



HISTORY OF MEDICINE COLLOQUIUM 2019

ABSTRACTS

(in alphabetical order)



Controlling the Physician's Gaze: Blood Lead Levels and the War for Leaded Gasoline

By

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Preceptor: Dr. Shelley McKellar, PhD.

During the first decades of the 20th century, physician Alice Hamilton led a charge against industrial disease in the United States. By fixating on the clearly-visible substances that workers were exposed to within the workplace, Dr. Hamilton and her fellow industrial hygienists managed to force industry to protect their employees' health. Chief among their targets was lead, a substance known since antiquity as a potent poison. Hamilton linked its presence in the workplace to lead poisoning, and raised public awareness of the risk it posed.

However, only a decade later, lead was everywhere. Leaded gasoline was first sold in 1923, and soon came to be used in almost every automobile in the country as it increased fuel economy and provided engine power. Within a few years, it was a global phenomenon, and people the world over continuously breathed in hazardous levels of lead. Its use would not be banned until the 1960s. Much has been written about how this happened, focusing on both the work of corporations and the medical professionals they hired to sell their product's safety. However, the ways that these medical professionals actually went about doing so has been less well-studied.

Using medical journal articles on lead poisoning published before and after the advent of leaded gasoline, this presentation will examine the ways in which the research methods employed by scientists and physicians changed how lead poisoning was perceived from the 1910s to the 1930s. This change in perception shaped how leaded gasoline was seen both by professionals and the public, and allowed for its continued spread. By focusing on the emergence of blood lead levels as an indicator of the presence of lead poisoning, this presentation will emphasize how medical research can be shaped to permit rather than prevent ill health.

Lessons from Woodstock '69:

The Tumultuous History of Mass Gathering Medicine (MGM)

Sarah Cocco

“Three days of peace and music” was how the now infamous 1969 Woodstock music festival was advertised. Dr William Abruzzi – later dubbed the “Rock Doc” of the Woodstock Festival – assembled a medical team of 18 physicians, 36 nurses, and 27 medical assistants to provide first aid for participants during the 3-day festival. Abruzzi’s medical support plan was well organized but grossly underestimated event attendance with its projected number of 50,000 attendees. Roughly 400,000 people attended Woodstock ‘69. A triumph of improvisation, volunteerism, and what Abruzzi calls good fortune led to the avoidance of what could have been “the greatest medical tragedy of [their] times.”

Mass gatherings for sporting, religious, or entertainment reasons have been occurring for centuries, occasionally with disastrous results. Inherently trampling, fire, and infrastructure failures are some common causes of injury and death, as well as risks of violence or terrorism. With increased documentation in scientific literature and support from international organizations, “Mass Gathering Medicine (MGM)” emerged as a medical subspecialty to provide training, prevention strategies, and research for such events.

Despite their tumultuous history, mass gatherings continue to be organized and attended. For example, Canada currently hosts more than 130 music festivals per year. Each event that passes serves as another lesson for actively preventing negative outcomes, and what to do if they occur despite these efforts. Using scientific journal articles, case studies, interviews, and media coverage, this presentation will explore the introduction and early experience of mass gathering medicine in the 20th century. Due to its coverage and unique circumstances, focus will be placed on the Woodstock music festival of 1969 while contrasting elements of other mass gathering events. The aim is to identify common themes and key lessons to takeaway from the past in order to protect participants’ safety and ‘good vibes’ in the future.

Medicine, Reincarnation, Revenge: Obstetrics and Rebirth in Late 20th Century and Early 21st Century Hindi Film

By:

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Preceptor: Dr. Shelley McKellar

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In several popular Hindi films of the late 20th and early 21st century, characters die and are reincarnated in a hospital setting. In these films, hospitals are locations steeped in the imagery of science, which is juxtaposed with religious imagery and symbols to signal that rebirth is taking place. The cycle of rebirth is an important concept in Hinduism where people's souls are reborn into a new body after they die. In Hindi film, rebirth is often depicted to give a character another shot at revenge, or to right the wrongs leading to their death. In popular Hindi films such as *Karan Arjun* (1995) and *Om Shanti Om* (2007), rebirth takes place in a modern hospital, where an obstetrician helps a woman deliver a baby while another character dies, and the filmmakers signal to the audience that the newborn baby is a reincarnation of the dying character. Later in the films, the reborn character is then portrayed by the same actor who played the dying character.

