A; Chapter 13 Our Current World - 1990 to present

World Events

International turmoil continued during the past two decades with a number of autocratic countries experiencing democratic revolts. What had changed was that the developed world now showed an interest in the actions of some dictators. The ability to kill thousands was now being constrained. Economic and political links with repressive regimes was no longer acceptable and the United Nations became more visible in condemning unacceptable human rights violations.

In the Middle East Iraq invaded Kuwait in 1990 and an international force, including Canada, drove the Iraqis out of Kuwait and destroyed their military but did not occupy any of the country. A no fly zone was put into effect to control military activities. Canada's contribution to the war was three old destroyers and some fighter planes.

The destruction of the World Trade Towers in New York City on 11 September 2001 was a galvanizing event that caught the attention of the whole world. Over 3,000 people were killed, the destruction was enormous and the consequences far reaching. The immediate reaction in the United States was to prohibit any airline planes from entering US airspace and landing. This failed to take into account that there were many planes in the air en route to US destinations. From the East the planes were diverted to Gander Newfoundland and the passengers disembarked and accommodated in local homes. In the West the planes landed in Vancouver.

Another consequence of the attack was that the United States sent troops to Afghanistan to overthrow the Taliban government which had refused to turn terrorist suspects over to the United States. The involvement of the United States in Afghanistan lasted for over a decade with eventual withdrawal in 2014 although some troops remained at the request of the government..

Another consequence was the linking of the attack to concerns about Iraq having weapons of mass destruction and being a threat to the United States. This led to the subsequent invasion of Iraq in 2004. This scond Gulf war was different from the first one to free Kuwait in that it was not a United Nations endeavor and only a few countries joined with the United States. Canada did not participate. The war led to a quick military victory followed by a long drawn out occupation and finally a withdrawal of most troops after a decade of turmoil and loss of life. No weapons of mass destruction were found. Both conflicts with Iraq involved hundreds of thousands of combatants, thousands of civilians killed and an enormous financial expenditure. It also fractured the stability of the region and led to religious and national conflicts

Another consequence of the attack was a tightening of border security in the United States. This made entry into the country more difficult and time consuming. For Canada which had an integrated economic system, especially in automobile manufacture the delays at the border were burdensome. For people attempting to work or immigrate to the United States the delays moved from weeks to months and years causing a potential loss of highly qualified people. This situation continues.

In Europe the fall of the Berlin wall in 1989 resulted in East Germany reuniting with West Germany. Canada's two military bases in Germany were removed in 1993 as the Soviet Union disintegrated into a number of independent countries. The Cold War was over and a new range of issues and problems arose. Among these was a Balkan conflict in which Canada pushed the UN to take action and contributed troops for peace keeping. This was a more active intervention type of peace keeping in comparison with earlier missions. The use of force, including the bombing of the Serb army, led to an end of military conflict. All in all it was a messy situation that continued to ferment after NATO troops were withdrawn.

Canadian support for active peace keeping was eroded by the brutal slaying of a young Somali by Canadian soldiers of the Airborne regiment in Somalia in 1993. A Commission of Inquiry was held to determine responsibility for the cause of death but was shut down by the Liberal government before a conclusion was reached. This ended the active international activities of the Canadian military, other than those in Afghanistan, and was accompanied by a decline in the equipment and funding. A decision not to have a military capable of protecting Canada had been taken. Canada was again a military dependency of the United States into the next millenium.

In the Indian Ocean there was a massive earthquake that generated a tsunami that washed ashore in Indonesia and Sri Lanka causing over 200,000 deaths. International assistance was mobilized and large amounts of money contributed to assisting the survivors. Canada sent a military medical aid group to Sri Lanka to provide relief.

Floods in Pakistan during the early 2000's resulted in enormous loss of life and flooding of huge areas. Floods and landslides also occurred in China, India, Europe and other countries believed to be a result of climate change. There is an ongoing series of catastrophes.

Canada's role in world governance suffered in the period 2006-2013 as indicated by a failed attempt to obtain a seat on the UN Security Council. In the past Canada had held a seat. It is thought that the reduction in embassy staff around the world made it less effective in securing the support of many countries and also its strong support for Israel shifted the votes of many muslim countries which make up a quarter of the UN seats.

In the period beginning in 2005 demonstrations for democracy in Syria degenerated into armed conflict and a virtual civil war with thousands of deaths and hundreds of thousands of refugees. The refugees flowed north into Europe and some countries accepted large numbers of them, for example Germany took in 500,000 refugees. Despite this the surrounding countries found themselves with very large numbers of refugees that they had to feed, house and educate. Canada accepted almost 60,000 Syrian refugees with strong public support. The continuing flow of refugees places an economic burden on countries and also shifts their social and economic programs. Later, it also impacts the political priorities.

A number of major trade agreements with Europe and the Pacific rim countries were constantly debated but as of 2016 none were ratified.

Developments in Canada

Atlantic Canada advanced its economic fortunes with the Hibernia oil platform being installed off Newfoundland in 1997. The opening of the Confederation bridge linking Prince Edward Island and New Brunswick the same year also stimulated growth. Overall, however, the Canadian economy did poorly through the 1990's and into the 2000's with the collapse of the high tech sector and poor markets abroad. Unemployment was high in many parts of Canada. The only bright spot was the energy sector that had high exports with lucrative returns. This ended in 2015 with a glut of oil on the world market. The global nature of trade and investment gave countries little control of their national economies. International agreements and policies became important to counties.

The Kyoto Protocol to the United Nations Framework Convention on Climate Change was signed by Canada in 1997 and has been controversial ever since. The Conservative Party on their election as government publically stated that they would not support the Protocol. With the Liberal party gaining a majority in the 2015 election the environment became a priority again and both provincial and federal governments developed plans.

Environmental issues have blossomed in Canada with many groups challenging the government. A particular focus was the Keystone Pipeline to carry oil from Alberta to Texas for refining. In the United States there was concern as the pipeline crossed an environmentally fragile area and these concerns were amplified by several oil pipeline spills. Finding a balance between economic growth and environmental protection is a long standing issue in Canada. The Alberta oil sands have been a magnet for worldwide condemnation. Recognition of the environmental concerns has shifted the debate and there is now a push to construct a pipeline from Alberta to Eastern Canada.

The rapid shrinking of the Arctic ice cap will increasingly open navigation in the North and made resources more available. In response Canada has begun a number of measures to exert its sovereignty in the region using the Armed Forces and scientific teams.

Privacy became an important issue in Canada with the widespread growth of electronic communications and financial transactions. In addition to the security of financial transfers there was a demand for more personal privacy. In response to this the federal and provincial governments passed legislation clarifying the information that could be shared and defining the authorization needed for sharing. This was particularly important in the health field as inter-professional communications were important in providing integrated, high quality care and this needed to be balanced with personal privacy.

Canadian trade with the United States continued to grow and by 2000 about 86% of the country's exports went there. The Liberal policy under Pierre Trudeau to diversify our markets to reduce our reliance on the U.S was again revived, in the form of trade negotiations with the European Union and China. There has been slow progress in this regard.

Canadian demographics made a major shift in the period 1950 to 2000. In these two years the number of births was higher in 1950 than in 2000 despite the lower population. Contraception, sterilization and abortion led to a lower birth rate. A birth rate of 1.5 in Canada is much lower than the 2.1 needed to sustain the population. In 2000 there were about 30 therapeutic abortions for every 100 live births. On the other end of the age spectrum there was an increase in the number of persons aged 65 and over. A decade later the Baby Boom generation began to turn 65 and the distribution of the age cohorts shifted significantly. Forecasts of financial doom dominated discussions of the growing aged sector, especially for health care services. Population growth is mainly dependent on immigration that has been in excessive of 200,000 each year.

University enrollment grew quickly though the period 1980-90 but shrinking provincial funding later limited their growth and slowed the birth of new universities. The federal government began to pour money into universities but this was for research to enhance the economy rather than undergraduate teaching. Population growth has increased university enrollment with support from provincial and federal student loan programs.

Major natural disasters struck Canada in 1997 with a major flood in Manitoba and in 1998 with an ice storm in Quebec. In 2013 major floods in Alberta and Ontario occurred and the military contributed in a substantial way to rescuing people and minimizing damage. In 2016 a wild fire destroyed a large area around Fort McMurray as well as a substantial part of the suburban area in Fort McMurray.

On the political front a major event was the collapse of the Progressive Conservative party in the 1993 election in which the Liberal government obtained a majority of seats. What was novel was that the opposition consisted of two regional parties; the Bloc Quebecois from Quebec and the Reform Party from Western Canada. The Progressive Conservatives suffered from the unpopular policies of Brian Mulroney and the nomination of a woman as party leader and Prime Minister (Kim Campbell) did not generate much voter support. The Separatist party in Quebec launched a referendum on separation in 1995 which generated a lot of discussion, a large voter turnout and a very narrow win for the federalists (50.6%).

The surprise election of the Conservative government under Steven Harper in 2006, initially as a minority government and later as a majority government resulted in major changes in policy and programs. Significantly, the government reduced its presence in areas of provincial responsibility such as health and relied more heavily on the provinces to initiate changes and to work together. The provinces under the umbrella of the Council of the Federation began a process of innovation in health care and the setting of objectives.

Separatism in Quebec was a major issue in Quebec for the next decade at both the provincial and federal level, if fact the Bloc Quebecois was the Official Opposition at one time. The 2011 federal election resulted in a surprising large members of the NDP being voted in an forming the official opposition. In the 2015 election the Liberals obtained the majority of seats in Quebec as well as forming the federal government. This majority government began with social programs and aboriginal problems as priorities.

The major shift in policies as the two parties alternated in office resulted in a lack of continuity in the funding of health programs. The Liberal party preferred to set out guidelines for the use of any federal funds provided while the Conservatives backed away from any participation in health planning with the provinces and expected them to operate as they saw fit with the open federal funding provided.

Health Care

In the 1990's health care funding was restructured by the federal government in terms of the financial funding to the provinces. The cost sharing for Hospital Insurance and Diagnostic Services and Medical Services which had matched Provincial expenditures was combined with other social programs and then the rate of increase for federal cash contributions was limited arbitrarily (the other dimension and larger component of federal funding was the lowering of taxes and allowing the provinces to increase their taxes proportionately- known as tax room).

