1812	**The Burlington Heights and Emigrant Hospital** is a temporary military medical barrack established in 1812 (due to the absence of any municipal hospital in Hamilton at this time) that treated the military, arriving immigrants, and poor residents of Hamilton. Temporary buildings for medical treatment for the most common illnesses such as smallpox, cholera, and typhus were also set up along the bayshore; however, these primitive medical centers were closed in 1849 due to the opening of Hamilton's first municipal hospital in 1848[1].
1844	**Nitrous Oxide** is introduced into the medical community as an anesthetic agent by a Connecticut Dentist by the name of **Horace Wells**; however, its anesthetic properties were not recorded to have been put to general surgical use until twenty years after its discovery. Nitrous Oxide and its dependency on oxygen to function, leads to the development of an **intermittent flow nitrous oxide and oxygen anesthetic gas machine** in the 1910. The first successful use of the gas machine and nitrous oxide in surgery is attributed to **Dr. E.I. McKessen**.[2]
1846	**The City of Hamilton is Incorporated.** **Ether** is introduced into the medical community as one of the first anesthetic agents in 1846; however, the earliest recording that points to its anesthetic properties were made in 1540 by a German botanist named Valerius Cordus. Cordus synthesized ether and discovered its (similar) anesthetic effects via inhalation, when he would use it to enliven recreational parties, or as they have been nick named, "ether frolicks".[3] Historically speaking, there remains debate and contention over who the first discoverer of ether is as Crawford W. Long, William E. Clarke, Charles T. Jackson, and William Thomas Green Morton each experimented, and therefore makes the claim, of being the ether pioneer. Generally, it has come to be accepted that it was the successful public administration of an ether anesthetic by the dentist **William Thomas Green Morton** that finally convinced the medical profession that anesthesia could relieve the pain of surgery.[4] **<u>Interesting Notes and Quotes: The Discovery of Ether</u>** ***"Although the soporific effects of ether had been described in 1540, surgeons continued to operate on the unconscious patient for a further 300 years. When anesthesia finally arrived, it did so as an offshoot of the recreational drug culture of the time, and with the leading players hotly contesting their role in its discovery".***[5]
1847	**Chloroform**, an inhalational gas more potent than ether, is introduced into the medical community as one of the first anesthetic agents by **James Young Simpson**.[6] Chloroform became particularly popular during this time after **John Snow**, the first specialist anesthetist, administered chloroform to Queen Victoria during the birth of Prince Leopold in

	1853.[7]
1848	**Hamilton's First Municipal Hospital** (originally called The City Hospital) is established by Mr. Henry John Williams, Hamilton's first appointed Health Officer, in a house on Catherine Street. Due to inadequate facilities, the hospital is moved (near Ferguson Street) to a new building called **The House of Industry** that treated mainly the underprivileged and destitute. This medical facility, however, was determined to be outdated and closed in 1852 although the building remained in use as **The House of Refuge**, a home from elderly women, until 1882[8].
1853	**The City Hospital,** a building located on the corner of John and Guise Street (formerly a hotel), is purchased in 1853 and converted into a medical facility. It remained in use until 1882 when the City Council of Hamilton decided to open a new hospital known as the **Hamilton General Hospital**. The women from the House of Refuge then relocated from the First Municipal Hospital site to the City Hospital site, which remained in operation until the 1950's when the building was demolished in 1956[9]. **John Snow, the first specialist anesthetist**, administers chloroform to Queen Victoria during the birth of Prince Leopold.[10]
1863	**The Hamilton Medical & Surgical Society** is established on February 3, 1863 but is later abandoned in 1899 due to an unworkable fellowship of doctors. Its main areas of focus were regional administration, medical training largely via apprenticeship, and early medical research conferences. The founding members were **Drs. George Ryall, John Rosenbrugh, John Duff MacDonald, Henry T. Ridley, and William Ira Allen Case**[11].
1867	**The Confederation of Canada:** the signification of an era focused on unity and liberal principles of self-governance, self-regulation, and professionalization applied to both the nation as well as medical and surgical practice in the nineteenth century[12].
1868	**The Canada Medical Act** is one of the first acts of the Liberal Confederated Parliament. It abolished both the prosecution of non-licensed physicians and a system of medical licensing which was administered by a medical board; often comprised of a network of loose political and "Family Compact" kinship relationships that sought to uphold principles of British practice and culture. It signifies the movement into an era of legal regulation by the federal government and professionalization in medicine[13].
1876	**The Hamilton Asylum for the Insane** begins operation. In 1903 it began a training program, accredited in 1924, for psychiatric nurses. Changing its name from the Hamilton Asylum, to the **Ontario Hospital**, and finally the **Hamilton Psychiatric Hospital**, the facility has been owned and operated for more than 124 years by the Ontario government. In November 2000, it was transferred to the authority of the St. Joseph's

	Healthcare-Hamilton and has been renamed the **Center for Mountain Health Services**[14].
1882	**The Hamilton General Hospital opens.** The Hamilton General Hospital is located on Barton Street between Victoria Avenue and Wellington Street.
1884	**<u>Interesting Notes and Quotes: Cocaine and Local Anesthesia</u>** ***"On September 11th 1884, a 27 year-old Victorian surgeon, Cark Koller, operated on a patient who had glaucoma, having anaesthetized the eye with an aqueous solution of cocaine. It was the first recorded administration of a local anaesthetic, and it opened up a new era in surgery. Others had noted the benumbing effects of ingested cocaine, and had even suggested its possible use in surgery, but it was Koller who demonstrated the feasibility of using this new type of anaesthesia".***[15]
1898	**The first spinal anesthetic is performed by August Bier, a German surgeon, who injected 3ml of a 0.5% cocaine solution into the cerebrospinal fluid of a patient to be anesthetized for surgery.** Due to the toxicity of the drug, its use in spinal anesthesia is ultimately abandoned.[16]
1890	**A School of Nursing opens at the Hamilton General Hospital under the direction of Dr. Ingersoll Olmsted.** The Hamilton General School of Nursing continued to train nurses until 1973 when the program was transferred to Mohawk College[17]. **St. Peter's Hospital is founded** through the efforts of Reverend Thomas Geoghegan, a pastor of St. Peter's Anglican Church. Reverend Geoghean believed that Hamilton needed a facility to treat individuals with chronic medical conditions. **The St. Peter's Home for Incurables**, as it was originally named, had very small accommodations for only 14 people. In 1893, the facility was incorporated and became eligible for provincial grants; however it was not until 1931 that St. Peter's was formally recognized as a hospital under the Public Hospitals Act wherein it enlarged to accommodate 100 patients. Currently, "St. Peter's Hospital is a 250-bed chronic care facility specializing in the care of the elderly. It is part of the **'St. Peter's Family of Services'** which also includes home care, long-term care, and research branches"[18]. Organized through the efforts of the Sisters of St. Joseph's, **St. Joseph's Hospital is officially opened** on June 11th 1890[19].
1892	**Maternity ward opens at the Hamilton General Hospital**
1894	**St. Joseph's Hospital expands with the construction of St. Ann's Wing.** This wing held 55 beds and also was the center for the school of nursing established in 1911 which graduated nurses until 1973 when the program was transferred to Mohawk College[20].