As science became a more powerful ideological force in Indian society in the 20th century, this type of film scene used the narrative of reincarnation in a hospital to attempt to neutralize any threat that science might pose to the power of Hinduism. By having reincarnations take place in-hospital, these films subvert the power of modern science by portraying medicine as one of many tools by which the gods can mete out divine justice. Using blockbuster Hindi films of the late 20th and early 21st century, I will argue that reincarnation scenes in hospitals set medicine and medical knowledge within the context of the infinitely greater power of the Hindu gods.

Menstruation Myths: Exploring the historical, cultural and religious foundations of period misperceptions and their impact today

By

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Preceptor: Dr. Shauna Devine, PhD

Menstruation, menses, periods, the time of the month, or whichever designation you bestow upon the event, is both a foundation of reproduction and a physiological process. Menstrual and contraception products are not only a large focus of the advertising and consumer industry, a hot topic in the health educational curriculum, but abnormal menstruation and contraception concerns are one of the many reasons women book medical appointments. In an advanced country like Canada with 37 million people, of which almost half have uteri, it is striking that so many historical myths surrounding menstruation remain.

Menarche may be accompanied by anxiety, social pressure and change. Adding to this underlying level of stress is the attitude, perception and variable levels of education surrounding menstruation. Many of the historical myths and religious misperceptions that shape ideas surrounding reproductive health reflect negative attitudes towards menstruation. Moreover, some cultures portray this natural bodily function as a problem, a show of impurity, a sign of female inferiority, and a punishment for sin.

Drawing on scientific articles, case histories, primary sources, and secondary literature, this presentation will explore the ancient, cultural and religious basis for the negative connotations surrounding menstruation. This presentation will examine the impact that these misperceptions have had on women in the past and show how they have shaped present understandings. Specifically, this presentation will investigate the long-held idea that menstruation reflects uncleanness, must be hidden, and that menstrual blood is toxic and the source of STIs. These ideas are the root cause for female ostracization and exclusion from social and religious events in certain cultures, and have led to body shame, low confidence and unsanitary hygiene conditions. Understanding these myths, traditions and culturally sensitive approaches to menstruation management is necessary for healthcare providers in light of Canada's ever-increasing globalization and immigration programs.

Being Harvey: The Harvey Club of London, Ontario and The Eponymous Society as a Pillar of Professional Identity

By

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The Harvey Club of London, Ontario is the oldest active medical club in Canada. Its first meeting was in the winter of 1918 in the form of a medical journal club, and in February it was formally established as a medical club. Its initial goal was professional development and journal club to keep pace with rapid changes in medical sciences. The members met every two weeks with one person responsible for the writing and presentation of a scientific paper. The club's objectives and makeup changed gradually with the constitution revision in the 1960s to formally include medical humanities and women participants. It also reacted to the growing culture of medical specialization, which provided promise of more specific medical expertise but, to some, also threatened to split the profession into innumerable fragments.

In 2019 the Harvey Club will be celebrating its 100th anniversary. The club was named after William Harvey, 16th century English physician and physiologist credited first describing the closed circulation of the human vasculature and the function of venous valves. The club has a tradition of using "Harvey" as a title to address any members in its group in place of a first name.

This project will make use of archival materials from Western University's Harvey Club fonds, personal interviews of current Harvey Club members, and published literature on medical club identity. The presentation will explore the function of the Harvey club in responding to the milieu of medical specialization in early 20th century in Canada. The tradition of identifying members by the name "Harvey" is an instance of history of medicine being used as a common point by which physicians identify each other.

Palm-N-Turn: The Impact of Child-Resistant Medication Lids

By

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Residing in our medicine cabinets is an innovation so basic and ubiquitous that we take it granted: the child-resistant medication cap. During the 1960s, the number of children poisoned from accidental medical drug ingestion was staggering. In Canada, there were roughly 100,000 annual cases of pediatric poisoning in this period, and the biggest culprit was over-the-counter aspirin.

Pediatrician Henri J. Breault recognized the alarming number of accidental child poisoning cases as the director of the Poison Control Centre in Windsor, Ontario. He launched a public awareness campaign advocating safe storage practices to parents, but this alone was not enough to decrease incidence. Breault shifted his attention to changing the packaging of medicines.