In 1994 the Cretien government created the National Forum on Health a 4 year $12 million dollar examination of the health system. CPhA lobbied to have a pharmacist on the forum but

were told that no additional members would be appointed and that there was an opportunity for them on one of the working groups. There wasn't. One of the major topics reviewed was Directions for a Pharmaceutical Policy in Canada and the report was compiled jointly by a Striking a Balance Working Group and the Evidence Based Working Group which had 3 physicians, a nurse, 4 lawyers and several academics. It recommended that pharmaceuticals be integrated into the Canada Health Act services with an emphasis on equity of access, improved prescribing appropriateness and cost-containment. There were also recommendations for child care and home care. Although $300 million was allocated for implementing the recommendations no action was taken at the federal level and shortly after funding to the provinces for health was reduced.

While there are continuing federal – provincial discussions n health programs the provinces had little influence on the level and direction of funding and in 2011 the federal government gave notice that after 2014 the federal contributions would increase at the rate of inflation. Later, funding was committed at a rate of 6% per year till 2016. Then at inflation rate which is expected to be much lower than the increase in health care costs which historically has been much larger. This poses a major challenge to the Liberal government. Instead of a renewed Health Accord with the provinces the federal government initiated a series of agreements with individual provinces with an emphasis on funding for primary care and mental health. This was unpopular and is leading to uneven and more variable health initiatives in the provinces.

The federal government developed an interest in health human resources due to shortages in some areas at the turn of the century. In this context Human Resources Development Canada and Health Canada funded a pharmacy sector study (2002). This project would run for several years. The Co-chair of the Steering Committee was Dr. Kevin Hall. The outcome will be a forecasting model for predicting the need for pharmacists. In the 1980's and 1990's there was a shortage of pharmacists but this ended after 2000 with a new pharmacy school at Waterloo and increased enrollment in other universities. There has also been an increase in the number of pharmacists arriving as immigrants and refugees.

Health care funding in the provinces has been growing at a rapid rate despite efforts to control costs. In 1990 the costs of education and health were almost equal in the provinces. Twenty years later the health care costs were more than double the education costs. Yet, both are high priority areas for the public and efforts to contain expenditures have been difficult. Wait lists and uneven health benefits have become a concern of the public with a demand for major changes to health care. Governments faced with rapidly increasing expenditures have frozen

current programs and it has been the private sector that has demonstrated growth and innovation in care. There is a general consensus that the amount of money devoted to health care is adequate but it is not used efficiently. Other countries have better health systems at a lower cost, better access and better outcomes.

During the late 1980's there was a strong push by the public, physicians and some pharmacists to discontinue the sale of tobacco products in pharmacies. This initiative was supported by the pharmacists in each province despite the loss of revenue that affected the majority of pharmacies. The federal government also participated in this initiative by conducting an advertising program. Pharmacists in each province set out regulations to ban or control the sale of tobacco products earning the praise of the Canadian Medical Association in 1986 for the Stand Up and Be Counted program chaired by Stan Lissack.

Concerns over the use of nonprescription drugs led to the federal government to conduct a survey. Respondents indicated a sense of responsibility an relied on health professionals to guide them in product choice. Dosage recommendations were followed and respondents rated the instructions highly. It was concluded that nonprescription drugs were neither overused nor underused.

Throughout the 1980's as provincial governments became more involved in drug benefit programs pharmacists were required to justify their claims for reimbursement. This led to cost analysis of the dispensing function performed under contract for pharmacy organizations. Generally the results showed that the actual cost of dispensing a prescription was higher than the fee governments proposed. In any case this approach achieved little as governments began to consider pharmaceutical programs as just another program and allocated more money when times were good and cut back on expenditures in tough times. This did not make for good planning or innovation in practice.

In the UK a new National Health Services Plan was launched in 2000. A program to reform and reinvest in health care. This was a 10 year plan with a focus on primary care. Two years later "Pharmacy in the Future" was launched. It consisted of 4 elements.

-Better access to services – building of the strengths of pharmacy

-Helping patients get the best from their medicines

- Redesigning services around patients – getting the structure right

- Ensuring high quality services – getting the most from the staff.

Growing bureaucracy in government was a continuing concern and a system of systematically reviewing programs was initiated at the federal level. In 2017 the Minister of Health, Ginette

Petitpas-Taylor initiated an external review of 8 federally funded, pan Canadian health organizations. Its purpose was to review the future role of these organizations in light of the challenges facing the health system.

Scientific and Medical Advances

A betatron in Saskatoon was the first to be used for radiation therapy in Cancer treatment in 1948. This was followed by the Cobalt bomb in the 1950's and now a synchrotron (Canadian Light Source) that began operation in Saskatoon at the University of Saskatchewan in December 2003. A cyclotron was installed at the University of Alberta in 2012 and another in 2015 to produce medical isotopes. This is one of 4 initial installations in Canada which is expected to grow to 15 in order to make Canada self-sufficient in medical isotopes with the closing of the Chalk River nuclear plant.

Health expenditures grew very quickly in the 1990's, largely driven by technology and utilization. While hospitals did not get expand the number of acute care beds they did become more efficient by using more intensive treatment, both surgical and medical, so that patients were discharged more quickly to heal at home or in rehabilitative facilities. They also implemented more day surgery which reduced hospital admissions. The more intensive care initiated required more managerial expertise and the development on new methods for evaluating care and allocating resources. Academic programs for health care management proliferated and research into health care systems grew. Meanwhile, at the provincial level, health care funding followed traditional lines with increased funds in good times and reduced funds in tough times making a mockery of continuity in health care planning.

With advances in health care the pattern of disease shifted increasingly from infectious disease to chronic disease. Chronic disease became the major health expense in developed countries and the existing health system was ill suited to deal with it. Longer lifespan and an aging population increased the demand for long term institutional care and ambulatory care with an emphasis on home care and pharmaceuticals. A system of continuing care did not fit the current funding model and care continued to be episodic and uncoordinated. The terms integrated and comprehensive care were used to describe health goals not programs. Increasingly the terminology "health system" was a misnomer as communication between sectors was poor and care was uneven.

Infectious disease remained a problem in developing countries although major programs for eradication, as in the case of Polio, were long, sustained and expensive programs. Trans-border movement of infectious disease caused emergency responses to SARS and influenza. Resistant strains of bacteria remained a problem with outbreaks occurring episodically in hospitals. The

bacteria seemed to be winning as there were fewer and fewer effective drugs available and the hospital procedures to fight resistance were lackluster and inconsistent.

The scourge of HIV infection resulted in increased research funding. The Institut Armand Frappier in Montreal developed a retrovirus therapy that was marketed in cooperation with GlaxoSmithKline. This became the standard therapy and was used worldwide. It was first tested in humans in 1991. Since then a number of new products have been marketed and pharmacists have had a key role in working with patients to use the medication in the most effective manner. HIV infection rates have dropped and lifespan increased. A persistent problem is the early treatment of patients with newly developed medication due to the slow process of assessing benefit drugs and hot including them when they are expensive.

Anti-ulcer therapy was advanced with the introduction of omeprazole (Losec) the first proton pump inhibitor in 1990 by Astra Zeneca. Due to its widespread acceptance in the world market the introductory price was reduced 24%. This was a product with enormous sales over a 20 year period and the expiration of the patent resulted in pharmaceutical program expenditures dropping. A number of similar products and generics followed allowing for reference based pricing (therapeutic substitution).

As health care technologies proliferate, more options are available for practitioners but the escalating costs require some basis for making choices. Unfortunately historical precedent plays a major role in the services available that are publically funded. Health policies evolving in the complex interplay of economics, science, politics and public expectations are rarely straight forward and are subject to change. In this milieu the issue of pharmaceutical expenditures has been viewed as a drain on health funds rather than the efficient and effective tool for maintaining and improving health. On the other hand diagnostic tests, with the exception of MRI and CT, are used with few restraints to ensure that “every possible cause of a disease is eliminated”. Increasingly, the dangers involved from excessive diagnostic test use is now being realized as is the cost.

Diagnostic testing requires expensive equipment and well paid staff. This has led to a policy on most countries of rationing their use. In 1990 Canada ranked poorly compared to other OECD countries. Canada’s ranking in terms of equipment; MRI 18/23, for CT Scanners 17/22, Radiation Therapy 8/22 and Lithotripter machines 13/14. This is in keeping with the ranking of health care system of Canada in OECD where Canada has among the highest costs and lowest performance.

The health system developed in the 1950’s and 1960’s was based on acute care. Over the next few decades the pattern of disease changed to one of chronic care as people lived longer and more medication for chronic disease became available. Unfortunately it proved quite difficult to

change the system of health care. Acute care continually received the lion's share of funding as care crises occurred. In the case of community pharmacy the role of pharmacists was clear but the dispensing systems in place were difficult to change. The changes that did occur were more closely linked to the retail advances than health advances. Pharmaceutical services become more and more efficient and less effective. The required systemic change involved physical changes to the dispensary, different policies and procedures, a more appropriate reimbursement model and an integrated electronic medical record system. While practicing pharmacists were willing to adapt the owners were less interested as the current system was generating revenue and the new model was less likely to compensate the firm for the changes within a reasonable length of time. Even among the pharmacists there were doubts about the process of change based on the reality of practice. Research showed that pharmacist interventions improved care but it also showed that the current system did not encourage interventions in patient care.

Drug adverse reaction reporting has a history of ups and downs. In 1990 there were about 5,000 reports. Sixty per cent came from hospitals, pharmaceutical firms 23%, physicians 14% and pharmacists 4%. New guidelines and a project in Saskatchewan boosted reports to 7,000 in 1991. Pharmacists were concerned with the impact of drug and alcohol interactions, leading Nova Scotia pharmacists to work with the liquor commission to publicize the dangers from using alcohol when taking medication (1996). Manufacturers were reminded to report only serious and unexpected reactions. A renewed emphasis on patient safety and poor follow up by Health Canada has led to a resurgence of interest in reporting and in 2013 it was even suggested that physicians be required to report adverse reactions. Pharmacovigilance is now the term used for reporting and dealing with adverse reactions, a rather narrow perspective when compared to some European pharmacovigilance programs. Organized programs of patient safety have evolved and some pharmacy regulatory groups are investing in programs to reduce dispensing errors.

To provide information to patients and health professionals on drug use and drug safety a number of telephone counselling programs were initiated in the provinces. One of the earliest was in Saskatchewan (Dial Access Drug Information Service) in 1991 based in the College of Pharmacy and Nutrition. Programs were also initiated in Manitoba (Faculty of Pharmacy), British Columbia, Alberta (PADIS) and Ontario (Kitchener-Waterloo).