1899	**Hamilton Medical and Surgical Society Fails.** Due to pressures from regional population growth, increasing diversity and the emergence of new medical facilities in Hamilton, the methodologies of the society proved insufficient to uniformly contend with the changes associated with modernity. In addition, a series of hospital bi-laws took hospital management and recruiting out of the hands of city council, as well as the influence of the society, and into the hands of an elected board of governors contributing to the society's disbandment in 1899. In replacement, the **Hamilton Medical Society is established November 7th 1899**[21]. **Mrs. Adelaide Hoodless** formed a district nurses association which was later known as the **Victorian Order of Nurses**. Nurses played an essential role in the clinical administration of ether anesthesia prior to and following the First World War. Nurses, as well as interns, would most often provide anesthesia for obstetrical cases that were performed within the home.[22]
1900	**Interesting Notes and Quotes: Anesthesia Entering the 20th Century** ***"For general anesthesia to progress in the 20th century, it was necessary to develop an apparatus that could add ether or chloroform to a mixture of oxygen and nitrous oxide so that the concentration of volatile agent could be more accurately controlled. Second, it was necessary to devise a way in which an airtight connection could be made with the lungs so that the patient could receive the gas mixture undiluted with room air. Third, the anaesthetist had to learn how to maintain ventilation of the lungs when the patient's respiration became inadequate. And fourth, the anaesthetist had to devise a method of preventing collapse of the lungs when the surgeon wished to operate within the chest. It was the development of tracheal tubes in the 1920's that provided control of the airway, facilitated, assisted, and controlled ventilation, and opened the door for thoracic surgery, while control of ventilation was also facilitated by the development of carbon dioxide absorption breathing systems. Then, the introduction of intravenous anaesthesia with thiopental and, later, muscle relaxation with curare brought about a major revolution in anaesthesia practice".***[23]
1905	**Procaine** is discovered.[24]
1906	**The Mountain Sanatorium is founded in 1906 to treat tuberculosis patients** in Southern Ontario; a disease which reached epidemic proportions until 1943, when effective antibiotic drug therapies were discovered. In finding a cure, the need for a sanatorium to treat tuberculosis in Southern Ontario was effectively reduced; as a result, the hospital shifted its focus in helping treat aboriginal communities who had contracted the disease in Northern Canada. In 1961, the sanatorium modified and expanded further to become the Chedoke General and Children's Hospital (later renamed in 1971 as simply **Chedoke**

	Hospital). In 1979 it amalgamated with the McMaster University Medical Centre to become half of **Chedoke-McMaster Hospitals**. In 1997 Chedoke-McMaster Hospitals amalgamated with Hamilton Civic Hospitals to form Hamilton Health Sciences. It is now known as **Chedoke Hospital of Hamilton Health Sciences**[25].
1911	**The Babies' Dispensary Guild opens** on June 20th 1911 on 12 Euclid Avenue. After a series of moves, the organization finally settled into its own building on 286 Victoria Avenue on January 14, 1925. The Babies' Dispensary Guild was a non-profitable charity association run by private citizens and physicians (one of its principal founders being **Dr. James Heurner Mullin**) and functioned as a medical child welfare agency and outpatient clinic for mothers and babies up to one year of age in the name of public philanthropy. The facility largely served as a professional clinic and educational resource for women regarding infant care, the distribution of free pasteurized milk and clothes to the poor, as well as a public forum for discussing social issues of infant mortality, birth rates, and birth control[26]. A **School of Nursing is established at St. Joseph's Hospital**[27]. A major anesthetic advancement, **endotracheal insufflation**, is developed.[28]
1914	**World War I begins**. During World War One, **Dr. Heurner Mullin**, a general practitioner in Hamilton, became the first physician to use nitrous oxide in the city.
1917	In April the **Mount Hamilton Hospital**, originally a convalescent veteran's hospital that addressed the medical needs of returning soldiers from the war overseas, is opened in 1917. In 1918, a nurse's residence was added to the site as well as a maternity hospital in 1932; although the maternity ward sat empty due to an economic depression and a lack of funds to both equip and staff the facility. In 1954, the **Nora-Frances Henderson Convalescent Hospital** was built on the Mount Hamilton Hospital site. In 1962 the Hamilton General Hospital amalgamated with the Nora-Frances Henderson Convalescent Hospital and the Mount Hamilton Hospital to form the **Hamilton Civic Hospitals**. In 1965 the two adjacent hospitals were physically linked and renamed the **Henderson General Hospital**. The Hamilton Civic Hospitals amalgamated with Chedoke-McMaster Hospitals in 1997 to form **Hamilton Health Sciences**[29]. **The first anesthetic gas machines designed to produce a mixture of nitrous oxide and oxygen** were introduced by **James Taylor Gwathmey and Geoffrey Marshall** during the First World War; however, it was the portable machine proposed by **Edmund Boyle** that became the forerunner

	of a sequence of Boyle's machines that were used until the late 1970's.[30] **Dr. W.M. Cody is the first full-time anesthetist in Hamilton, a staff appointment to the Hamilton General Hospital.[31]**
1918	**World War I ends.** **The Influenza Pandemic** sweeping through Europe, as well as the United States, hits the Hamilton region from 1918-1919 and forces the establishment of a temporary isolation influenza hospital located at 316 James Street South (near St. Joseph's Hospital). This particular strain of influenza infected one fifth of the world's population and killed two to three percent of those infected. The History of Healthcare in Hamilton website describes its devastating effects: "When it was over, between twenty and forty million people worldwide had died; two to four times more people than were killed in the four years of war"[32].
1921	**The discovery of insulin is made by Banting and Best in 1921,** which resulted in a heightened awareness to the growing need for funding medical research centers in Canada by both the federal government and charitable agencies[33].
1922	**In 1922 the McGregor Clinic is established.** Modeled on the Mayo Clinic in Rochester, Minnesota, the "clinic brought together specialists from different areas of medicine and surgery in a group practice, where they could benefit from cross-fertilization of ideas on patient care and scientific advances"[34]. As noted in Rosalie Stott's Hamilton's Doctors 1863-1932: Guardian's of the City's Health, the clinic fell into three historical phases: the first was the joint ownership of Dr. McGregor and Dr. Mowbray; the second was the sole proprietorship of Dr. McGregor from 1931 to 1946; and the third is the conversion from a profit-making private enterprise to a non-profit organization lasting from 1946 to 1981[35]. **Dr. D.A. Warren is given the second appointment to the anesthetic staff at the Hamilton General Hospital in 1922**.[36]
1923	A house located on 58 Charlton Avenue East was converted into a maternity hospital at St. Joseph's Hospital in 1923 called **Casa Maria**[37]. In later years, Casa Maria developed further to encompass a school of nursing as well as an obstetrical department[38]. Please refer to **Drs. Marion and Robert Morgan interview** (under the "Interview" section of this website) to hear their personal retelling of their obstetrical work experience and the conditions of Casa Maria during their years of practice.
1924	**Ralph Waters introduces his "to-and-fro" carbon dioxide absorption breathing system.[39]**
1928	**Arthur Guedel and Ralph Waters develop the first successful cuffed endotracheal tube in 1928.** They proved the effectiveness of their discovery by submerging an anesthetized and intubated dog under water