In 1962, Breault established the Ontario Association for the Control of Accidental Poisonings (OACAP), which brought physicians and pharmacists together to address the problem. He enlisted the help of International Tool Limited (ITL) President Peter Hedgewick who, in 1967, designed the "Palm N' Turn" child-resistant lid. In Windsor, the adoption of this safety cap by local pharmacists resulted in the decline of accidental child poisoning by 91%. However, the wider implementation of child-resistant lids was not as simple as the design itself. For years, coalitions of health professionals lobbied against a resistant pharmaceutical industry for government legislation on child-resistant packaging of medicines in Canada. The Ontario government mandated child-resistant containers in 1974, with other provinces doing likewise thereafter.

This presentation aims to chronicle the development and implementation of child-resistant medical lids through a qualitative study of the OACAP records (MS 18 at the Municipal Archives, Windsor Public Library) and of the medical literature, notably Breault's publications, medical cases and epidemiological reports of child poisoning. This presentation will assess the impact of this design innovation on child health in the 1960s and how it has shaped modern child-resistant packaging.

Historical Perspectives on Medicinal Cannabis and Cannabis-induced Psychosis/Schizophrenia

By

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In order to advance our understanding of the neurobiological mechanisms underlying therapeutic or deleterious cannabis use and to integrate this knowledge into modern clinical practices, it is important to understand the historical contexts of cannabis use. Cannabis has been used by human civilizations prior to recorded history and across diverse cultures to aid in the treatment of a wide array of ailments. However, ancient civilizations also acknowledged the potential for adverse consequences related to cannabis overindulgence, translating to contemporary medical diagnoses including cannabis-induced psychotic episodes, and schizophrenia-related psychoses.

Remarkably, clinical and preclinical investigations are only recently beginning to reveal the neurobiological mechanisms responsible for the clinically-relevant actions of cannabis that have been acknowledged by medical pharmacopeia for millennia. The therapeutic and deleterious potential of cannabis-derived phytochemicals such as delta- 9-tetrahydrocannabinol (THC) and cannabidiol (CBD) are currently being explored in several contexts.

This brief overview highlights the copious history of medical practices incorporating the use of cannabis, and discusses current theoretical frameworks for the proposed mechanisms responsible for cannabis-induced psychosis.

People or Drugs: A Comparison of the Representation of the Crack Cocaine and Opioid Epidemics in the Media

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The opioid epidemic is one of the most significant public health crises in America today. Its scope has prompted significant public outreach, including the White House declaring the epidemic a public health emergency while calling for better controls of prescription medications and access to substance-use treatment facilities. The White House's public health-focused response triggered a series of journalistic articles comparing the opioid epidemic to the crack cocaine epidemic. Many of these authors claimed that the primary political response to the crack cocaine epidemic was criminal justice rather than medical in nature, motivated by the different racial demographics of the two waves of substance use.

This paper examines these assertions by analyzing the language used in newspaper articles from each period. Drawing upon newspapers across the country, we compare word frequencies from articles about crack cocaine in 1988-89 and opioids in 2016-17 to evaluate how each epidemic was framed in public discourse. We particularly examine language indicating a medical model of addiction, such as "health," "treatment," "overdose," and "recovery," versus social control, such as "police," "enforcement," and "arrest." We find support for critics' hypotheses about the differential framing of the two substance-use epidemics: articles on the opioid epidemic are more likely to use medical terminology – and evince concern about "people" – while articles on the crack cocaine epidemic utilized criminal justice terms and evoked concerns about "drugs" more frequently. The framing of the two epidemics suggests that race may play a role in the public policy response and outreach to substance-use epidemics.

Robbing Rights and Dignity After Death: The Illegal Dissections of African American Cadavers by Medical Schools in Late 18th-Century America

By

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In 18th and 19th century America, the amount of African American cadavers used in medical schools was disproportionate to the living population. These cadavers were the bodies of slaves or free African Americans, illegally obtained through grave robbing. Although the disinterment of bodies was prohibited in the U.S. until the 1850s, there was little resistance against the dissection of black bodies. The general sentiment can be summarized by a New York proponent of anatomy, who stated in 1788, "the only subjects procured for dissection are the production of Africa or their descendants...and if those characters are the only subjects of dissection, surely no person can object." Using primary articles, review articles, and books written on the subject, this presentation will address how black cadavers were obtained, why grave robbing was in high demand, and how the involuntary dissection of black bodies was reflective of the racist attitudes present at the time.