Canada has shifted from a country that had early introduction of new pharmaceutical products to a laggard with Europe and the U.S. marketing products several years before Canada. The drug approval process in Canada was very slow to the point that the pharmaceutical industry began in 1991 to pay to have drug products reviewed in order to speed the process. The time to process drug applications for marketing are still in excess of one year, more than double the

time in most developed countries After a drug is marketed it requires a review by the Patented Medicines Prices Review Board to ensure that its price is not “excessive”. This means that every drug under patent in the Canadian market is not excessive in price, much to the disagreement of many organizations and individuals. After 30 years the Patented Medicine Prices Review Board initiated a review of its operations in the wake of surveys that showed Canadian drug prices among the highest. In true bureaucratic style the government proposed greater administrative changes rather than a review of the underlying factors.

The process of Health Technology Assessment was applied to drugs in the 1990s to determine if they were cost effective. This approach was then used by the provinces to assess new products for their drug benefit list. In order to reduce duplication, improve scientific review and develop more uniform programs among provinces a national Common Drug Review was initiated with most funding from the federal government. The initial purpose of the approach was not achieved but the system provided recommendations to the provinces to assist them in their product listing. Despite the scientific approach most provinces made decisions based on drug price and budget impact. Of all the new products introduced only a small minority were available in public programs with most available in private programs. This resulted in pharmacists having to deal with many patients who required expensive drugs but could not afford them. The use of Health Technology Assessment when applied to products has not been helpful to patients who need the drugs. There have been marginal improvements in patient input for drug products but it is still far below the level that should exist in technology assessment. In comparison the UK evaluation (NICE) hires staff to help patients groups make representation for drug product assessment. The lack of patient input in assessing medication for benefit lists, in spite of the established value, is continually raised but not realized. This factor gives lie to the repeated claim of evidence base decision making. It would be appropriate to assess the process of getting drugs to patients instead of just the clinical variation in evaluated products.

The delay in getting new products on the market has resulted in a backlog of products that are marketed in other countries but not available in Canada. For many patients these new drugs are needed after current therapy has not been effective. To deal with this situation in the 1990’s Health Canada has established an Emergency Release Program in which physicians can request a product for a patient and when it is approved by government it is sent to a pharmaceutical firm. This process has been very slow and cumbersome as it has developed and there have been a number or problems. One problem is that expansion of distribution of new drugs interferes with the intake of patients for clinical trials. Another problem is that the products were provided at no charge to the patients, an expensive endeavor for products that were expensive and in demand. Eventually firms began to charge for these products.

In the period after 1995 Health Canada consolidated the program and renamed it the Special Access Program and is providing thousands of patients with needed therapy. Health professionals dealing with AIDS, Cancer and some other diseases are now spending a large part of their time attempting to provide timely access to needed therapy.

Aboriginal Drug Programs.

Health Canada established a Noninsured Health Benefit plan to replace the direct services formerly provided by Medical Services Branch. These services and their cost are growing rapidly, in part due to the increase in number of beneficiaries an in part to the generous provision of health products and services. In the mid 1990's attempts to control costs were put in place. In the case of medication a benefit list was prepared and limitations on some products implemented. Attempts are being made to align the services with those provided in the provinces while having an equitable system across the nation. Over time the restrictions have become more onerous as drug utilization has increased implementing therapeutic substitution and discussion of spending caps. This has led to difficulties for patients and pharmacist providing care.

Pharmaceutical Policies and Programs

Provincial governments see pharmaceuticals as a major cost driver in health care. In the 1990s there was a rapid growth in pharmaceutical expenditures with a lot of new drugs coming to the market as the government was decreasing the number of hospital beds. Rapid increases in drug expenditures were occurring as governments were attempting to control health care costs. The dramatic level of expenditures over budget led to pharmaceutical expenditures being a priority for cost control in the provinces. There was a perception in government that although hospital and physician expenditures were excessive the Canada Health Act strictures blunted any attempts to reign in expenditures. The next largest category of expenditures was pharmaceuticals and led to major program changes to control "drug costs". What was different with these measures was that they often put patients at risk and this was glossed over and the attempts to control drug costs often generated even higher expenditures for hospitals and physician expenditures. Government economics seems to assume that major changes in drug expenditures will impact the drug budget but nothing else. This is a strange form of economics as the basic premise in economics is the study of tradeoffs from changes.

Beginning in 1970 with the PARCOST (Prescriptions at Reasonable cost) program in Ontario the provinces began the process of controlling the amount that they would reimburse pharmacists

for the medication. Since most products moved through wholesale distributors this cost was adopted. Later, as more products were purchased directly from the manufacturer, especially by chains, the direct price was used. In the United States the concept of MAC (maximum allowable cost) based on “widely and consistently available” price was adopted in 1977, then copied in Canada. Most recently the provinces have examined generic prices internationally and concluded that the level of pricing at 18% of the original product was appropriate. This is the standard that is being aimed at by the provinces although there is an opportunity for firms to negotiate a higher price based on unique situations.

Drug benefit programs have from the beginning have used a list of products as the benefit list. This is accepted as a means of controlling expenditures based on the insurance industry experience. For governments, however, the “saving” from a limited list is more than offset by increases in other forms of care provided by government. Despite this the public programs still use the concept of a benefit list but now justify it on the grounds that some products are more “cost effective”. This may be true for an aggregate population but in the real world there is a wide variation in patient response to medication and the appropriate medication is often not a benefit. A factor that strongly influences choice of product is the additional medication used by a patient. An open benefit list is more economical and provides better care and this is enhanced when it is linked to clinical guidelines, as in best practices.

In 1988 the Province of Ontario initiated the Pharmaceutical Inquiry of Ontario (Lowy Commission) which reported in 1990 with 147 recommendations. Prior to the Lowy Commission the province had commissioned a study of drug utilization which served as a base for examining the pharmaceutical system. The problem of inappropriate drug use was seen to be a major problem. Pharmacists were one of the key stakeholders and the Commission surveyed pharmacists regarding their interaction with other health providers and their views on factors affecting pharmaceutical use and expenditures. Factors influencing drug costs were ranked as: an aging population, more effective drugs available, more patients with drug coverage, and lack of personal responsibility for health by patients. Some strategies to control costs that were supported were: the reporting of double doctoring and drug abuse, central data collection on all prescriptions to link prescribing, dispensing and use, and the substitution of interchangeable products. Pharmacists ranked strategies affecting manufacturers as: adequate advertisements of side effects, contraindications and costs, allow only new drugs that are a significant improvement, and the registration of all payments by firms if over $100. For physicians pharmacists ranked support as: controlled continuing education on drugs and prescribing, professional view of prescribing patterns, hospital review of prescribing, physician identification on all prescriptions, and random audits of physician practices. The Commission

accepted pharmacists desire to broaden their scope of practice to influence drug use. This report and many others identified the key role of drug use as a determinant of quality of care and control of expenditures but governments consistently focus solely on drug prices. The irony is that they insist it is evidence based when the evidence is that utilization not price is the major cost driver.

In the past decade the rate of increase for pharmaceuticals has been much lower than hospital and physician expenditures but the stigma of "high drug costs" has remained. Drugs represent about 8% of provincial health care expenditures (2016) and has been stable with increases less than hospitals and physician expenditures. The general approach to controlling drug expenditures in the provinces was to avoid expensive drugs and attempt to get a lower price through price negotiation and arbitrarily lower reimbursement prices for generics. This resulted in some savings but at the expense of many patients that could not access new drugs due to their cost and many patients who could not access their generic medication as its production was discontinued by firms due to uneconomical price control. A better approach would be to control drug utilization as in some best practices within an integrated health care system. There is very little movement towards best practices in Canada although policy announcements are often made of patient focused care.

National Drug Benefit Programs

Following the implementation of the national health insurance programs, hospital insurance and medical insurance, there was a general discussion of the next major initiative in health benefits. Various groups proposed pharmaceutical benefits, dental benefits, optometric benefits and even veterinary care. However, as the medical care programs unrolled the expenditures increased dramatically as the large volume of uncollectable bills of physicians were now paid by government. As the budgets tightened the federal government and the provinces initiated a number federal provincial initiatives. One of which was a pharmaceutical formulary and a process to evaluate the value of new drug products.

A meeting in Winnipeg in 1975 of Deputy Ministers of Health was held to discuss the preparation of a Canadian Formulary. A proposal was prepared by a sub committee and circulated for approval. No further progress occurred.

In 1992 a Federal/Provincial Task Force prepared a report to the Deputy Ministers of Health on a Canadian Agency for Pharmaceutical Information Assessment (National Formulary Service). This later led to the formation of the Canadian Agency for Drugs and Technologies in Health

(CADTH). There were recommendations for wide ranging strategic links to professional, industry and consumer organizations but these were lost in the change process.

In 2004 Canada's First Ministers agreed to a 10 year plan to strengthen health care. An important element was the launch of a National Pharmaceutical Strategy. This would be an integrated, collaborative, an comprehensive approach to pharmaceutical issues. A major issue was the lack of information on post marketing safety and efficacy of medication, particularly in the real world context of multiple diseases and therapies. The National Pharmaceutical Strategy (NPS) Real World Drug Safety and Effectiveness group was to address this issue. To coordinate the drug safety and effectiveness network a Canadian Drug Policy Development Coalition was given the task in conjunction with the Real World Safety and Effectiveness group and the Canadian Institute of Health Research (CIHR). The purpose of these efforts were to:

- Determine whether a product lives up to promises in terms of therapeutic benefits
- Calculate the benefit/harm ratio of the drug as it is used in the real world
- Determine how the drug is being used (indications and results)
- Determine the size and characteristics of the population using the drug
- Evaluate the circumstances and consequences of new drugs replacing old drugs.

The strategy development proceeded for several years with meetings and reports. Some elements of this process have limped into the next decade but the impetus has been lost and needed legislation has not been enacted. At the political level the publicity of high drug prices and reports of price increases in the United States (Canadian regulations limit price increases) has shifted attention to initiatives that would reduce prices, mainly bulk purchasing.