	for an hour and then allowing it to recover.[40]
1929	In the United States the **Stock Market Crash on October 29th, 1929,** commonly referred to as "Black Tuesday", signals the beginning of **the Great Depression** in North America - although its impact affected many other industrialized nations around the globe. **Cyclopropane** is discovered in Toronto by two researchers, **Drs. G.H. Lucas and Velyien Henderson. Dr. Easson Brown**, a staff anesthetist at the Toronto General Hospital, was the first to induce this agent on a human being**, Dr. Frederick Banting**, who was a research physician working on diabetes at the University of Toronto. Dr. Banting would later be the discoverer of insulin.[41] **On November 29th, 1929 the first meeting of the Royal College of Physicians and Surgeons of Canada takes place** in order to create a Canadian system of accreditation that, at the time, failed to exist and resulted in the loss of specializing doctors to both the U.S. and Britain[42]. The approaching decade of the 1930's is viewed by many medical historians as the prelude to an era of change that illustrates "the story of the beginning of the end of one definition of professionalism in the medical profession in Hamilton, Ontario Canada"[43].
1930	**McMaster University arrives in Hamilton[44].** **The Medical Arts Building opens and becomes the home of the Hamilton Academy of Medicine until 1935**. In 1935, the society relocated to the newly vacated Babies' Dispensary Guild building which offered cheaper rent fees. This remained the location of the society until 1990, when the Hamilton Academy returned to the Medical Arts Building[45]. During the 1930's anesthesia was most commonly induced by **ethyl chloride spray** from a hand held glass tube followed by ether dropped on a mask from a can; however, as there was as yet no "specialists" in this field, it was often administered by **nurses or interns**. It should also be noted that although anesthetic specialization was not yet formally established, many general physicians took an interest in the field and did both research and practice in the city of Hamilton[46]. As there was no Department of Anesthesia established at this time, anesthesia fell under the aegis of surgery. An excerpt from the interview with **Drs. Marion and Robert Morgan** (located in the Interview section) describes acutely the **early anesthetic practices** in Hamilton during the late 1940's: ***Robert .Morgan****: When I was a Junior intern, that is right out of medical school at the Mount hospital, there was no anesthetic coverage except for caesarian sections. Who gave the anesthetics? There was an intern assigned to anesthesia for a week. And we released ether out of a tin can into a mask.*

	***Marion Morgan**: May I interrupt?* ***Robert Morgan**: Yes.* ***Marion Morgan**: When you graduated from medical school, there were two things that you had to be able to do very promptly. One was deliver a baby and the other one was give an anesthetic.* ***Jennifer Fisher:** Because anesthesia wasn't really its own specialty?* ***Marion Morgan**: No. All you did was pour ether or chloroform and anybody could do that…* ***Robert Morgan**: And then we became experienced, in Montreal spinals started to be used. Spinal anesthetic for deliveries. And we came back and there still wasn't any anesthetic coverage and I did my own spinal anesthesia for a while until **Bob Stringer** sort of took over and got things organized and started covering maternity with anesthetists. He's long since dead but he was the one you called for caesarian sections and spinal anesthetics.* **Dr. D.A. Warren** is the first to introduce the technique of an **endotracheal tube** in Hamilton in the early 1930's.[47] **<u>From 1930 to 1940, the major advances in anesthesia were:</u>** • Endobronchial intubation • Epidural anesthesia • Cyclopropane • Intravenous anesthesia[48]
1931	The Hamilton Medical and Surgical Society change its name to the **Hamilton Academy of Medicine** to further develop the image of the society as both scientific and scholarly within the medical community[49].
1932	**The Hamilton Academy of Medicine incorporates legally** in order to further an increasingly developed professional, corporate, and formal society[50]. **The development of sulphonamide bacterial inhibitors,** the first called Prontosil appearing in Germany, was revolutionary in the treatment of infection in the medical and surgical world. In addition, the discovery of sulphonamides leads to the further development of antibiotics such as **Penicillin,** which became mass distributed in 1943. In contrast to sulphonamide drugs, which inhibit growth and multiplication of bacteria, antibiotics work to effectively kill bacteria. **<u>Interesting Notes and Quotes: Intravenous Anesthesia</u>** ***"In 1932, Helmutt Weese, a clinical pharmacologist in Dusseldorf, Germany, introduced the first effective short-acting intravenous drug, hexobarbital (Evipan). This was quickly followed by the introduction of an even shorter-acting drug, thiopentone – now called thiopental (Pentothal). Thiopental soon became the most popular intravenous drug for induction anesthesia, and continued to be the most popular intravenous agent until the end of the 20th century".[51]***

1933	Four years after cyclopropane's anesthestic properties were demonstrated in Toronto, it was introduced into medical practice by **Ralph Waters** of Wisconsin. The same year, **Harold R. Griffith**, Montreal, gave the first cyclopropane anesthetic in Canada.
1934	**The Hamilton City Health Department subsumes the Babies' Dispensary Guild[52].**
1935	**The Hamilton Academy of Medicine and the medical library move to former Babies Dispensary Guild building.**[53] **Dr. D.A. Warren** is the first to introduce **cyclopropane** as an anesthetic in Hamilton in the first open chest surgery performed by **Dr. E.C. James** at the Hamilton Sanatorium.[54] **Dr. J. Lundy** of the Mayo Clinic reported using a short acting thio-barbiturate intravenous induction agent, **pentothal sodium**, in more than a thousand surgical procedures in 1935. In 1938 Pentothal sodium is first used in Hamilton.[55]
1936	**First Sulphanomides used in Hamilton** (developed in 1932)[56].
1937	**The McMaster-Academy Committee on Post-Graduate Medical Education is formed.** The liaison between the Hamilton Academy of Medicine and McMaster was established to further develop Hamilton into a medical center in areas of practice, research, and education. The founding members of the Academy were **Drs O.W Niemeier, R.M. Lymburner, D.P. MacFarlane, J.P. Morton, J.H. Mullin, C.E. Burke, and A.E. Warren**[57]. **Dr. R.M. Stringer, a part-time general practitioner, is the third appointment to the anesthetic staff at the Hamilton General Hospital.**[58]
1938	**The First Cancer Clinic in Hamilton opens at the Hamilton General Hospital**, originally under the direction of **Dr. A.E. Walkey**, which later is taken over by the Ontario Cancer Treatment and Research Foundation in 1949[59]. **Pentothal sodium**, a short acting thio-barbiturate intravenous induction agent, is used for the first time in Hamilton.[60]
1939	**World War II begins.** **Major Advancements in Anesthesia between 1940 and 1950:** • **The discovery of Trichloroethylene** • **The discovery of Curare** – Introcostin • **The discovery of Curare –** d-tubocuraine[61] • **The discovery of Lignocaine** • **The development of Recovery Wards** • **Induced hypotension[62]**

1941	**Between 1941 and 1950 the following anesthetists were appointed to the Hamilton General Hospital: Drs. F.G. Ruston, H.L. Foster, L.S. Bartlett, O.R. Bartlett, R.I. Probert, R.H. Holbrook, J. Kyles, T. McConnachie and Marion Morgan.** **The following anesthetists were appointed to St. Joseph's Hospital: Drs. R.J. Fraser, E. Jones, and K.A. Kraft.**[63]
1942	**In 1942, certification of specialists began in Canada**; however, residencies in hospitals were not mandatory until 1956 when subspecialties began to proliferate[64].
1944	**Dr. Harold Griffith,** a Canadian anesthesiologist from Montreal, began using a form of a muscle relaxant **curare**, under the name of **intocostrin**, in 1944.[65] According to historians, the introduction of curare into anesthetic practice "was one of the most important events in the history of anaesthesia"[66]. In Keith Sykes and John Bunker's book Anaesthesia and the Practice of Medicine: Historical Perspectives, they argue that: "The use of curare enabled three components of general anaesthesia – unconsciousness, pain relief, and muscular relaxant – to be provided by separate drugs; unconsciousness was induced by thiopental and maintained by nitrous oxide; pain relief was provided by nitrous oxide supplemented by an intravenous analgesic drug such as morphine or pethidine, or a small concentration of a volatile agent; and muscular relaxation was induced by curare or some other muscle-relaxant drug. The advantage of this concept of so-called 'balanced anaesthesia' is that it enables the anaesthetist to adjust the dosage of each drug to provide the more appropriate conditions for the type of surgery being performed. Since the prolonged inhalation induction is avoided, the surgeon can operate within a few minutes of the intravenous injection, and, since the dose of the drug is minimized, side-effects are reduced, recovery hastened, and the incidence of post-operative complications reduced".[67] **Interesting Notes and Quotes: The Discovery of Curare** ***"It was the 16th century explorers who first encountered the deadly poisoned arrows used by the South American Indians, but it was the French scientist La Condamine who traversed the Amazon from the Andes to the sea and brought samples of the poison back to Europe in 1743. Its mysterious properties fascinated scientists for nearly a century before a veterinary surgeon used it to treat tetanus in a horse, but another century was to elapse before it was introduced into anaesthesia".[68]***
1945	**World War II ends.** **Interesting Notes and Quotes: The Impact of the Second World War**