The demand for cadavers increased in the 1800s as medical schools switched from apprentice-based training to formal medical courses, including anatomy. Unclaimed bodies from almshouses and prisons were sent to medical schools, but it was not enough to meet demand. As a result, some medical schools paid grave robbers to obtain cadavers; but oftentimes it was medical students themselves who stole bodies from the cemeteries of society's marginalized. In 1788, free African Americans in New York created a petition to stop medical students from robbing their graveyards; however, this practice continued until the early 1900s.

As slaves were sold throughout the U.S. in the 18th and 19th centuries, so were their bodies and the bodies of their descendants after death. The contribution of black bodies to modern medicine has been significant, but much of it was forced and still unrecognized today.

Simulation in Surgical Training: Better than the real thing?

By

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Surgical training is traditionally based on an apprenticeship model, famously summarized by American surgeon William Halsted with the phrase “see one, do one, teach one.” In this model, the surgical trainee works closely with an instructor, observing and then assisting with procedures until, having demonstrated proficiency, they are given increased freedom in the operating room. Since Halsted’s time, however, there have emerged concerns over patient safety, reduced student training time, and a rise in complex minimally-invasive procedures. In response to these issues, training programs have turned to simulation in order to provide their students with experience beyond what they are able to obtain with real patients, ultimately improving patient safety and resident competency.

While historical examples of teaching manikins and other simulation tools can be traced back to ancient times, modern surgical simulation is still in relative infancy. It was not until the development of computers powerful enough to provide realistic feedback to the operator that simulators could begin to truly emulate “the real thing” and thus provide the learner with a meaningful experience. The impact of simulation on surgical training outcomes continues to be debated.

In this presentation, I will examine two examples of simulators from different eras: the SIM One anaesthesia manikin of the 1960s and the MIST-VR virtual reality simulator of the 1990s. Drawing from the articles in which they were first described, as well as the surgical education literature and available patent documents, I will discuss the technological advances that were required for the development and success of these simulators. I will then compare the different approach each took to address the shortcomings of the traditional training model. Lastly, I will argue that these devices, and simulation as a whole, represent an augmentation rather than an abandonment of the traditional surgical training model.

Controversy, Disappointment, and Hope: Coverage of World Health Organization Public Health Emergency Operations in Canadian News Media

By

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Since 1948, the World Health Organization has been a global authority on improving health and eradicating disease worldwide. Its mandate has since expanded to include global health security activities in order to coordinate responses to public health threats across international boundaries. Three such emergencies arose in the past decade, namely the H1N1 influenza pandemic, the 2014-2015 Ebola outbreak, and the Zika virus epidemic. The WHO responded to these events with varying degrees of effectiveness, which has called its capacity to conduct emergency operations into question.

The 2009 H1N1 influenza outbreak signaled a sharp shift in the organization's popularity. The perceived exaggeration of the influenza threat and the potential conflicts of interest involving vaccine manufacturers damaged the organization's integrity. Criticism peaked in 2014 after the WHO failed to recognize the severity of the Ebola virus outbreak despite the devastation sweeping across West Africa. As news of the Zika virus spread in 2015, there were concerns about the mismanagement of another epidemic. Although the WHO's approach to Zika was better received than that of the Ebola crisis, calls for reform and dissolution persist as a consequence of the previously mishandled outbreaks.

The Canadian media's reporting on the WHO's emergency responses has been primarily negative, underscoring a loss of trust in the organization and uncertainty surrounding its relevance as other global health actors grow in prominence. Using a media content analysis to analyze articles from Canadian newspapers published between 2009-2016, this presentation will trace the changing tide of public attitudes toward WHO operations. This research is meaningful in a Canadian context, given Canada's leadership in the global health arena, and it is timely in an era of mounting public scrutiny. Going forward, popular attitudes could be pivotal in determining the WHO's legacy of managing the threat of infections in increasingly interdependent health systems.