A major initiative of the provinces (Council of the Federation) has been the Pan-Canadian Drug Pricing Alliance (PCPA). The PCPA began about 2010 and evolved to the point that by 20123 they agreed on establishing a reimbursement level for 6 major generic products at 18% of the reference brand price. For single source new products 8 agreements were negotiated by April 2013 and 17 more were at various stages of negotiation. The terms of the agreement are 3 to 5 years. Provinces which previously included research investment in Product Listing Agreements have agreed to give up this feature and base negotiation on cash payments to list. As the program grew the negotiations shifted from price reductions to Product Listing Agreements. Another change was that provinces agreed to participate in each product negotiation but on completion of the negotiations did not move forward to list the product as a benefit

Product Listing Agreements were initiated in Ontario in 2006 and are secret payments to the province based on the sales and price of the product to be listed. While this approach is often referred to as price reduction, in fact the price does not change and only government receives secret kick- backs for listing products. The need for confidentiality was requested by industry so

that other provinces and other countries would not insist on similar agreements. By 2013 all provinces agreed to a national negotiation rather than have each province negotiate. Increasingly the outcome was in the form of product listing agreements rather than broad reductions in price. The money paid to the governments is paid to General Revenue is not linked to the pharmaceutical budget although the listing of the products increases drug benefit expenditures. Details of the funding and financial trail are secret and little information is available. What is noteworthy is that if a pharmaceutical firm approached a government with a proposal to pay a secret kick back to list a product it would find itself in violation of the law as well as ethical standards. Apparently this standard does not apply to governments, nor does transparency and accountability.

A pan –Canadian Oncology Review (pCODR) began in 2011 and began initiating recommendations. In contrast to the Common Drug Review it established principles of patient involvement and transparency in its review process. The Steering Committee consists of 6 provincial representatives, four cancer agency representatives, and two observers, one from CADTH and one from Canadian Partnership Against Cancer (CPAC). The Drug Review Committee has 5 to 7 cancer specialists, two patient representatives, two pharmacologists, two pharmacists, two health economists, one non-cancer physician and an ethics expert. The extent to which provinces have adopted the recommendations is variable. The pCODR review has been linked to the Common Drug Review in 2016 and a slow process of common procedures is being developed.

In each province there was a continual reorganization of health services. Commonly there would be a devolution of authority to the local or regional level then it would be centralized then back to the local level. In each of these reorganizations there was rarely a full realization of the gains from the organizational changes and the turmoil continued along with a rapid turnover of Ministers of Health and senior department staff. Lack of continuity has resulted in waste, confusion and having to redo planning for programs.

In 1999 a survey by AltiMed “The AltiMed CFP Report on Pharmacy Services: Physicians’ perception of pharmacy” was initiated by the Canadian Foundation for Pharmacy. General practitioners rated pharmacists’ services as Very Satisfied (40%) and Fairly Well Satisfied (55%). In terms of major issues, physicians reported a lack of communication among doctors, pharmacists and patients (51%); printed information that was not vetted by physicians (46%); consistency of service from pharmacy to pharmacy (45%) and the role of pharmacists versus the doctor in patient counselling and treatment decisions (43%). Just under half (36-48%) of physicians were reluctant to have pharmacists refer patients to other health providers (they believe that the physician should do it), disease management, risk assessment. Alternative

medication advice, and advice of health conditions. Most physicians rely on pharmacists to counsel patients on medication prescribed.

With the election of a Conservative government the federal government withdrew from health planning and health partnerships leaving it to the provinces. The provinces then united as the Confederation of Provinces and began to work together on health priorities. In the case of pharmaceuticals they agreed to move toward better use of pharmacists (little progress) and joint purchasing (Pan-Canadian Drug Pricing Alliance) which has moved slowly forward with great expectations and a growing bureaucracy. This is taking place in the context of demands for a national pharmaceutical benefit program in which the Canadian Pharmacists Association is now participating (access to medication was not previously a priority). Labour unions and advocacy groups are also pressing for a universal (Pharmacare) pharmaceutical program. The two major stumbling blocks are the widespread existence of private insurance which provides better benefits in most cases and the primacy of provinces in health services which would be lost in a national, compulsory program.

Discussions about a national pharmacy system in Canada invariably include a statement to the effect that it would have a formulary. This is sometimes described as a list of products selected through scientific decision making. The contradiction in stating that fewer drugs would improve health more than a list of more drugs was not realized. In 1984 the National Pharmaceutical Council in the United States released a report stating that open formularies can be more cost effective that a limited list for Medicaid patients in South Carolina. This eliminated the Formulary Committee and formulary submissions, hearings and lengthy deliberations while physicians and pharmacists could determine the most appropriate medication for the patient. The rate of increase in drug expenditures slowed and the number of physician visits decreased in the two year study period.

Pharmaceutical Industry

Pharmaceutical marketing has been controversial as some people saw the sales representatives as ill-informed and slick talking. Initially pharmacists had been the core group of sales representatives but into the 1970's firm found that science graduates were able to do a comparable job at a much lower salary. To educate these representatives a program of accreditation was created and firms required their staff to complete it in their first two year. The Accredited Pharmaceutical Manufacturers Representative graduates wore a pin to indicate their status. In 1981 there were 137 graduates of the APMR program of which 18 were women. Over the next few years the proportion of women increased to the point of dominating the field.

With the end of compulsory licensing, by Progressive Conservative government legislation, the research based pharmaceutical firms made a commitment to spend 10% of sales on research. This led to several research labs being established, for example The R.W. Johnson Pharmaceutical Research Institute of Ortho Pharmaceutical Canada and a $2,5 million research unit at Upjohn Company of Canada. In 1990 Astra Pharma expanded its Mississauga plant to 11.500 square metres at a cost of $20 million plus $10 million for equipment. Pennwalt built a facility to house headquarters, production and distribution in Pickering Ontario in 1986. Each firm was held to a commitment to 10% of sales for research in Canada by the research based pharmaceutical industry (comprising the members of the innovative industry association). This continued until 2011 when the 10%proportion for research began to slip. Critics of the industry loudly denounced the reduction in spending. Despite the decline in the proportion of research to sales, industry research funding reached $1.3 billion in 2012 and supported a number of institutes, clinical research and academic positions. Some of this funding did not meet the tax definition so that the official funding level was less than 10% but the amount is still substantial, especially in comparison with federal health research funding.

A new product (Imitrex) for the relief of migraine, for which there had been no effective therapy, was launched by Glaxo Canada in 1992. The company said that 81 per cent of patients given Imitex by injection experienced significant pain relief after 10 minutes and were virtually pain free after 2 hours. Its market impact was substantial as there was a strong demand, but it was costly so the marketing strategy for pricing was geared to occasional use when was urgently required. An elaborate advertising campaign accompanied the launch. Provincial drug benefit programs were hesitant to cover it although there was a strong demand. One of the side effects was that hospitals refused to stock the drug and asked patients using the medication to bring it in with them. This was the beginning of hospitals to evade the Canada Health Act requirement of providing medication at no cost to the patient in hospitals.

Consolidation in the industry accelerated with Ciba and Sandoz combining to form Novartis; Hoechst-Marion-Roussel combined then added Rorer before becoming Aventis Pharmaceutical then Sanofi-Aventis. Bristol-Meyers-Squibb; Glaxo Wellcome later became Glaxo Smith Kline; Nordic Merrell Dow combined as well as Whitehall Robins with Wyeth. All these changes reflected the international consolidation of the industry so that there were fewer, larger, global firms. A rationale was that research and regulatory costs were so high that they needed a larger and international market and a longer product pipeline.

The pace of change was rapid although the number of new chemical entities declined. In 1994 there were 32 new chemical entity drugs introduced to the Canadian market. In 2003 none of them remain on the market, they had all been replaced by newer products. In the new millennium the pace of new product introductions increased as firms developed biological

products and the research in genetics resulted in a flood of new drugs for rare diseases. While the number of patients who have a rare disease is small there are several thousand rare diseases, most of which have a genetic cause and may have a treatment developed.

In the 1990's activists for animal treatment accused producers of pregnant mare urine of ill treatment of animals. The PMU (Pregnant Mare Urine) Producers' Association refuted the charges and invited the Society for the Prevention of Cruelty to Animals to visit their members. This industry was beginning to decline with adverse reports for conjugated estrogen and competition from firms selling estrogen tablets. The product, Premarin (name comes from pregnant mare urine) has been a major seller since its introduction in 1942. Representative of the Ayerst company which developed the product at one time went to the homes of pregnant women to collect urine. A story is told of one being arrested for bootlegging when police saw him going into a house with a bottle in a brown bag. If they had been more observant they would have noted that the bottle was empty going in and not full of booze.

In 1990 the pharmaceutical industry was subject to the control of the Patented Medicines Prices Review Board. This Board was given responsibility for ensuring that the prices charged were not "excessive" and to collect information on pharmaceutical research funding by the industry. Both of these requirements flowed from the removal of compulsory licensing. While well-meaning the price review was a very demanding and complex undertaking that consumes an enormous amount of time in the industry and creates a large bureaucratic organization in government (in 2012, 76 staff and a budget of almost $12 million). The demands are so invasive that in the period 1993 -1995 that there were 12 Voluntary Compliance Undertakings – agreements that the firms will not enforce its patent rights for a particular product, according to Robert Elgie, chairman of the PMBPB. In six of these cases the firm did so to prevent PMPRB from controlling its current and future prices, seeing the unpatented market as being more lucrative than one under PMPRB guidelines (CPJ December/January 1995). PMPRB plans to close this loophole and hold firms accountable even if they no longer hold a patent.

The definition of excessive prices has been interpreted to mean that the prices in Canada should not be higher than in several European countries and the United States. The definitions and interpretations of prices and international comparisons have spawned a lengthy legal quagmire. The outcome is that for all marketed patented drugs the prices charged are deemed not to be "excessive" but the government agencies paying for these new drugs refuse to place them on benefit lists as they are "too expensive" in most cases. The PMPRB in now located in the Department of National Health and enjoying a rapidly increasing budget to examine wholesale mark ups, pharmacy fees, industry product pipelines and other cost drivers of interest to the provinces. In the meantime the funding of drug regulatory activities to protect

the public are delayed and ignored. This kind of focus on one aspect of the pharmaceutical system makes drug supply a complex, expensive, unresponsive system.

One legacy of compulsory licensing in Canada was that the products sold under license in Canada at a lower price than in other countries began to flow across the border to the United States. A number of pharmacists began to establish international sales. This was problem for brand name pharmaceutical firms and they attempted to suppress it by limiting the quantity of medication available to pharmacies with the result that occasionally there were shortages. Pharmacy licensing authorities also initiated practice guidelines that attempted to halt the practice. Regulatory agencies in the United States also took action against firms that sold drugs into the United States that did not have regulatory clearance and those drugs sold without a valid prescription. Burroughs Wellcome in Canada took legal action against Apotex to prevent the sale of its products to customers in the United States through InterPharm, a firm linked to Apotex.