	"On September 3 1939, as Hitler's allied tanks thundered into Poland, Britain declared war on Germany. On 7 December 1941, some 200 Japanese aircraft attacked the US Fleet anchored in Pearl Harbor, and the USA joined the Allied cause. In the ensuing conflict, there were many casualties among the civilian population and the Armed Forces, and anaesthetists often had to work under appalling conditions. However, the reorganization of medical services and the experience of anaesthetizing seriously ill casualties had a major beneficial impact on the future development of the specialty".[69] In the following excerpt from the interview with **Drs. Marion and Robert Morgan**, the impact of the war, the increase of interest in specialization, and medical research cumulated into an era of transition and organization within anesthesia: ***Marion Morgan**: Well, it was gradual. In 1947 when we came, **Dr. [Robert] Stringer**, and **Dr. [Donald] Warren**, and **Dr. [William] Cody**, and **Dr. [Frank] Ruston**, and **[Ralph] Probert** were giving most of the anesthetic.* ***Robert Morgan**: And **Arnie Marshall**.* ***Marion Morgan**: Well, Arnie Marshall came after **[Robert] Holbrook**. And then Arnie Marshall. **[Lee] Foster** was in there too. Well that would be, that transition would take place immediately post-war. Immediately post-war. Because spinal anesthesia had improved, the drugs had improved, and local anesthesia. Chloroform was going out of date…Ether was still okay…nitrous oxide, would have of course been in vain, but cyclopropane was in existence, and then fluothane came along. When fluothane came along it was, that would be in…In the fifties, early fifties, cyclopropane went out of style because cyclopropane is very explosive. Very, even in very little concentrations. Consequently, surgeons who were in the habit of using the cautery, it cramped their style, so they didn't like cyclopropane…That's why local anesthesia, spinals and so on, were so popular especially with surgeons who liked say abdominal relaxation. Spinals give you the most relaxation. Then fluothane came along, and it stinks. Like if you put your patient to sleep with nitrous oxide first, and then change to fluothane, and then your curare came into existence and anectine. You could get good abdominal relaxation. So it was sort of a toss up between local, that is spinal anesthesia, and general anesthesia where nitrous oxide, fluothane, curare or anectine, were a little intravenous drug, came into being.* ***Robert Morgan**: Also relaxants.* ***Marion Morgan**: Muscle relaxants, I'm trying to say. This is a real transition period.* **Dr. Fraser Russell is appointed Head of Anesthesia at St. Joseph's Hospital**.[70] In the late 1940's Dr. Russell developed **Westocaine**, a procaine-based lighter than spinal fluid anesthetic used in localized spinal anesthesia at St. Joseph's Hospital.[71]
1946	**Dr. Cody retires from the position of Head of Anesthesia at the Hamilton Genereal Hospital and Dr. R.M. Stringer is appointed the**

	Chief of Service.[72]
1947	**Construction of St. Joseph's Hospital increases bed capacity from 200 to 400.** In 1949 this project was further expanded by the construction of a new laundry facility.[73] **In March 1947, a Section of Anesthesia is formed in Hamilton as a section of the Hamilton Academy of Medicine.** The initial members were: **Drs. W.M. Cody** (Chairman), **R.M. Stringer** (Secretary-Department), **D.A. Warren** (Secretary-Treasurer), **F.G. Ruston**, **H.L. Foster**, **L.S. Bartlett**, **R.J. Fraser**, **K. Kraft**, **J.N. Kyles**, **R.I. Probert**, **R.H. Holbrook**, **H.E. Peart** (Hamilton Sanatorium), and **G.N. Black** (Port Colborne, Ontario). **Dr. Marion Morgan began practicing medicine in Hamilton in 1947 (prior to the development of a secular Department of Anesthesia). Dr. Morgan was the fourth female physician and the first female anesthesiologist in the Hamilton region.** For a fascinating account of early medical and anesthetic practices in Hamilton during the post-war period, please refer to Drs. Marion and Robert Morgan's interview (located under the "Interview" section) wherein they discuss early anesthetic practices, the growth of clinical anesthesia, obstetrical experience at Casa Maria, and the treatment of female physicians in a male dominated profession.
1948	**In 1948 the Hamilton General Hospital is approved for resident training in anesthesia and St. Joseph's is approved in 1952.** Both programs were in operation until 1970 wherein they became amalgamated into the McMaster Medical School program[74]. **Dr. Harry Thode creates a Department of Medical Research at McMaster University.**[75] **<u>Interesting Notes and Quotes: The Reduction of Surgical Bleeding</u>** ***"Surgeons have always recognized that bleeding is an inevitable consequence of surgery, but they were astonished when in 1948, the Edinburgh anaesthetists HWC Griffith and John Gillies reported that the had deliberately reduced blood pressure to unrecordable levels to allow James Learmouth, Professor of Surgery, to operate with a bloodless field. The operation, which has been designed to reduce chronic hypertension, failed to do so, but the 'physiological trespass' in which the anaesthetists engaged was a brilliant success. It opened the doors for new advances in surgical technique and it radically altered the understanding of how the circulation is controlled".***[76]
1949	The Cancer Clinic at Hamilton General Hospital is taken over by the **Ontario Cancer Treatment and Research Foundation**[77].

	St. Joseph's Medical Staff 1949 Dr. William Downes – Chief of Staff Dr. Kenneth Murray – Chief of Surgery Dr. A. Hollinrake – Chief of Obstetrics and Gynaecology **Dr. R.J. Fraser – Chief of Anesthetics** Dr. Meyer Carr – Chief of Children's Diseases[78]
1950	**A Department of Anesthesia is established at the Hamilton General Hospital.** The staff included **Drs. W.M. Cody** (appointed in 1917), **D.A. Warren** (appointed in 1922), and **R.M. Stringer (**appointed 1937). Between 1941 and 1950, nine trained and full-time anesthetists were appointed to the Hamilton General Hospital and three to St. Joseph's Hospital with privileges to both hospitals; however, in 1960 these dual privileges were discontinued and anesthetic staffs separated. Those practicing anesthesia at this time were responsible to provide their own equipment and method of transportation around the Hamilton regional hospitals, as well as those in Simcoe, Dunnville, Brantford and Grimsby. During this period, **spinal and block anesthesia** became popular as over one third of anesthetics administered by surgeons and staff anesthetists at the Hamilton General Hospital were reportedly of this method. The four main agents used for spinals and block anesthesia were **novocaine** (procaine), **pontocaine** (tetracaine), **nupercaine** (dibucaine), and **lidocaine** (xylocaine).[79] In addition, **Dr. Frank Ruston**, a staff anesthetist at the Hamilton General Hospital, successfully designed a special **infant epidural needle** and organized a dosage chart for infant anesthesia in the 1950's. Please refer to **Dr. John E. Ashworth's** interview (located in the "Interview" section) to hear a detailed account of infant epidural techniques developed and introduced within Hamilton.[80] Finally, **Dr. J.E. Marshall and surgeon Dr. Kenneth McKenzie developed a new method of lobotomy** which consisted of a local block supplemented with sodium pentothal without intubation at the Hamilton Sanatorium.[81] **<u>Major Advancement in Anesthesia between 1950 and 1960:</u>** • **The development of Poisoning Units** • **The development of Pain Clinics** • **The development of Manual Ventilators** • **The development of Manual Intermittent Positive-Pressure Ventilation** • **Obstetrical analgesia with trichloroethylene** • **The discovery of Halothane** • **The development of Intensive Care Units** • **The development of In-hospital Cardiac Arrest Services**[82]

