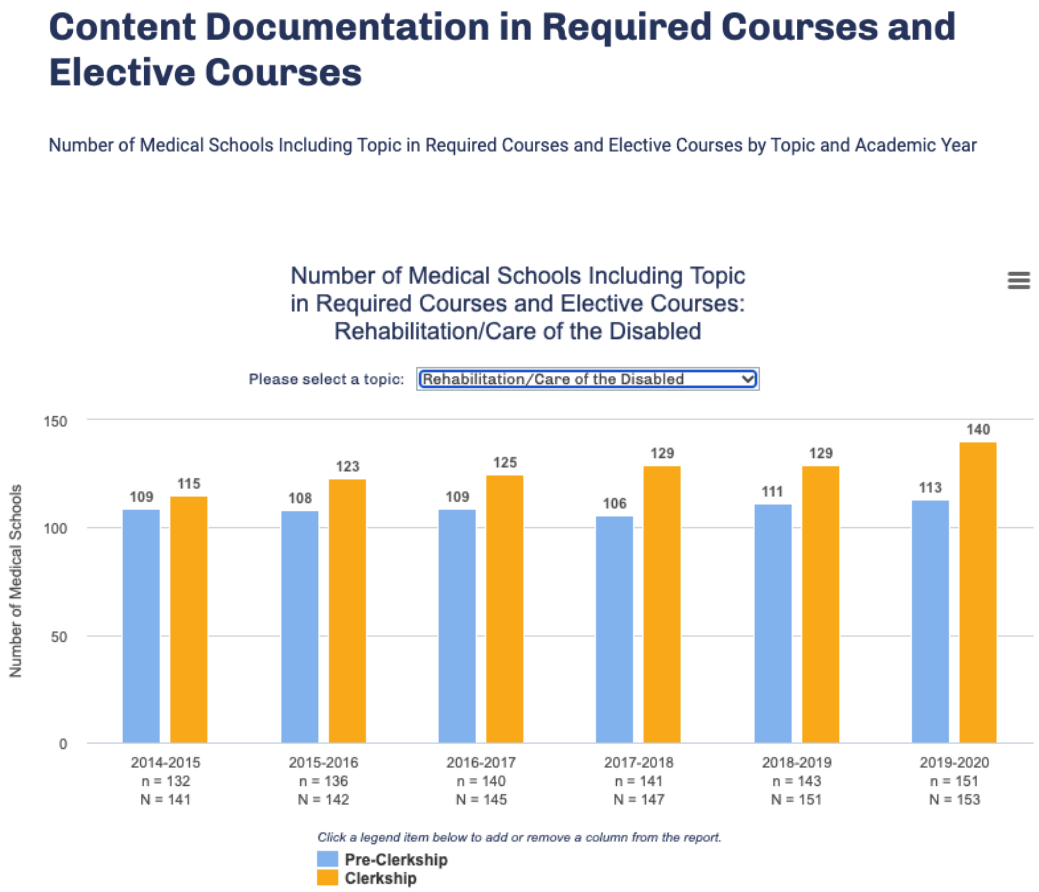

Image from: Association of American Medical Colleges. (2021). *Content Documentation in Required Courses and Elective Courses*. AAMC. https://www.aamc.org/data-reports/curriculum-reports/interactive-data/content-documentation-required-courses-and-elective-courses

Figure 3: Yale University School of Medicine's graphic for their medical school curriculum over the months of the school year for year 1 through 4.