The lucrative generic market following the end of a drug patent led firms to begin copying the physical appearance of the brand product. In 2001 the federal court gave Novopharm, Nu-Pharm and Apotex the right to market similar versions of Eli Lilly's anti-depressant, fluoxetine (Prozac). This process has now become the norm.

In the 1990's pharmacies were under pressure to remove tobacco. This gradually decreased pharmacy sales of tobacco by either not selling any tobacco or not having any visible promotion of tobacco products. In 2018 pharmacies, through their organizations, were showing an interest in the sale of cannabis products.

Canada's first emergency contraceptive Proven (Shire Inc.) was launched in 2000 but had poor sales although there was an expectation of sales. The product was removed and Plan B (Paladin) was launched and sales although low to begin gradually grew so that the product remained on the market and filled an important role in health care. It was an important step as pharmacists were given authority to prescribe and dispense it. B.C. pharmacists charged patients a fee of $25 for providing the 10-15 minute counselling.

Pharmaceutical firms also began to work closely with pharmacists in the period 1980-2000 by offering continuing education support, information to help with patient care and printed material to distribute to patients. The innovative firms focused on disease treatments where they had products. Generic firms had a broader interest, one of co-operating closely with pharmacists with view to them prescribing or dispensing their brand of generic. This approach fit with pharmacy moving toward Pharmaceutical Care concept with pharmacists taking a more active role in patient care. This took the form of firms during this era hired pharmacists to guide them in their links to the profession. Unfortunately as time passed this era ended with an

erosion of communication, perhaps due to the impact of chain pharmacies that claimed a greater focus by the firms and the chains' initiation of their own patient information systems and continuing education for their staff as well as the chains using their purchasing power to get lower prices on generic products by purchasing from only one supplier. This worked well but caused problems when there were drug shortages as the chains had a strict policy to only use the products on their designated supplier. When products could not be obtained there were difficulties in securing products from a competitor firm.

The leadership of the Pharmaceutical Manufacturers Association of Canada played a major role in pharmacy – industry collaboration. Judy Erola, the President, and past M.P., was largely responsible for this during her 12 year term. This was primarily in the support of pharmacy meetings and projects. The close relationship of pharmacists to industry that had existed when sales representatives called on pharmacies ended when sales people no longer called on pharmacies since brand choice for generics was made by the pharmacy management rather than the pharmacists.

The pharmaceutical industry was a strong partner with pharmacy In the Efficient Consumer Response initiative to have a bar code for all pharmaceutical products by 2000, years after the grocery industry. This was a major step towards efficient distribution but it was also an important step in patient safety when it was used in hospitals to track products.

Another sector of the pharmaceutical industry consists of firms that produce alternative (complementary) health products. In addition to nutritional supplements a number of herbal products, minerals and topical miracles were marketed to the Canadian public with substantial success. Medication review became a more important tool for pharmacists, especially for the elderly patients, as they consumed an increasing number of pharmacologically active substances with a higher incidence of side effects.

Related to drug use in society and the concerns over drug prices a number of governmental initiatives were put in place. Assessment of drug technology was to be monitored by a Federal/provincial/territorial organization, CADTH, which was formed in 1989. Its main focus was technology assessment but the need for a review mechanism for drug prices led to a federal/provincial Common Drug Review (CDR) program under its mandate in 2003. The review was to recommend new drugs as being Cost Effective. The rationale was that the provinces would list the cost effective drugs in their benefit programs. If this did occur it would result in a common listing of benefit drugs in all provinces – in effect a Canadian formulary. The reality was that each province continued to conduct its own evaluation of new drugs taking into account the recommendations of CDR. This produced a wide range of benefit lists. The Common Drug Review has become efficient in making recommendations in a timely fashion and

in incorporating input from various sources including some patient groups. Over time the number of positive recommendations has remained constant at about one half of new drugs marketed, but the provincial restrictions have decreased patients' access to new, effective medication. This has led to discussion of the process and its purpose (2012). Continuing review of the program continued into 2018.

Price policies were also changed by the pharmaceutical industry with respect to hospital prices beginning about 1995. Traditionally hospitals were offered much lower prices that those in the retail sector. As hospitals became community health institutions and patients moved more readily between hospitals and community pharmacies the rationale for price differences disappeared. Also, there were some organizations that purchased through hospitals for use in community pharmacies. For example a university would purchase oral contraceptives through a hospital for sale to students at the student health clinic. Ironically, hospitals no longer purchase oral contraceptive for patients but require them to bring in their own medication.

In 1997 pharmaceutical firms began to advertise their products directly to consumers as they did in the United States. The Canadian government asked them to stop on a voluntary basis and there was an active discussion with various groups taking a position on the issue. Eventually the advertising was restricted even though the mass media overflow from the United States continued to pour into Canada. Changes in the use of medication were influenced in the period following 2000 by direct to consumer advertising. Although advertising prescription drugs is against the law in Canada, the overflow advertising from the United States is continually present. Organizations of health professionals and the Consumer Association of Canada oppose this advertising but to no avail. In one study in B.C. it was found that up to 10% of patients exposed to the advertising requested medication from their physician. This places physicians in an awkward situation in that they would like to help their patients but usually the requests are not appropriate and turning the patient down creates a negative climate for care.

As part of the North American market, there was a high rate of growth in 2000 of 14% to $363 billion. This represented 43% of the world market for pharmaceuticals. Generics represented 15% of pharmacy sales but 40% of prescriptions.

In 1999 the Food and Drug Directorate underwent criticism for firing senior staff and not being even handed in handling drug approvals. This led to public consultations which were acrimonious and divided. While pharmacists gave their trust to government to ensure the drugs were safe the fine print in many of the monographs put patients at risk. One of the concerns was that the payments firms made to have their drug product assessed for marketing was leading to firms having too much say in the process. There were parallel discussions in the U.S.

The innovative firms in Canada represented by their association known as Rx&D faced a sharp decline in membership with the consolidation of the industry. Policies and direction were increasingly short term responses to current issues. The year 2015 was the centennial year for the organization whose first president was a pharmacist. In contrast to previous key anniversary dates there was no commemorative publication outlining the achievements of the firms. During this turbulent time a number of internal reviews of activities were undertaken and resulted in a change of name to Innovative Medicines of Canada in 2016. There were also changes in the senior staff and some policies.

At the turn of the century there were concerns about the rapid rate of increase in health expenditure and on the structure of the health system and the role of pharmaceuticals. The health system was seen as outdated, inflexible and wasteful. By 2016 nothing had changed. The many investigations and reviews consistently recommended integration of services, electronic medical records, a focus on health outcomes and improving primary care. These are still the key issues and there is still little progress.

Concern over the safety of medication was highlighted in 1986 when strychnine was found in Tylenol capsules in the United States, occurrence was two bottles in one town. There were national discussions of this in the media and the firm Johnson and Johnson was required to withdraw the product. Rather than just withdraw the capsules, the firm initiated a major initiative to demonstrate their concern for patient safety. This led to various types of seals on containers by all firms.

After 2000 the consolidation of the industry had resulted in fewer large firms and the rise of a number of biotech firms with biological products. Instead of relatively simple chemicals that could be used to treat a large number of patients, new biological specialty products had a small patient base, complex protein products and high costs for research, production and marketing. The result was a flood of expensive, effective products that quickly replaced the older products, many of which had expired patents and were sold as generics at a low price. The comparatively high prices for these drugs posed a problem for patients with no or limited drug benefit programs so firms expanded their compassionate programs to provide medication for low income patients. This should have shamed governments but instead they referred patients to these plans resulting in over 675 patients being treated.

By 2017 the pharmaceutical industry's contribution to the economy was $19.2 billion creating over 30,000 high paying jobs. Research by industry in 2016 was $1.2 billion. There were over 4,500 clinical trials involving 24,000 patients with support for various research centres. Concerns over drug prices have led industry to collaborate with governments at all levels to identify groups of patients at risk and meet their needs.

Canadian Pharmacy issues at a National level

During the 1980's there was considerable interest in the concept of Pharmaceutical Care as new approach to pharmacy practice. Pharmacy schools adopted this as a model for practice. The Canadian Pharmaceutical Association adopted a resolution for the support of Pharmaceutical Care in pharmacy practice at their 1994 conference. Unfortunately, to apply Pharmaceutical Care in a hectic, busy dispensary was found to be impractical. This was at a time when chain pharmacies were becoming more efficient in dispensing large numbers of prescriptions through the use of computers, pharmacy technicians and automated equipment. This reduced the need to hire as many pharmacists for dispensing and there was little financial advantage in providing cognitive services. This left the profession in an awkward position of advocating an enlarged role but failing to deliver it on a widespread basis. Changes in the regulation of the pharmacy and the pharmaceutical industry were also taking place to make them more accountable. Overall there was a search for direction.

In 1986 the Canadian Pharmaceutical Association building was completed in Ottawa at 1785 Alta Vista Drive. It is located in the Green Belt adjacent to the Canadian Medical Association building and across the road from the Red Cross.

In the United States the implementation of Pharmaceutical Care began earlier. An outpatient study in Minnesota using the methodology of Pharmaceutical Care for predictive and retrospective indicators showed that prognostic indicators could be effectively applied at the time of patient's visit and to prevent drug therapy problems. Equally interesting was that the unaccepted recommendations (16%) resulted in patient status decline. (Loras, Lepinski and Abramowitz, Am. J. Hosp. Pharm, July 1992).

In Canada Pharmaceutical Care was widely accepted in principle but only slowly in practice. A number of projects were initiated to show its worth. One study in a family medicine centre where one group received a questionnaire and the other a one-on-one interview with a pharmacy resident followed by a questionnaire demonstrated that interviews revealed four times more drug related problems. (CPJ Feb 1997)

The interview methodology was the basis for drug benefit programs initiating monitoring (medication reviews) programs for patients at risk. Provincial programs used various definitions of risk and the reimbursement and frequency of monitoring also varied. Patients included in monitoring programs revealed a higher level of drug related problems but they also had higher risk levels. Medication reviews are useful but drug programs see them as a way to reduce expenditures rather than as a means of improving health care.