	Between 1950 and 1960, new appointments to the anesthetic staff at the Hamilton General Hospital were: Drs. J.E. Marshall, R.G.M. Harvey, D.C. Aikenhead, V.L. Politi, and D.K. Morgan.[83] **Between 1950 and 1960, new appointments to the anesthetic staff at St. Joseph's Hospital were: Drs. J.N. Kyles, L.S. Bartlett, W.S.D. Best, W. Bota, J.K. Moss, J.P. Rado, and M. Bazoian**.[84] **The Hamilton General Hospital is approved by the Royal College of Physicians and Surgeons for graduate training and certification.**[85] **Grace Haven,** a maternity hospital organized by the Salvation Army for unwed mothers giving treatment in both prenatal and postnatal care, opens on 245 James St. South.[86]
1951	**Construction of a new maternity wing built around Casa Maria opens at St. Joseph's Hospital.**[87]
1952	**St. Joseph's Hospital is approved for post-graduate resident training in anesthesia and pathology**[88]. In 1952, **Bjorn Isben** introduced the use of anesthetic techniques for treating respiratory paralysis. Isben proposed to treat this condition with a Waters breathing system to be used with a carbon dioxide absorber that would ventilate the patient through a cuffed tracheostomy tube. [89] **<u>Interesting Notes and Quotes: The Introduction of Anesthetic Techniques for Treating Respiratory Paralysis</u>** ***"At the height of the 1952 poliomyelitis epidemic in Copenhagen, the Danish anesthetist Bjorn Isben realized, as the attending doctors did not, that many of the paralysed patients were dying from respiratory failure. With his operating room experience, his knowledge of physiology and his technical skills, he was able to introduce a new form of treatment that subsequently became the mainstay of intensive care".***[90]
1954	**A new facility named the Nora Frances Henderson Convalescent Hospital opens next to the Mount Hamilton Hospital**[91]**.**
1955	**<u>Interesting Notes and Quotes: Anesthesia and Heart Surgery</u>** ***"In 1893, the great German surgeon Theodore Billroth wrote 'Any surgeon who would attempt an operation on the heart should lose the respect of his colleagues'. This remained the general view of most doctors for the next half-century. But once again it was experience gained in the Second World War that encouraged surgeons to rethink their attitude to this previously forbidden territory. In the immediate postwar period, surgeons started to dilate stenosed heart valves without***

	opening the heart, but in the mid-1950's, hypothermia was being used to protect the brain while surgeons began to operate with the open heart. It was, however, the introduction of cardiopulmonary bypass that provided the opportunity for anaesthetists to take on a multidisciplinary role within the cardiac team. Some supervised the heart-lung machine, others were more interested in the problems of post-operative care, but all those involved with this type of surgery had to develop new techniques of anaesthesia, monitoring and clinical measurement. The techniques developed for cardiac surgery soon spread to other branches of anaesthesia and medicine, and so greatly improved the standard of care of the acutely ill patient".[92]
1958	**Halothane**, and later **methoxyflurane**, being vapourous and non-flammable, replaces cyclopropane.[93]
1959	**Ontario Hospital Services Insurance Plan begins (OHSIP)**[94].
1960	**Chedoke Hospital** is constructed at the site of the Hamilton Sanatorium with **Dr. Deane Morgan** appointed as Chief of Anesthesia with a staff of **Drs. Marion Morgan, Charles Waller, and M. Bazoian**.[95] **Dual privileges** shared by the anesthetic staff at the Hamilton General Hospital and St. Joseph's Hospital are discontinued and separated. [96] **Dr. R.M. Stringer** retires as Chief with the appointment of **R.I. Probert** as Head of the Department.[97] **Between 1960 and 1970 the following anesthetic appointments were made to the Hamilton Hospitals.** **To the Hamilton General Hospital: Drs. G.H. McMorland, E.J. Ashworth, Deane Morgan, D.V. Catton, W.R. Roberts, D.L. Boyd, F.J. Wright, R.A. Browne, Rose Miron, T.H. Witton, and N.C.H. MacDonald.** **To St. Joseph's Hospital: Drs. H.P. Andry, S.H. Stolar, P.R. Dyckhoff, J.M. Farrell, W. Leong, F.F. Lepinskie, W.P. Bota, D.M. Lopez, and F.J. Wright.** **<u>Advances in Anesthesia Between 1960 and 1970:</u>** • **Entonox for Obstetric Analgesia** • **Bupivacaine** • **Community resuscitation training** • **Enflurane** • **Isoflurane**[98]
1961	**Dr. William Bota joins the Department of Anesthesia at St. Joseph's Hospital.** Dr. Bota has most notably held the positions of Acting Chief

	and Anesthesia Resident Coordinator at St. Joseph's Hospital; as well as Associate Professor and Director of the Anesthesia Residency Training Program at McMaster University. For more information, please refer to Dr. Bota's interview (located under the "interview" section) wherein he discusses how he came to the Department, the early formative years of a secular Department of Anesthesia, his experience of Acting Chief at St. Joseph's Hospital, as well as the arrival of McMaster University Medical School and medical center.
1962	Hamilton General Hospital amalgamates with the Nora-Frances Henderson Convalescent Hospital and the Mountain Civic Hospital to become a single corporation known as the **Hamilton Civic Hospitals**[99]. **Dr. John E. Ashworth joins the Department of Anesthesia at the Hamilton General Hospital.** Dr. Ashworth has most notably held the positions of Chief of the Department of Anesthesia at the Hamilton Civic Hospitals and was Director of the Rotating Internship Program at McMaster University. For a more detailed account, **please refer to Dr. Ashworth's interview** (located under the "Interview" section) wherein he discusses his recruitment to the Hamilton General Hospital, his involvement in the development of cardiothoracic anesthesia, the development of post-operative intensive care, the development of a pain clinic at the Henderson Hospital, the introduction of infant epidurals, and the role of Dr. R.M. Stringer in the development of a secular Department of Anesthesia. **St. Joseph's Hospital undergoes major expansion** with the completion of an 8 story hospital wing and 7 story nurses residence. Currently, it has developed into an 800-bed teaching hospital[100] and a 30-bed chronic care unit[101]. **McMaster begins negotiations with the Royal Botanical Gardens to purchase land** in front of the university to use for the future hospital site of the McMaster University Medical Center.[102]
1963	**Dr. Frederick Lepinskie joins the Department of Anesthesia at St. Joseph's Hospital.** Dr. Lepinskie has most notably held the position of clinician at St. Joseph's Hospital for the entire duration of his medical practice and Assistant Clinical Professor at McMaster University. For more information, please refer to Dr. Lepinskie's interview (located under the "Interview section) wherein he discusses the transition of his professional role, efforts to establish a residency program at St. Joseph's (as no education program formally existed at this time), the confrontation over developing a secular Department of Anesthesia at McMaster, and the technical changes witnessed during his time in practice.
1964	**Ontario government announces that a medical school and teaching hospital is to be opened at McMaster University**[103]**.**