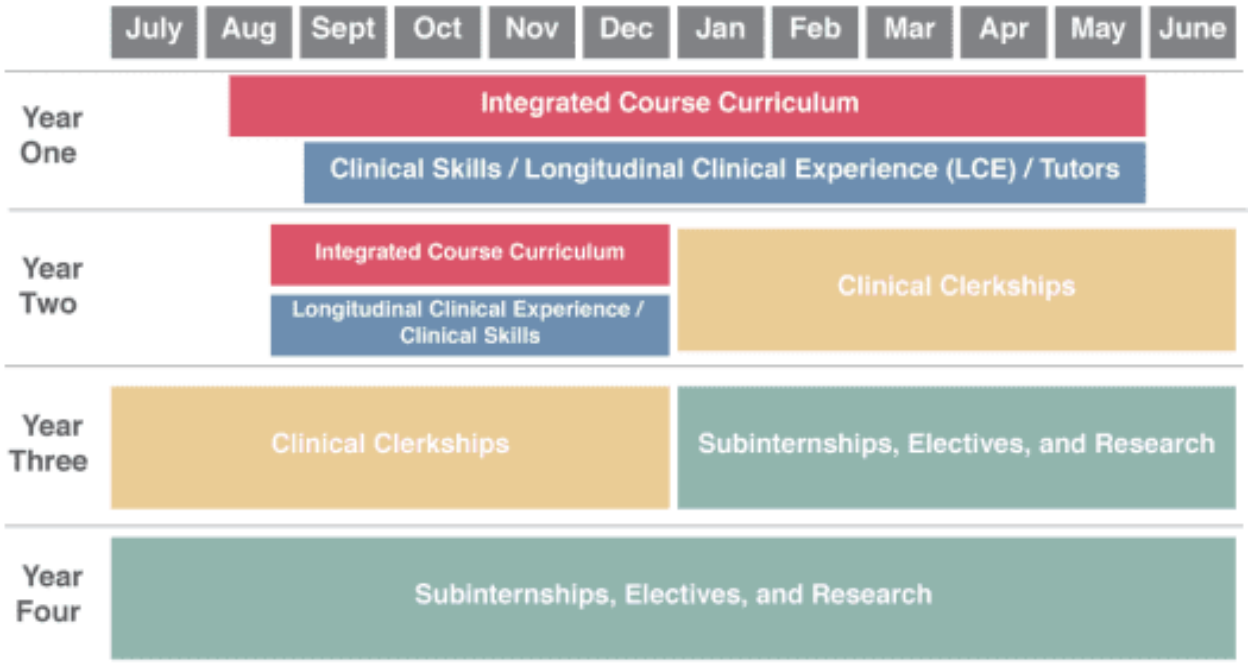

Image from: Yale School of Medicine. (2019, September 24). *Integrated Course Curriculum*. Medical Education at Yale. https://medicine.yale.edu/education/curriculum/integrated/

Figure 4: Yale University School of Medicine's 10 Non-clinical Elective Course Titles.

1. Teaching and Learning Center Medical Education Elective
2. Creating Healthcare and Life Science Ventures
3. Evolution and Medicine
4. French or Spanish for Healthcare Professionals
5. Inflammation
6. Physicians as Leaders
7. Public Speaking for Future Physicians
8. Uncertainty in Medicine: Critical Thinking and Decision Making
9. Seminar in Healer's Art
10. Seminar in Medical (Mal) Practices Under the Nazi Regime

Figure 5: Quinnipiac University Frank H. Netter School of Medicine's graphic for the topics covered in the Year 1 and Year 2 class of Foundations of Medicine.

Year 1 Foundations of Medicine I

Block Schedule

- Foundations of Science I (6 weeks)
- Foundations of Science II (6 weeks)
- Musculoskeletal and Integument (5 weeks)
- Neuroscience and Head and Neck Anatomy (7 weeks)
- Heart - Lung - Kidney (7 weeks)
- Gastrointestinal - Endocrine - Genitourinary - Reproductive (6 weeks)

Year 2 Foundations of Medicine II

- Fundamentals: Pathology, Immunology, Microbiology, Cancer and Hematology (7 weeks)
- Neurology and Psychiatry (5 weeks)
- Gastrointestinal - Endocrine (5 weeks)
- Heart - Lung - Kidney (6 weeks)
- Breast – Genitourinary – Reproductive (4 weeks)
- Musculoskeletal and Integument (3 weeks)

Images from: Quinnipiac University School of Medicine. (2020, September 10). *Curriculum | MD Program*. Quinnipiac University. https://www.qu.edu/schools/medicine/programs/medical-doctor-degree/md/curriculum/

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