The perceived lack of direction for the profession was a major concern and had a direct impact on pharmacy education. This led to an Invitational Seminar of Leaders in Canadian Pharmacy in 1989. It was proposed by the Association of Deans of Pharmacy (Drs. Lebreque and Bachynsky) and was sponsored by the Canadian Foundation for Pharmacy. Workshop leaders were Rosemary Bacovsky, Murray Brown, Bernie DesRoches, and Jim Mann. The common themes that developed from the seminar were:

1. A need for a Mission Statement and clarification of the role of pharmacists in today's society
2. A need for pharmacist's education to be applied more effectively in the health care system.
3. A need for all pharmacists to have education on the health care system and management.
4. A need for better planning in the area of pharmacy manpower.
5. A need for pharmacists to be more active in promoting interaction with other professions
6. A need to reach all publics including governments with information on the profession.
7. A need to focus on patient care in the future.

The Canadian Senate Social Affairs Committee initiated hearings on terminal sedation. CPhA made representation that if physician assisted death is legalized, there should be:

- comprehensive guidelines about the types of drugs that could be used, as well as dosage and administrative standards

- courses for all practitioners expected to participate

- an exhaustive list of health professionals entitled to make such decisions, and to verify that these decisions are made freely,

- safeguards against medication abuse and strict reporting mechanisms.

The Senate again studied this issue in 2016. In reviewing the Government's Physician Assisted Dying legislation in light of the decision of the Supreme Court that struck down the legislation which prohibited such acts. Provinces passed legislation on medically assisted death and various programs were initiated although there were omissions and requirements that reduced access to many patients.

In 1995 the Canadian Association of Chain Drug Stores dissociated itself from the umbrella of CPhA in order to be more autonomous but expected to continue to work co-operatively with

CPhA. In this they were following the example of the chain store pharmacies in the United States. They also developed strong ties with the professional pharmacy associations in the provinces.

Ortho-McNeil opened a History of Contraception Museum at the company's headquarters in Don Mills, Ont. Percy Skuy, a pharmacist sales representative, had begun to collect some contraceptive items as a salesman for the company and when he became President, established the museum. Until 1969 it was against the law to promote contraceptive devices or information in Canada although condoms were readily available for "protection from disease" and oral contraceptives were marketed in the early 1960's for menstrual disorders. It was an initiative led by Searle to promote the products for contraceptions and thereby obtain a large market share and make a major change in societal behavior with women having more control over their lives.

Canadian Pharmacists Association

A Task Force on Roles and Structures was created to deal with perceived need for changes in the organization. Their report was tabled in 1993 and draft bylaws were circulated in 1995 with the aim of empowering pharmacists to participate more fully in CPhA activities and governance. These changes took effect in 1998 and enabled pharmacists to vote for their leaders .

The Canadian Pharmacists Association in 1998 amended its constitution and created new bylaws to reorganize and simplify their organizational structure by changing from a federation model to an individual membership mode, something that had been recommended by the Commission on Pharmaceutical Services in 1972. This entailed removing the unwieldy Council of Delegates and holding member-wide elections of the Board of Directors. To indicate their awareness of the need for a better advocacy process a new position was created for public affairs and Elizabeth Turbayne was hired in 1992. It was noted that while the Association had good contacts at the government bureaucracy level there was a need to develop political contacts. Unfortunately her stay at CPhA was short and the political responsibility was assumed by the Executive Director at the federal level.

The Canadian Pharmaceutical Association appointed Dr. Jeff Poston as Executive Director in 1999, he was formerly Director of Research, to replace retiring Leroy Fevang who completed 21 years as Executive Director. Jeff Poston held this position until he retired in 2013. He developed an effective lobbying process to keep federal politicians aware of pharmacy contributions and problems and dealt with a constant concern over funding.

In 1994 a CPhA resolution to change the name of the organization was passed. Two alternatives were suggested. In 1996 a resolution to change the name of the Canadian Pharmaceutical Association to Canadian Pharmacists Association was presented at an annual general meeting. The rational was that there was confusion in the media and public as to who was being represented when the word “pharmaceutical” was used to designate the organization. At this time an incident occurred that involved this misunderstanding and there was more acceptance of the change. This event and earlier discussion began a process of change including a survey of members taking place through the CPJ. There was little interest in the issue as shown by the low response to the survey with only a few votes submitted (the result were never released). At a sparsely attended meeting a vote on the issue was taken and a name change approved. Several provincial pharmacy organizations have made similar changes. (In 2018 Alberta changed the name of the College to the Alberta College of Pharmacy to encompass the addition of pharmacy technicians to its responsibilities.)

Soon afterwards the name of the Canadian Pharmaceutical Journal was also changed to the Canadian Pharmacists Journal in a decision made without member consultation. This was accompanied by more use of the designation CPJ. In Britain and the United States the term pharmaceutical association is still used, apparently without any confusion in the media or public. It would seem that the poor communication with outside organizations and the public were more a problem than the name itself. Major changes were made to the journal with an emphasis professional, peer reviewed papers. An editorial board, with an international subgroup, reflected this change. Distribution was extended to all pharmacists and publication was on a two month basis rather than monthly.

A survey funded by Upjohn on pharmacists’ counseling activities was published in 1990. It showed that the median number of patients counselled in a week by a pharmacist was 75 which represented about half the patients seen. In a three hour period pharmacists estimated that they spent 20 minutes counseling. The main barriers to counselling were time, lack of information on diagnosis and patient resistance.

Pharmacy Awareness Week (PAW) was initiated by the Ontario branch of the Canadian Society of Hospital Pharmacists in 1989 and then adopted by CPhA, Canadian Society of Hospital Pharmacists and the Canadian Society of Pharmacy Students and Interns (CAPSI). Publicity events are now developed in March of each year. Financial support for a range of activities and advertisements is normally provided by pharmaceutical firms.

Access to Medication

Activities of the Canadian Pharmacists Association in the early 1990’s included active representation on professional activities; a submission to the Pharmaceutical Inquiry of Ontario

(Lowy Commission), development of a universal electronic insurance claims standard and a workshop on the new goods and services tax introduced to replace the manufacturers' tax. In the late 1990's the Canadian Senate Standing Committee on Social Affairs, Science and Technology examined health care and produced both an interim and final report "The Health of Canadians - The Federal Role: Issues and Options. The committee was chaired by Michael Kirby and is referred to as the Kirby Report. With respect to Pharmacy and pharmaceuticals it advocated a national formulary (drug benefit list), a national program to provide medication to the public (with an emphasis on expensive "catastrophic" medication with some cost saving from bulk buying of drugs by a national procurement system). Although CPhA submitted proposals for an expanded pharmacist role in the health care system there was no support for this approach by the committee. There was no financial support from the federal government for a national drug system and the provinces continued to expand their drug benefit systems in differing ways. A federal/provincial system of bulk buying was finally launched in 2013 beginning with 5 leading generic drugs. It continued to grow and become more complex with a shift to product listing agreements rather than national price reductions and as a result only the provincial governments benefited.

As governments became more involved in drug benefit programs they established reimbursement prices. In Ontario the Best Available Price (BAP) was the basis for pharmacist's reimbursement. Firms selling at prices below the BAP were in contravention of the law. In the mid 1990's there were scandals and prosecution of firms and individuals for circumventing the pricing system by offering deals, rebates, and free goods. This continued into the next decade as well but with less governmental action. Headlines of inappropriate behavior of pharmacists did not advance the image of the profession. The reluctance of the government of Ontario to set realistic dispensing fees for pharmacists led to pharmacists relying on the "price spread" between BAP and what they could negotiate with firms. Unfortunately this came back to haunt the profession when the Ontario government insisted on "transparency" in pharmacy pricing but insisted on confidential arrangements for themselves with product listing agreements.

A long history of bulk buying at the provincial level for medication in Canada stretches back to 1975 when Saskatchewan launched a universal drug benefit program to be funded from bulk purchasing system. (the federal government and hospital groups had been doing this for decades before). In a few years Saskatchewan saw the drug expenditures soared from increased utilization and decreasing bulk purchasing savings although administrative costs (especially guaranteeing quality) and problems grew. The net result was a universal program with costs shifted to patients with a continuing increase in the deductible. This severely reduced the available benefits for most of the population. More recently some bulk buying programs by hospitals have resulted in a single supplier for many products and when this supplier had problems there was a widespread shortage of medication.

A major concern to pharmacists was the appearance of mail order pharmacy especially those programs linked to managed care where medication was to be obtained only at designated pharmacies, those that had a contract with a benefit program. While this had been a normal part of the pharmaceutical system in the United States it was rare in Canada due to the sparse population spread over a large area that made access to designated pharmacies difficult for many beneficiaries. Some programs were proposed in the mid 1990's however and raised concerns. The Health Outcome Pharmacies organization was one such reaction and it was based on selling drug programs quality care based on treatment guidelines for a number of diseases. Unfortunately it had difficulty marketing the product to private insurance firms and disappeared after a few years. A major threat was the appearance of MediTrust a mail order firms that initially obtained contracts with the Post Office (1994) and municipal governments in Ontario. There was strong opposition from Toronto pharmacists led by Shoppers Drug Mart. MediTrust was attempting to raise fund with a prospectus and the media concerns over the soundness of the program, largely from pharmacy groups, scuttled the initiative. There was some hanky panky involved that was described in the CPJ in February 1997. Later MediTrust was sold to Rexall.

International

The 1990's saw Canada return to an active involvement in international pharmacy: FIP, Commonwealth Pharmaceutical Association, and Pharmaintercom (a group comprising the United Stares, Great Britain, New Zealand, Australia, Ireland and South Africa). In 1991 the Commonwealth Pharmaceutical Association held its worldwide meeting in Hamilton (Pharmacy World Congress). This conference had a large number of speakers from Canada and was considered to be very successful. The follow up by Ernest Stefanson at the Executive Committee meeting of CPhA in August 1994 was to introduce a number of recommendations for an enhanced support for CPA activities (a CPA Foundation in Canada, a Fellowship Scheme to Promote Commonwealth Understanding, to send representatives to the CPA Regional meetings and to encourage Canadian pharmacists to attend the CPA Regional meetings). Although the Executive supported these recommendations there was little progress. Only the commitment to send a representative to regional meetings and to continue to send CPhA publications to the Caribbean pharmacy schools was continued. The sending of publications was a result of the program initiated in the late 1980's by the Association of Deans of Pharmacy of Canada to assist the Caribbean pharmacy schools develop a uniform curriculum for their 3 year diploma program (with the assistance of a grant from the Canadian International Development Agency). The Deans, with CPhA, also initiated a project to develop a regional examining board, based on PEBC, to enable reciprocity. Despite the development of a workable system by Dr. David Biggs and Dr. Wayne Hindmarsh, there was little interest in the countries affected as they did not support the concept of reciprocity of pharmacy licensure among the countries in practice.