A new hysteria? Chronic Lyme disease and historical gender bias in medicine

By

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The medical opinion that women are more emotional has been used throughout history to provide an explanation for ill-understood medical conditions. This can be seen today through the lens of chronic Lyme disease, a controversial disorder where sufferers, mainly women, report medically unexplained nonspecific symptoms such as arthralgias, fatigue, and cognitive impairment. Patients who believe they have this condition are often told that their symptoms are due to psychological and emotional factors, rather than an organic illness. This presentation argues that the treatment of this condition is rooted in medicine's historical bias toward female patients.

The roots of this gender bias began as the field of neurology took shape in the 19th century. Various symptoms exhibited by women were diagnosed by leading practitioners including Silas Weir Mitchell, William Hammond and Jean Martin Charcot, as a form of "female hysteria," prompting debates about possible management strategies. For example, the French physician Jean-Martin Charcot's research argued that hysteria was a neurological illness, which he diagnosed when no organic cause was found for physical symptoms. In the 20th century, the diagnosis of hysteria eventually fell out of use, culminating in its removal from the Diagnostic and Statistical Manual of Mental Disorders in 1980. However, there were by now established beliefs about gender in the medical profession.

Even today medicine remains gendered and evidence shows that women are more likely to have their subjective medical symptoms attributed to emotional factors such as anxiety. Drawing on primary sources as well as scientific journal articles, this presentation will investigate the history of the diagnosis of female hysteria and how these ideas led to a gender bias in medical treatment. Specifically, this presentation will explore how this historical diagnosis has affected women's health care today, particularly the condition known as chronic Lyme disease.

Sex-selection Abortion: The Impact of Ultrasound Technology for Sex-Selection Determination and Family Planning

By

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Sex-selection abortion in Western societies is predominately seen as taboo and a misalignment in gender rights and fundamental reproductive justice advocacy. Global movements for the aborted "missing girls" have gone viral with global outrage stemming from sex ratio balances (SRBs) that normally rest at 105 males: 100 females; jumping to 121 males:100 females in a matter of years in some parts of India and China. Most medical professionals in the West have the perspective that an abortion for sex selection is unacceptable; however, the modern view of feminism and abortion rights requires no reasoning whatsoever for a woman to obtain an abortion, apart from the fact that she desires the abortion. Moreover, a large and growing literature suggests that parental preferences for a particular gender manifests itself as discriminatory practices for the child born of the undesired gender. Therefore, sex selection abortion for males acts as a substitute hypothesis for this discriminatory practice of infanticide and neglect for female children. This trend of neglect and discrimination against daughters is especially prevalent in families with one living daughter already, and where the second child is female.

This paper examines the phenomenon of ultrasound technology in sex-selection abortion, specifically in the low and middle-income countries of China and India, starting from the 1980s to current day. It will examine the substitution hypothesis, which compares trends in sex ratios at birth, with trends in sex ratios of living infants and early childhood deaths. This hypothesis states that sex selection abortion for males has taken the place of daughter infanticide and neglect as ultrasound technology has become more accessible and available to the wider public. Furthermore, this analysis will conclude with an examination of existing policies and bans against sex-selection abortion and the impact this has had in maternal and gender health equity.

A 'not-so-hidden' curriculum: Shifts in medical culture in mid-late 19th century
United States through an examination of valedictory addresses by academic
physicians to new medical graduates

By

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Medicine went through enormous changes in the United States in the 19th century. Prior to the 1870s and 1880s, physicians mostly honed their 'art' at the bedside and were consumed with the day-to-day challenges of maintaining a viable practice. What counted for a physician was book-learning, community relationships, and trust. Once the germ theory became generally accepted in the 1870s and 1880s, ideas about the role of science in medicine and how science might transform patient care, magnified the importance of the laboratory in medical practice and education. Medical school curricula were slowly reformed in the final third of the century to reflect this shift, though profound variability remained between institutions.

To investigate how these changes and challenges were gauged by physicians, I examine valedictory addresses delivered to graduating students of U.S. medical schools from the 1850s through the 1880s. Drawing on digitized valedictory addresses housed in the National Library of Medicine, this presentation will explore the content of these speeches. While some messages simply contain clichés and general advice surrounding daily practice, many offer forward-looking views of the field of medicine and of the evolving expectations for physicians. Together, they provide a valuable resource with which to analyze important changes in medical culture through these years.