	Dr. Karl Kraft is succeeded by **Dr. J.N. Kyles** as Head of the Department at St. Joseph's Hospital.[104]
1965	The Nora-Frances Convalescent Hospital is physically linked to the Mount Hamilton Hospital and renamed the **Henderson General Hospital**[105]. **Dr. John Evans** is appointed first Dean of Medicine and Principal of the College of Health Sciences**. Dr. W.J. Walsh** is appointed Assistant Dean and **Dr. William B. Spaulding** is appointed Associate Dean to the McMaster Medical School[106]. **Dr. Ronald A. Browne joins the Department of Anesthesia at the Hamilton General Hospital.** Dr. Browne has most notably held the positions of Coordinator of Anesthetic Electives Program for Medical Students, Acting Department Chair, and Professor at McMaster University. He currently holds the status of Professor Emeritus. For more information, please refer to Dr. Browne's interview (located in the "Interview" section) wherein he discusses how he developed an interest in anesthesia, how he came to the Hamilton region, the impact of the McMaster Medical School on the medical community, and the biggest changes in anesthetic techniques witnessed during his time of practice. **Dr. Frederick Wright joins the Department of Anesthesia at the Hamilton General Hospital.** Dr. Wright has most notably held the positions of Professor, Residency Program Director, McMaster University, and Director of the Anesthesia Clinic, Short Stay Unit, and Intensive Care Unit at the former Chedoke-McMaster Hospital corporation. He currently holds the status of Professor Emeritus. For a more detailed account, please refer to Dr. Wright's interview (located in the "Interview" section) wherein he discusses his personal history, how he developed the Intensive Care Unit, and the largest area of change witnessed during his time of practice in anesthesia. **The Cancer Research Clinic** is moved into new facilities at the Henderson General Hospital. The clinic currently resides in this location.[107] **The Division of Health Sciences is created at McMaster University**. By the 1980's, the Faculty of Health Sciences at McMaster would grow to encompass research in six major areas: cardiovascular disease, immunology, reproductive biology, smooth muscle function, brain and behaviour, and educational development.[108]
1966	**The McMaster University School of Medicine opens**[109]. Ontario government passes legislation for the **Ontario Medical Services**

	Insurance Plan (OMSIP)[110].
1967	Medicare comes into federal law as the **Medical Care Act.**[111] **St. Joseph's Hospital opens a kidney dialysis unit headed by Dr. Arthur Shimizu.**[112] **The Faculty of Medicine** is created at McMaster University**.**[113] **The Chedoke Child and Family Center** is opened in the Bruce building in conjunction with McMaster University.[114]
1968	**Construction begins on McMaster University Medical Center**[115].
1969	**First class admitted to the McMaster Medical School**[116].
1970	**From 1970 to 1977, the following appointments to the Hamilton General Hospital anesthetic staff were: Drs. G.H. Heinrich, G.R. Gerula, Paul A. Grant, and P.L. Philips.** **To St. Joseph's Hospital: Drs. K.Y. Tse.**[117] Dr. J. Kyles retired as Chief and **Dr. S.H. Stolar** was appointed to Head of Anesthesia at St. Joseph's Hospital.[118] **<u>Interesting Notes and Quotes: Tools of Intensive Care:</u>** ***"When the Copenhagen polio epidemic started, there were only three types of ventilator in common use. The first two – the tank ventilator (or 'iron lung') and the cuirass ventilator – expanded the lungs by producing an intermittent subatmospheric or 'negative' pressure around the chest wall. The third device – the rocking bed – utilized the weight of the abdominal viscera to move the diaphragm. Within a year of the end of the epidemic, manufacturers were focusing on the development of ventilators that inflated lungs by applying intermittent positive pressure, but when microprocessors were introduced into medicine in the late 1970's, designers began to use pressurized gas sources and sophisticated valve control mechanisms to generate the pressures and flows required to ventilate the lungs. These ventilators are extremely versatile and can support ventilation in many different ways. As a result, a ventilator that costs a few hundred pounds in 1960 may now cost over 30,000 pounds".***[119]
1971	**Dr. Donald V. Catton is appointed Professor and Chairman of the Department of Anesthesia of McMaster University. The initial staff appointments to the McMaster Department of Anesthesia were: Drs. J.M. Thistlewood, J.R.A. Rigg, D.H. Morison, J.B. Forrest, G.L. Dunn, and R. Rajagopalan.**[120] In an interview with Fred Lee, Dr. Catton explained his intentions when recruiting for the brand new secular academic Department of Anesthesia at McMaster University:

	"I had no concept of teaching or research. I had to hire people of expertise. I targeted people: Forrest – for his rein on research; Rigg – respirology; Harries – kidney; Morison – ability to run a residency program; Wright – he was the chairman at Queen's University and he wanted to come to Hamilton. He took over from Morison; Thistlewood – his contribution to continuing education. People would ask him to visit their operating room and train them for a couple of days; Dunn – pediatrics; Hewson – critical care/intensive care".[121] Since the establishment of the Department of Anesthesia at McMaster University, **research directions have included topics such as:** the pharmacology of anesthetics, physiology of smooth muscle-cells, respiratory physiology, pain management, obstetrical anesthesia, post-op nausea and vomiting, as well as cardiovascular complications in non-cardiac surgery, resident training evaluation, and clinical cases.[122] **For more information on basic science research, clinical research and funded research please refer to the Report and Retrospective 2002 booklet located under the "History" section of this website as well as the Department of Anesthesia website: http://fhs.mcmaster.ca/anaesthesia/** Uniquely implemented and developed within the McMaster University Medical School is the pedagogical philosophy and methodology of **"problem-based learning,"** wherein holistic care and an "upgraded" form of apprenticeship are central in teaching and training. Original members of the Department of Anesthesia, including **Dr. D.V. Catton and R. Browne,** were intimately involved in the development of problem based learning for medical undergraduates in anesthesia residency training.[123]
1972	On May 27th 1972, **the McMaster University Medical Center officially opens.** In 1979, the McMaster University Health Sciences Centre amalgamates with Chedoke Hospitals to become **Chedoke-McMaster Hospitals**. In 1997 Chedoke-McMaster Hospitals amalgamates with Hamilton Civic Hospitals to form **Hamilton Health Sciences**. It is the official teaching hospital for the **Michael G. DeGroote School of Medicine at McMaster University** - which was originally established in 1966 as the McMaster University School of Medicine - the fifth medical school in Ontario[124]. Since the McMaster University Medical Center came into being, the **clinical training of anesthesia residents** has been shared among the Hamilton General Hospital, St. Joseph's Hospital, and McMaster University Medical Center.[125] On October 12th, **the first surgery is performed at McMaster University Medical Center**; the surgery is performed by **Dr. F.L.**

	Johnson with anesthesia administered by **Dr. R.M. Stringer**.[126] Ontario government combines medical and hospital plans into the **Ontario Health Insurance Plan (OHIP)**. This legislation remained in place until 1984 when it was modified and refined by the **Canada Health Act**[127]**.**
1973	**Mohawk College** takes over both the Hamilton General Hospital and St. Joseph's Hospital School of Nursing programs[128]. **Dr. David Morison joins the Department of Anesthesia at McMaster University.** Dr. Morison has most notably held the position of Residency Program Director, Professor, and Chairman at McMaster University. He currently holds the status of Professor Emeritus. For more information, please refer to Dr. Morison's interview (located in the "Interview" section) wherein he discusses his initial job task when recruited to the Department, establishing a formal education system, the "town/gown" division resulting from the introduction of the McMaster medical school and medical center, as well as his personal thoughts and experiences with problem-based learning.
1977	**Dr. John R. Hewson** joins the Department of Anesthesia, McMaster University. Dr. Hewson has most notably held the positions of Director of the Regional Critical Care Program, McMaster University, Associate Dean of Health Services for the Faculty of Health Sciences, McMaster University, and Chief of the Department of Critical Care at the Hamilton Civic Hospitals. He currently holds the status of Professor Emeritus. For more information, please refer to Dr. Hewson's interview (located in the "Interview" section) wherein he discusses in greater detail developing an Intensive Care Unit at McMaster (both in terms of recruitment and a 24-hour system of care), objectives of the I.C.U., and how the Regional Critical Care Program came into existence. **Dr. Kari Smedstad joins the Department at McMaster University.** As one of the first female anesthetists to join the newly formed Department at McMaster, Dr. Smedstad has throughout her career held many notable positions including Professor and Chief-of-Service for Obstetrical Anesthesia in the former Chedoke-McMaster Hospital Corporation. Dr. Smedstad currently holds the status of Professor Emeritus. For more information, please refer to Dr. Smedstad's interview (located in the "Interview" section) wherein she discusses her arrival and initial job task at McMaster, her reflections on female experience in the medical profession, her interest in women's issues, and the changes witnessed in the field of obstetrical anesthesia during her time of practice.
1978	**Dr. Robert M.K.W. Lee joins the Department at McMaster University as a full-time basic science researcher.** He has served the position of Department Education Coordinator for many years and has