Canada rejoined the FIP in 1988 and quickly assumed leadership positions in the organization. In 1992 Francois Schubert, President of CPhA, was elected vice president of the FIP Bureau, Leroy Fevang the Executive Director of the Canadian Pharmaceutical Association serve as an executive member of the FIP's Commission on Pharmacy Administration and Ernest Stefanson, CPhA president in 1992, served on the council as well as on the community practice steering committee. Dr. Kamal Midha, academic staff member of the University of Saskatchewan was actively involved in FIP over a long period and served as chairman of pharmaceutical sciences and later as President of FIP. Dr. Dieter Steinbach, Professional Secretary to the FIP addressed the CPhA conference in Charlottetown in 1994. He announced that the 1997 FIP Congress would be held in Vancouver B.C. The Conference, held in the new Pan Pacific Hotel, was a resounding success, due in large part to the efforts of the Faculty of Pharmaceutical Sciences in Vancouver.

During this time the Canadian Society of Hospital Pharmacists was busy updating and revising their bylaws, standards and guidelines. They introduced new standards for unit dose IV admixture distribution systems as well as new guidelines for packaging, repackaging and labeling of drugs.

At CPhA a draft mission statement paper for pharmacy was circulated in 1992. The Mission Statement is : *The mission of Pharmacy is to promote health and serve society as the profession responsible for the safe and appropriate use of medications and health care devices.*

The profession began an examination of the role of pharmacy in the health care system in the 1990's. Research areas in Pharmacy were identified and some activities begun: post-marketing surveillance, patient counseling, pharmaceutical care, health promotion, hypertension, and alternative methods of reimbursement. Pharmacy schools, pharmacy organizations and research organizations began to examine the various areas of the pharmaceutical system. In looking at the system of drug utilization there was a realization that many patients were not generally compliant with therapy, that there were major issue with patient safety and that pharmacists were not focused on improving patient outcomes.

Provincial drug benefit programs blossomed In the period 1990 – 2000 with a variety of initiatives to control costs. One was the use of paperless claims process to reduce administrative costs and to provide information to guide program operation. Pharmacists were given incentives to shift to computer systems and patients were required to use patient computer cards for identification. This process evolved into a sophisticated system of adjudication and billing.

Methods of improving patient care while reducing patient risk , expenditures and waste led to the Trial Prescription Program. This was introduced in several provinces (Saskatchewan 1996)

for medication used in chronic therapy from a select list of products. Pharmacists document the service and receive a negotiated fee.

The establishment of the Lowy Commission in Ontario to examine drug expenditures was of interest across Canada. Submissions were made by many organizations outside Ontario. Of significance was that of a group of experts formed by Dr. W. Spitzer of McGill. He submitted a document that listed recommendations for improved methodologies in assessing drug benefit programs. The key factor was to place more emphasis on health outcomes. One issue was the use of co-payment in the Ontario Drug Benefit program. The Spitzer committee urged the government to carefully evaluate the impact of this policy on health status and the quality of care. In general, provinces have adopted co-payments to reduce expenditures by shifting costs to the patient with little regard for patient outcomes, particularly the decreased use of needed medication.

The committee also dealt with the need for standards for home infusion products and services. The early discharge of patients from hospital and still requiring intravenous therapy as well as continuing therapy for some chronic diseases led to a growth of home infusion therapy. A problem arising with home infusion therapy was that in the hospital the therapy was free but home infusion therapy was not a health benefit for most patients at home and the high cost was not affordable resulting in many patients being readmitted to hospital.

In 1994 a Canadian chapter of the American Society of Consultant Pharmacists was formed with James Gay as Director, Louise Matte Director-elect, Marilyn Yakabowich Secretary-Treasurer, and Arne Sommerfield as past Director.

Mail order pharmacy was seen as a threat and CPhA and the pharmacy practice committee began to examine the issue in 1992. A major part of the threat was that private insurance benefits for some health insurance companies would be available only through mail order pharmacies.

Compulsory licensing in Canada resulted in a number of popular products being available as generics. This collection of inexpensive generic versions of brand name products began to flow to other countries. Overall, drug prices in Canada were less than in the U.S. which led to Americans purchasing their medication in Canada. In 2004 internet sales to the U.S. totaled $566 million with half of that coming from Manitoba and a quarter from B.C.

Drug shortages emerged at the turn of the century, primarily among the standard drugs in use. This was a major concern for some patient groups such as epileptics who could not go out of their homes unless they had medication. There were a number of reasons for the shortages but

a major factor was the shifting of production out of Canada to third world countries where wages were lower. Regulatory agencies often found problems that required the firms to shut down production. The consolidation of the industry meant that only a few firms were making most of the medication and if they had to shut down production there would be an international shortage. Public drug programs that drove down drug prices also contributed to the drug shortages as firms that were unable to make a profit on some products would discontinue their production. Pharmacists had to spend a good deal to time attempting to find drugs in short supply for their patients. Health Canada pushed to have a web site that would report shortages but did little meaningful action to rectify the situation.

Nonprescription Drugs – Regulations and Controls

Agreement on a system of drug schedules was an important issue in the early 1990's and there was some difficulty with governments at the provincial and federal level to support the concept of four levels of medication control: prescription, pharmacist involved in the sale (no patient access), pharmacy only sales and general sale. The Canadian Association of Chain Drug Stores supported this approach as did most pharmaceutical firms although the nonprescription drug manufacturers (NDMAC) initially were not supportive of a pharmacy only classification. This category (pharmacy only sale) is a major difference from the U.S. where nonprescription medication has no pharmacy controls on distribution. As a result, in the United States, some of the more potent and effective products remain prescription drugs. The recommendations for scheduling came from the Canadian Drug Advisory Committee of the Conference of Pharmacy Registrars of Canada. These recommendations were sent to pharmacy associations, regulatory bodies, and governments for review and approval. The major achievement of this initiative was that all the provinces accepted the drug schedules thereby providing uniform marketing and regulation across Canada. Until this time the provinces had varying schedules and implementation took varying lengths of time for the revision of the drug schedules. For the drug manufacturers and wholesalers the uniformity in provincial legislation made marketing and distribution much simpler and more efficient. A.C. Neilson survey in 1990 reported nonprescription drug sales through pharmacies to be $1.1 billion.

Harmonization of drug schedules was given impetus by the switch of drugs from prescription to nonprescription status (Information Letter #798 in 1991). How would they be regulated as nonprescription products? CPhA responded to initiatives of Health Canada and a Canadian Drug Advisory Committee was formed. It provided pharmacists with an opportunity in self care to expand their scope of practice and demonstrate the value of their services to the public. For patients there was greater availability, and increased convenience, in obtaining newer and more potent medications. By having pharmacists dispense pharmacist only products there

would not be any GST charged. Raymond Chevalier, a Montreal pharmacist, in response to Information Letter #798 listed the potential services that pharmacists could provide:

- Patient consultation
- Help in the self diagnosis of symptoms
- Help in the use of new diagnostic tests and devices
- Information and advice on treatment options
- Elaboration of product selection algorithms
- Information on proper medication use
- Monitoring of patient's drug utilization
- Monitoring of patients' ailments
- Referrals to other health care professionals
- Development of pharmacists workstations in "front stores"

Following the model of prescription drugs, some provinces banned the advertising of pharmacist-only nonprescription drugs. This defeated the purpose of making these medications more available to the public and after discussion with pharmacy regulatory bodies the ban was removed.

As the era of environmental concerns grew the nonprescription drug industry responded in 1991 by initiating Environmental Guidelines to reduce the impact of medication and packaging.

The nonprescription drug industry initiated a review of the readability of medication labels and package information, an issue that was becoming more important as the population aged. In the United States the Food and Drug Administration began a similar process.

Another move, reflecting regulations in the United States, was the creation of Advisory Committees to review cough and cold medication and the link between benzoyl peroxide and skin cancer.

In 1991 the federal government began a Postmarketing Pharmaceutical Surveillance Program by the Drug Directorate (Bruce Rowsell). It had three components; drug use review, drug adverse reaction reporting and adverse drug evaluation. The key element is adverse reactions and this area of regulation has floundered over the years, now referred to as Pharmacovigilance. While a Senate report recommended more action on the area of drug review, especially for new drugs, progress has been slow. The concept of real world experience which examines the actual use of medication and the outcomes from the use of several medications is now becoming more accepted and the regulatory programs are beginning to include mention of it.

National Association of Pharmacy Regulatory Authorities

The Conference of Pharmacy Registrars of Canada founded in 1956 is an informal organization that met regularly with CPhA and Health Canada to attempt to coordinate legislation among the provinces. To improve the coordination of pharmacy practice legislation a National Association of Pharmacy Regulatory Authorities (NAPRA) was founded in 1994. They have a major role in creating national drug schedules. This step mirrors the American organization National Association of Boards of Pharmacy (NABP). In emulation of the NABP the Canadian NAPRA attempted to incorporate the Pharmacy Examining Board of Canada but this was met with strong resistance and this did not take place.

Drug Prices and Patents

Pharmaceutical expenditures continued to be an issue with generic and brand name firms in conflict over government legislation to strengthen patent protection in order to be in step with international agreements. This became an issue with Canada's proposed trade agreement with the European Union in 2012-15. At the same time governments and some advocacy organizations are searching for programs to reduce drug costs, including the reduction of patent protection for pharmaceuticals. The widespread and long standing perception that medication prices are excessive continues to influence government policies and public expectations. Canada is the only country that evaluates the price of new patented drugs and allows them to be marketed only if the price is not deemed to be excessive. Even though the Patent Medicines Prices Review Board says the drugs are not priced excessively no one seems to know or care about this designation. They may be right as a survey in2016 reported that Canadian drug prices for generic drugs are among the highest. Governments have a long history of promoting generic drugs to reduce drug prices and it was a shock when it was shown that Canadian generic prices are high. This led to Ontario then other provinces to reduce the reimbursement price. The result was a sharp drop in pharmacy and wholesale revenue as generics represented almost 40% of total drug sales.

After 30 years the Patented Medicine Prices Review Board initiated a review of its operations and invited stakeholder comments. A discussion paper was provided to facilitate this process. Despite some scathing responses that called for a complete review, including the terms of reference, the resulting proposed regulations were an extension of the current operating procedures. Doing more of the same and hoping to get different results did not generate much optimism for future drug prices.