Shared themes emerging from these speeches include competition and comradery, God and religion, and the art and the science of medicine. Several topics, including patient safety and the avoidance of polypharmacy would not seem out of place in a contemporary address, while others—including discussions of white supremacy—reveal the shortcomings of medical ethics and the power of professional authority. These works contain not just a window into mid-late 19th century U.S. medical culture, but also lessons that may still resonate with medical students and physicians today.

Cause for Pause: The Overzealous Media Coverage of CTE and its Negative Effects

By

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Chronic traumatic encephalopathy (CTE) is a neurodegenerative disease found most often in individuals with a history of repetitive brain trauma. Pathologically, it manifests itself in reduction of brain mass as a result of atrophy in different areas of the brain, and symptomatically, begins with confusion and disorientation, and can lead to memory loss, mood changes, speech impediments, depression and suicidal tendencies. While the stories of individuals who have suffered from CTE are well documented in the media, our fundamental knowledge of the cause and mechanism of CTE is still quite lacking. The emphasis on preventing these tragedies has potentially had adverse effects and caused more harm than good.

By examining news articles in comparison to medical literature from the 1920s to present day, this presentation will argue that the media's coverage and subsequent public reaction to these CTE stories has had a negative effect on those at risk, by unintentionally fear-mongering and drastically raising alarm in former athletes where it may not be warranted. CTE's mechanisms are still poorly understood, and its symptoms overlap with a myriad of other diseases. It can currently only be diagnosed post-mortem, as there is no diagnostic test available for the disease. A combination of these factors and the widespread media coverage of this disease may have led individuals to self-diagnose themselves with CTE and whether correct or incorrect, severely raise anxiety and concern leading to adverse effects. Corroborating this theory, a study reported that 42.3% of suicide deaths in NFL players have occurred since 2009, 4 years after the first paper indicating's CTE's existence was released and 2 years after the NFL had its first concussion summit, raising awareness of potential chronic issues. While these cases should not go unnoticed, society should caution itself with romanticizing science that has yet to be completed.

Breaking the Cardinal Rule: Factors Allowing Doctors to Do Harm

By

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The first lobotomy was performed in 1935 by Portuguese Nobel Prize laureate António Egas Moniz; a practice in which portions of the frontal lobes were removed. This procedure was intended to treat mental illnesses, as they were defined at the time. In a heavily criticized 1936 presentation, Moniz reported successful outcomes in 14 of 20 patients with depression, schizophrenia, panic disorder, mania, catatonia or manic-depression. Criticisms, including those of Sobral Cid, from whose hospital Moniz's initial patients were taken, denounced the surgery as theoretical, harmful mutilation. Regardless, the procedure was adopted internationally, especially in the United States through the works of neuropsychiatrist Walter Freeman and neurosurgeon James Watt.

This destructive practice, although modified over time, was continued until the 1980's, at which time it had claimed over 60,000 victims, 40,000 of which were in the United States. This presentation will examine the social, political and cultural circumstances both inside and outside of the medical community necessary for nefarious practices like lobotomy to be adopted. We will examine the medical texts of the physicians involved, case studies of patients who had undergone lobotomies, and critical scientific journal articles and media publications of the time. Scrutiny of characteristics, many of which are shared by other tragic medical malpractices, may allow recognition and avoidance of repeating our past mistakes.

The Coulter Counter: An Interdisciplinary Invention

By

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Preceptor: Dr. Shelley McKellar, PhD

The complete blood count (CBC) is arguably one of the most commonly run blood tests. This test provides the concentration and sizes of red blood cells in the patient's blood. These values are crucial for diagnosing medical conditions such as anemia and polycythemia vera, a red blood cell related cancer. Prior to the 1950s, to obtain a red cell count, lab technicians would need to perform manual counts with a hemocytometer and microscope. The introduction of the automatic blood cell counter, the Coulter Counter, in 1953 was ground-breaking because it improved both the accuracy and efficiency of blood counts.