	held a variety of M.D. Program positions. Dr. Lee's main research focus and expertise is centered on the role of vascular changes in hypertension. He currently sits on the McMaster Senate and is a tenured Professor**.** For more information, please refer to Dr. Lee's interview (located in the "Interview" section) wherein he discusses the transition from working under Dr. Jay Forrest to the position of Department Education Coordinator, his main research interests in vascular hypertension, being Director of the Smooth Muscle Research Program in the Faculty of Health Sciences, and his general experiences teaching at McMaster University.
1979	**Chedoke Hospital amalgamates with the McMaster University Medical Centre** to become half of Chedoke-McMaster Hospitals[129]. **Dr. Angelica Fargas-Babjak joins the Department at McMaster University. Dr. Fargas-Babjak is currently a Professor and Program Chair of the CME Contemporary Medical Acupuncture Program at McMaster University.** For more information, please refer to Dr. Fargas-Babjak's interview (located in the "Interview" section) wherein she discusses how she developed an interest in non-pharmacological pain management, the development of the Contemporary Medical Acupuncture Program at McMaster, and the reaction of students and the medical community to acupuncture. **Dr. Girish C. Moudgil joins the Department at McMaster University.** Dr Moudgil has most notably held the position of Professor at McMaster University and currently holds the status of Professor Emeritus. For more information, please refer to Dr. Moudgil's interview (located in the "Interview section) wherein he discusses how he came to the Hamilton region and his recruitment as an Assistant Professor. **The Firestone Chest and Allergy Unit** is established at St. Joseph's Hospital. It is now known as the Firestone Institute for Respiratory Health.[130]
1980	**Dr. Jay Forrest is appointed to the position of Professor and Chairman of the Department of Anesthesia, McMaster University.**[131] **<u>Advances in Anesthesia Between 1980 and 1990:</u>** • **Isoflurane** • **Enflurane**
1981	**The McGregor Clinic is closed and the facility purchased by the Canadian Centre for Occupational Health and Safety.**[132] **Dr. Ama deGraft-Johnson joins the Department at McMaster University and is currently an Associate Clinical Professor.** As the first female African-Canadian member of staff within the Department, Dr.deGraft-Johnson's personal history and professional career is unique.

	For more information, please refer to Dr. deGraft-Johnson's interview (located in the "Interview" section) wherein she discusses how she was recruited into the Department, the evolution of her professional role from residency student to an Associate Professor, the advice she gives to her new students, as well as her international work alongside Dr. Dauphin's Uganda and Haiti Health Project. **Dr. James McChesney joins the Department at St. Joseph's Hospital.** Dr. McChesney has notably held the position of Chief at St. Joseph's Hospital. He currently holds the position of Clinical Professor at McMaster University and Director of the Chronic Pain Clinic at St. Joseph's Hospital. For more information, please refer to Dr. McChesney's interview (located in the "Interview" section) wherein he discusses the appeal, as well as the challenges, accompanying the opening of the McMaster University School of Medicine, the evolution of his professional role, the challenging aspects of the Pain Clinic, and finally, the largest areas of growth in anesthesia.
1982	**Decision to rebuild the Hamilton General Hospital on the same Barton Street site is finalized by the Ontario government.** In addition, plans for a new community health facility were drawn up at this time; the facility was to be built in order to serve the needs of the east end of Hamilton as well as Stoney Creek. St. Joseph's Hospital was given oversight and management of this facility "which was to provide emergency and clinical services found in full service hospitals, but have no beds for overnight stays". Patients were to be stabilized and transported to other municipal hospitals. In 1990, this site was officially opened and named the **St. Joseph's Community Health Center**.[133] **McMaster's Department of Biostatistics and Epidemiology**, with the participation of **Dr. Jay Forrest**, becomes involved in several large scale multi-centre trials of **isoflurane**.[134]
1983	**An English anesthetist, Archibald Brain, publishes article describing a device that revolutionized the maintenance of the airway during routine anesthesia – the laryngeal mask airway.[135]**
1984	**Canada Health Act is legislated by the federal government.**[136] The **first acupuncture clinic** operating in an academic institution is started by **Dr. A. Fargas-Babjak**, with assistance from **Dr. Jay Forrest,** as part of a multi-disciplinary pain clinic at McMaster University. Dr. Fargas-Babjak tailored the program to focus on methods of non-pharmacological pain management and began the first **Continuing Medical Education Program in Acupuncture** in 1999.[137] Undergraduate teaching comprises lectures on non-pharmacological pain management, as well as neurophysiology and acupuncture, given to nursing and midwifery students. Graduate and post-graduate education in acupuncture have included lectures seminars for anesthesia residents on

	acupuncture and TENS neuromodulation.[138]
1987	**Dr. Frederick Baxter joins the Department of Anesthesia at McMaster University.** Dr. Baxter has notably held the position of Program Director for the Adult Critical Care Medicine Residency Program at McMaster University and Chief at St. Joseph's Hospital. He is currently an intensivist, Associate Clinical Professor, and Program Director for the Anesthesia Residency Training Program at McMaster University. For more information, please refer to Dr. Baxter's interview (located in the "Interview" section) wherein he discusses his experiences as a student with problem-based learning in the early years of the McMaster University School of Medical, his experiences as Chief at St. Joseph's Hospital, and the biggest changes in anesthesia witnessed during his time of practice.
1988	**Dr. Norman Buckley and Dr. Kari Smedstad establish the first Acute Post-Operative Pain Service at McMaster University.** **Dr. Homer Yang and Dr. Scott Beattie join the Department of Anesthesia at McMaster University.** **Dr. Norman Buckley joins the Department of Anesthesia at McMaster University.** Dr. Buckley has notably held the position of Program Director for the Anesthesia Residency Program and Chief of Anesthesia at the former McMaster-Chedoke Hospital Corporation. He currently holds the position of Associate Professor with CAWAR, as well as Chair of Anesthesia at McMaster University. For more information, please refer to Dr. Buckley's interview (located in the "Interview" section) wherein he discusses how he came to the Hamilton region, the role of the Department amongst the medical community, the greatest areas of growth in terms of education, clinical, as well as research, and finally, his future goals for the Department during his time as Chair.
1990	**The St. Joseph's Community Health Center opens.** [139] **Dr. David Morison is appointed to the position of Professor and Chairman of the Department of Anesthesia, McMaster University.**[140] **Dr. Alez Dauphin joins the Department of Anesthesia.** During his time in the Department, Dr. Dauphin has been instrumental in establishing and administering the Uganda and Haiti Health Project for which he was given the John C. Sibley Award in 1997 for his ongoing international outreach programs. He currently holds the position of Assistant Clinical Professor for the Faculty of Health Sciences at McMaster University and is Acting Chief at St. Joseph's Hospital. For more information, please refer to Dr. Dauphin's interview (located in the "Interview" section) wherein he discusses the challenges inherent in the position of Chief, his professional vision, and the purpose of the Uganda and Haiti Health Project.

	Dr. Stephen Puchalski joins the Department at McMaster University. Dr. Puchalski has notably held the position of Director of the Anesthesia Residency Program at McMaster University. He currently holds the status of Associate Clinical Professor. For more information, please refer to Dr. Puchalski's interview (located in the "Interview" section) wherein he discusses the development of his professional role in Hamilton, challenges inherent in the role of being a Residency Program Director, and the development of a daily evaluation system for residents in the program. **<u>Advances in Anesthesia Between 1990 and 2000:</u>** • **Two new short-acting inhalation agents, desflurane and sevoflurane, are introduced and commonly used in day surgery.[141]** **<u>In modern times, anesthesia as a specialty covers 4 main branches:</u>** 1. **Anesthesia** 2. **Intensive care medicine** 3. **Chronic and acute pain services** 4. **Emergency medicine**
1991	**Dr. Alez Dauphin**, St. Joseph's Hospital, establishes the **Uganda and Haiti Health Project**; an international medical outreach initiative for which he received McMaster's John C. Sibley Award in 1997. Dr. Dauphin's passionate efforts can be best summarized by the following excerpts from part of his interview (located in the interview section) wherein he explains his personal commitments to innovative education: ***Dr. Alez Dauphin:*** *"Internationally is going beyond the boundaries of our own environment, not only looking at ourselves as being self-sufficient, but there is a large world out there that is waiting and that needs to be brought up to par. By the international world, the greater satisfaction is to see that we are taking a country like Uganda, who was sixty years behind us, and bringing them up to a level where one can now go and have an anesthetic and feel satisfied that you are getting something that is comparable to what we are doing here. So that is quite an accomplishment. And that brings a lot of satisfaction. And the dream is that education is to be shared and it is not something to be concealed. Education needs light. And it's worth putting it on the mountaintop than hiding it under the bushel".* *"If you really want to change the world, it has to be based on education but with intention. It's not about giving education because you can be*

	trained in chemistry and getting pharmaceutical products and end up making bombs out of them. So it has to be directed in a sense as to why this is being done. And therefore the supervisorship, if I can use that word, and the being together there with the intent of training, that's necessary. And I think for this world to be a better place, knowledge has to be shared within a context and with a purpose".
1994	**U.S. patent for the laryngeal mask airway passed.**
1996	**Dr. Gregory Peachey joins the Department of Anesthesia at McMaster University.** Dr. Peachey is currently an Associate Clinical Professor, Assistant Dean of Continuing Health Sciences Education Program, and Anesthesia Simulation Advisor at McMaster University. For more information, please refer to Dr. Peachey's interview (located in the "Interview" section) wherein he gives a demonstration in the prototype simulation center (which has since expanded). In the interview video, Dr. Peachey explains how students undergo simulation instruction, discusses the comparability between working on simulators versus human beings, as well as simulation profiles to highlight and/or emphasize specific teaching elements.
1997	The Hamilton Civic Hospitals (consisting of the Hamilton General Hospital, Nora-Frances Henderson Convalescent Hospital, and the Mountain Civic Hospital) amalgamates with Chedoke-McMaster Hospital to create the **Hamilton Health Sciences**[142]. **Dr. Homer Yang is appointed to the position of Professor and Chairman of the Department of Anesthesia, McMaster University.**[143]
1998	**Dr. Richard McLean joins the Department at McMaster University**. Dr. McLean currently holds the position of Chief of Anesthesia for the Hamilton Health Sciences Corporation, Chair of the Medical Advisory Committee for Hamilton Health Sciences, and a Associate Professor at McMaster University. For more information, please refer to Dr. McLean's interview (located under the "Interview" section) wherein he discusses his work experiences in Toronto, how they compare to the Hamilton medical climate, as well as the challenges experienced in his role as Chief of Anesthesia at McMaster.
1999	**The Continuing Medical Education Program in Acupuncture**, a program under the direction of **Dr. A. Fargas-Babjak**, begins training residents in non-pharmacological pain management at McMaster University.[144] The Anesthesia Residency Program introduced **the "CLIC" program**; a program designed to develop skills in communication, leadership, influence, and conflict resolution. It is a 2 day workshop adapted from the "Crew Resource Management" course at Air Canada and has been

	headed by **Drs. Steve Puchalski** and **Karen Raymer**, with the assistance of Captain Jim Houvartis from Air Canada. It has since been included as a yearly event in the core curriculum, and considered to be the first program of its kind in any anesthesia residency program in Canada.[145] **Dr. Alex Jadad** became the first anesthetist to be elected Top 40 under 40 for his work in informatics and epidemiology as a professor in the Department of Epidemiology and Biostatistics, cross-appointed to the Department of Anesthesia, McMaster University.[146]
2000	In November 2000, the Hamilton Psychiatric Hospital (formerly the Hamilton Asylum) was transferred to the authority of the St. Joseph's Healthcare-Hamilton and was renamed the **Center for Mountain Health Services**[147].
2002	**The Pain Management Center opens at the Hamilton General Hospital.** **POISE study begins. Peri-operative Ischemia Evaluation conducted under the direction of Drs. P.J. Devereau and Homer Yang. A 10,000 patient study to evaluate the utility of metoprolol as cardiac prophylaxis during non-cardiac surgery.**
2003	**Province-wide Alternate Funding Plan (AEP) to support academic activity comes into being. Hamilton anesthesia associates formed to manage this funding source.**
2004	**Dr. Norman Buckley is appointed the Chairman of the Department of Anesthesia at McMaster University. In 2005, Dr. Buckley is further appointed to the position of Professor.** **The McMaster University School of Medicine, established in 1966, is renamed the Michael G. DeGroote School of Medicine.** **Anesthesia Simulation Training is incorporated into the undergraduate program clerkship rotation. Drs. Anne Wong, Rob Whyte and Greg Peachey** have developed a one-week simulator-based teaching program which prepares the clerks for their one week traditional OR rotation in anesthesia. The Department's acquisition of a "Sim Man" high fidelity anesthesia simulator, and the contribution of a room and reconstruction money by the undergraduate medical program, have made this project a reality. The "Sim Man" simulator was purchased by the Department to support its commitment to the undergraduate program, but also in the context of a Faculty wide project - the development of an interdisciplinary skills lab. In addition to anesthesia training, this lab will encompass surgical training (especially minimally invasive techniques) and interdisciplinary team management training for care groups, in particular operating room and critical care resuscitation teams. This project is supported by

	substantial investment from the Postgraduate portfolio of the Associate Dean for Education and promises to be very exciting. For a more in depth look at simulation training, please refer to Dr. Greg Peachey's interview (located in the "Interview" section) wherein he gives a demonstration in the prototype simulation center (which has since expanded). In the interview video, Dr. Peachey explains how students undergo simulation instruction, discusses the comparability between working on simulators versus human beings, as well as simulation profiles to highlight and/or emphasize specific teaching elements.
2005	**The DeGroote Centre for Research and Care in Central and Thalamic Pain is created at McMaster University.**
2006	**Dr. J. Forrest** reports on treatment of patients with inflammatory bowel disease using a new procedure called **celiac plexus blocks**. Hamilton Health Sciences is currently the only health organization in North America offering chronic abdominal pain treatment with good effect.
2007	**POISE landmark study complete and reported.**

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[11] Stott, Rosalie Marie. Hamilton's Doctors 1863-1935: Guardians of the City's Health. (Hamilton, Ontario: Hamilton Academy of Medicine Foundation and Hamilton Academy of Medicine, 1995) 8-39. Stott's book contains three excellent chapters on the early history of the Hamilton Medical and Surgical Society, its founding members, its evolution, the development of professionalism into the Hamilton Medical Society, and finally, the unique influence it had in regards to recruitment, training, fee schedules, etc, in the Hamilton medical community. For more information on this organization please see: "The Hamilton Medical & Surgical Society: Prelude" (pgs. 8-22); "The Hamilton Medical and Surgical Society" (pgs. 23-39); and "The Hamilton Medical Society 1899-1932: Pre-World War I" (pgs. 40-61).
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