The counter's inventor, Wallace Coulter, had trained in electrical engineering, not biomedical sciences. Therefore, even though Wallace's patent was for "particle" counting, it may seem odd that the Coulter Counter was primarily designed for a medical purpose, blood cell counting, rather than an industrial purpose. Key topics that will be addressed in this presentation include the circumstances that enabled Wallace to construct a blood cell counter, the success of the invention in hematology, and the inevitable use of the counter for industrial purposes.

This presentation will draw on review articles, primary scientific articles, and Wallace Coulter's patent to highlight key features of the Coulter Counter's design and why it achieved the success that it did. With an automated cell counter, a count which normally took fifteen minutes with a hemocytometer could now be run in fifteen seconds. Additionally, the counter overcame the limitations of human counting error and fatigue associated with repeated counts. Not long afterwards, the counter was predictably put to use for industrial purposes such as measuring particles in beer and paper. Today, updated models of the Coulter Counter are still used as cell counters; however, this invention continues to have the potential for uses in other disciplines.

**The Breakthrough of Bovinae and the Bicuspid:
The Challenges and Triumphs of Dr. Alain Carpentier's Cardiac Valve Xenograft and
their Impact on North American Cardiac Surgery**

By

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In early 1968, three years after Dr. Alain Carpentier performed the world's first successful porcine-to-human aortic valve xenograft in Paris, the procedure held a meager one-year success rate of 45%. Driven by the inability to help ailing patients, Carpentier's team was able to histologically identify an adverse immune response to the graft tissue and develop suitable sterilization techniques, improving the one-year success rate to 82% by 1969. In subsequent decades, as Carpentier's bioprosthetic heart valves popularized and grew to encompass grafts of bovine pericardium, they remained under close surveillance by the medical community. A study published in 1999—as monitoring of early xenograft patients continued—outlined the limited lifespan of xenografted valves caused by sterilization-induced calcification. Nonetheless, bioprosthetic valves evolved from Carpentier's early model have proven trustworthy in cardiac surgery due to minimal post-operative physiologic changes, as compared to the hemolytic shear stress caused by mechanical cardiac valves.

Today, bioprosthetic heart valves comprise approximately one third of replaced cardiac valves in North America. Without Carpentier's refusal to file a patent on his initial design, competition-driven innovation to shape the modern xenograft would not have yielded such revolutionary results: reducing mortality from cardiac valve pathology throughout the North American population.

Dr. Alain Carpentier and the xenograft cardiac valve exemplify resilience in the field of clinical heart research. Using scientific journal articles, as well as Carpentier's published work and self-recorded accounts, this presentation will provide a unique narrative of the history, obstacles, and innovations which have shaped the development of North American valve replacements over the late-twentieth century. Specifically, to limit scope, this presentation will precisely analyze the challenges and successes of Carpentier's: early procedures, decision to not patent initial xenografts, and incorporation of the xenograft valve into market, as each pertains to the impact on modern North American cardiac valve replacement.

Venereal Villains: The Portrayal of Women in Public Health Campaigns Against Sexually Transmitted Infections in the Second World War

By

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Preceptor: Dr. Shauna Devine, PhD

During the Second World War, sexually transmitted infections (STIs) were a major concern for the military due to the sheer number of cases among soldiers. The management of STIs was largely shaped by stereotypes regarding class, race, gender and immorality which influenced public perception about these diseases. From the 1930s through the Second World War, the increasing number of cases of STIs was deemed a national security issue and a public health crisis due to the potential impact on the military.

In the attempt to control the rising rates of STIs, the United States Public Health Service launched a public health campaign. With the onset of the war, visual materials including posters, pamphlets, and movies depicted women as prostitutes, vectors of disease, highly sexualized and immoral characters, and ultimately, dangers to the war effort. This strategy, grounded in fear and lack of understanding, targeted women's sexual freedom and also rationalized other public policies including the quarantine and incarceration of women.

Using primary visual materials, scientific articles, and relevant secondary literature, this presentation will focus on the portrayal of women in the 1930s and 1940s public health campaigns against STIs. Specifically, this presentation will explore this period as a lens in which to illustrate how these campaigns reflected society's views of sex, gender, and immorality. Historical representation of STIs reveals that these issues were highly politicized during an outbreak as society looked for someone to blame. This presentation will conclude with a reflection of today's views on sexual health. Women's behaviour and sexual health rights are still an ongoing moral-medical debate, and sex, gender and race are still paramount issues in the discussion.