Patient Information

The increased use of electronic records for patient information led to concerns about privacy and these in turn reduced the amount of information available to pharmacists on the medical condition of the patient. This concern resulted in a resolution (1990) to government and third

party programs to provide pharmacists with the necessary information on the diagnosis. The electronic medical record is seen as an important goal in integrating health care. Physicians have been slow to participate in this initiative for various reasons. The net result is that integrated care is moving slowly and there are major communication gaps.

Initial rules for privacy regarding health information proved to be excessive and were a barrier to professional communication. Assessment processes led to some changes that improved the situation. The next major change will be a system that will allow patients to access their own medical records, particularly the diagnostic test results.

Third Party Drug Benefit Programs

The rapid growth of third party payers in both public and private drug programs led to problems with drug claims. A CPhA study in 1997 concluded that third party interventions cost the profession about $150 million annually. Pharmacists and adjudicators worked together with various organizations such as CPhA, Canadian Association of Chain Drug Stores, the Ontario Pharmacists Association and adjudicators such as Blue Cross and ESI to resolve the issues, mainly through a pharmacy electronic communications standard (PECS).

Demands by the insurance programs led to a process of prescription charge audits. This in turn led to some disagreements as in Quebec where the audit was limited to a small number of specific prescriptions dispensed, attempts by the auditors to review large numbers of prescriptions was stopped by the AQPP, the pharmacy owners association. In other provinces the government insisted on audits and these were performed, often with complaints from pharmacists as to the procedures used.

Pharmacare was a term that CPhA initiated to introduce a prescription drug benefit program. It never came into existence but the term has been used by public drug benefit programs since then. In 2000 CPhA made a presentation to the Finance Committee of the House of Commons supporting the creation of a national Pharmacare program as promised by the Liberals in their election platform. It was presented as one of the cost effective means of reducing illness at a projected cost of $3 billion over 3 years. The first step would be to cover those who did not have a benefit program then expand it to cover all Canadians. First dollar coverage was proposed for children, pregnant women and patients in home care programs. In the national election in 2015 both the NDP and Liberal parties endorsed a Pharmacare program but without any clarification as the term increasingly is meant to describe a national program replacing private insurance as well as some of the provincial operations.

The commonly held belief that rising drug expenditures is due to “high drug prices” has been a problem in getting drug benefit programs to focus on the more important issue of drug

utilization. A study in Manitoba looking at the increase in expenditures of 58% from 1995 to 2000 was due to increased prescribing rather than price change. On the other hand 17% of patients with a heart condition did not receive medication and use of hypertension medication was low.

Pharmacare in the form of a universal, national drug benefit program is continuously raised as a vital health need. Some advocacy groups raise this as an urgent need In the context of high cost specialty products. The national labour unions are promoting pharmacare along with CPhA. The health insurance industry is against the move and has the support of many people who have generous programs that would be scaled back with a public program.

Advocates of a national system indicate that a formulary of selected products be used to control program expense. The belief that a select list will meet universal needs and reduce costs has no scientific basis and the limiting of drugs means that a universal program will not meet the needs of many patients.

Dispensing Errors

The increased volume of prescriptions and shortage of pharmacists in the 1990's led to more stressful working conditions for pharmacists and an increase in dispensing errors and patient complaints, many of which led to investigations and disciplinary action. Problems with the current systems in use contributed to the complaints: look alike-sound-alike names, carelessness, time constraints, administrative documentation, or combinations of these.

There were also more legal suits against pharmacists for injury or death for lack of professional care in dispensing. Dispensing errors were the focus of attention when publicity surrounding some errors made front page news. At the core of the problem was the legal advice to pharmacists not to admit that an error was made. The pharmacists in Shoppers Drug Mart convinced the firm that it was necessary to admit to the errors and deal with the problem. This approach was soon adopted by pharmacy licensing bodies and is now the standard. Pharmacy organizations aware of the need for a better professional image stressed the need for every patient receiving counseling, both verbal and written. They also began to initiate public advertising of professional responsibilities, stressing the need for asking questions of pharmacists. An outcome of this was the creation of a health promotion program called Information is the Best Medicine that has been successful. It was funded by the pharmaceutical manufacturers and had input from many pharmacy organizations and patient groups. An update was issued in 2013.

Pharmacy licensing organizations have taken responsibility for programs to assess and prevent dispensing errors in pharmacies. This requires pharmacies to develop programs to identify errors and potential errors and correct them through educational sessions.

Dispensing Efficiency

The shift from compounding to dispensing manufactured products changed pharmacy operations. It enabled a pharmacist to dispense more prescription orders in a shift. With pressure to reduce costs, pharmacists began to utilize computers and later technicians to improve productivity. Computer based systems applied to packaging medication made the system even more efficient and accurate (lower error rate).

Efficiency In the form of drive through pharmacies began in the 1990's with some large US chains opening over a hundred. In Canada, Sudbury's Bancroft Centre pharmacy opened a drive through pharmacy and reported positive patient acceptance. Shoppers Drug Mart opened their first drive through pharmacy in Orillia in 1999 and this was especially appreciated by people with children and by the elderly. People seemed to be more attentive to counseling and the convenience was a benefit to disabled and families with children. In addition to fast service, people can return for a more structured counseling session. Again, pharmacy has adopted another retail approach to improve service and efficiency.

Pharmacy Scope of Practice

Over the past two decades the profession has broadened its scope of practice due to developments in related areas and from increased price competition in dispensing medication. Some of the new areas are: home IV services, home health care products, specialty compounding, personalized care for medication and related products (mastectomy, braces, pressure gradient stockings, home testing kits), nursing home services, diabetes care, alternative care products immunization and travel health.

Legislative changes in the early 2000's further broadened the scope to include injections, renewal of prescriptions, emergency dispensing, and physical assessment of patients.

In 2000 specially trained pharmacists in British Columbia became the first in Canada to be formally granted independent prescriptive authority for emergency contraceptives. This was a move to remove barriers to time sensitive birth control option. This was a major enhancement of the pharmacists' scope of practice and a lead in to the products becoming non prescription products.

Expanded scope of practice grew rapidly in the period after 1990. In addition to prescribing the administration of injections was a major advance. The initial impetus was the inclusion of

pharmacists in providing immunization for influenza. Once pharmacists were seen as capable of safely administering medication additional products were added to the scope of practice. This was particularly advantageous to those pharmacists who practiced travel health.

Remuneration for a Pharmacy Opinion began in Quebec. In 1973 the government recognized a prescription as an authorization, not an order, to dispense medication. This enabled a pharmacist not to dispense a medication and receive compensation for their service. Five years later in 1978 the government and most private payers began compensating pharmacists for a pharmaceutical opinion to stop or modify a prescription. Unfortunately, although most pharmacies submitted claims the rate was only 0.1% 0f all prescriptions. To improve the response the pharmacy organizations requested that a verbal as well as a written opinion be accepted in 2000.

Pharmacy in the Future

The Millennium, the year 2000, was a matter of joy and concern. There was a fear that computer systems with dates based on 19XX would crash with dreadful international consequences. There was also hope that a new, positive, technological era would emerge. In the context of Pharmacy the Executive Director of CPhA identified the major changes of the last century as: emergence of the modern pharmaceutical industry, changes in our understanding of disease, and the development of consumerism with reference to retailing. Based on this the future will reflect advances in genetics and immunology that will lead to newer approaches to care. Diseases linked to aging will be a major challenge. For the profession the expanding science base will require major changes in education, research linked to practice and distribution. Somehow all of the areas of change will need to be harnessed with a focus on better health outcomes for the patients.

Moving into the new millennium CPhA was heavily dependent on its publications. In addition to the CPJ the long standing Compendium of Pharmaceuticals and Specialties and their very successful book on drug therapy Therapeutic Choices which was widely used, they had web sites with drug information. In 1999 they announced the decision to publish a book on herbal products.

With the coming of the Millennium, drug therapy introduced the new biological products for arthritic diseases such as Enbrel and Remicade. Pharmacists began to hear more about pharmacogenomics as a major advance toward personalized drug therapy. This was an important advance and under the terminology of precision medicine represented an innovative approach to therapy.

The Canadian Pharmacists Association celebrated their 100th year in 2007 with special events and a book, *Canadian Pharmacists Association 1907-2007: 100 Years of Leadership in Pharmacy*. A list of 100 pharmacists was compiled as representing the most influential pharmacists in this period. In addition to the list of the 100 Distinguished pharmacists a list of the CPhA founding pharmacists was highlighted. As a spin off from this effort the Canadian Academy of the History of Pharmacy undertook, as a Centennial Project, to prepare a further list of notable pharmacists in Canada.

Integration of health services has been a priority for the health system for decades although there has been little progress. Community health centres were advocated in the 1970's and provinces have initiated a variety of primary care organizations few of which have continued long enough to provide the forecast benefits. The role of pharmacists has been discussed during this period by pharmacists and primary care managers with agreement on only a few of the basic activities. In 2014 a survey of pharmacists in family health teams showed that all the pharmacists were engaged in some form of patient care, including managing single therapeutic issues (96%), conducting general medication reviews (70%), and medication reconciliation (63%), Most reported providing education and drug information. Pharmacists felt their work would increase patient medication adherence (83%) and physician adherence to recommended guidelines (86%), as well as reduced inappropriate prescribing (93%), polypharmacy (90%) and reduced emergency room and hospital utilization (70-81%). (CPJ November/December 2017)

Research into pharmacy practice revealed the value of pharmacists' services. Patient visits (in in 9) to Emergency were often the result of medication related problems most (68%) of which were preventable. This was seen as a systemic issue that needed to be addressed but little has been done. (CMAJ 2008, 178 (12):1563-9)

A survey in 2010 asked about pharmacists biggest worries in the near future. Coping with provincial drug benefit drug plan changes was their main challenge. In Ontario the government eliminated professional allowances and drastically reduced generic prices. The immediate impact for pharmacists was that the inventory value dropped by half overnight. As pharmacists moved to enhance their services they had difficulty negotiating additional funding for these services. In Alberta an income based seniors drug benefit was proposed which would shift half the cost of the program onto seniors. This caused a strong reaction by seniors that resulted in the proposed program being dropped. In general, provinces were more interested in reducing pharmaceutical expenditures than in improving services.

The need to reduce the workload for pharmacists so that they could spend more time counseling patients gave more importance to the role of pharmacy technicians. Although there were some formal education programs for technicians many were still trained on the job. This lack of a standard qualification made it difficult to determine the tasks that could be assigned to a technician. CPhA saw this as a major issue and appointed the Professional Affairs Committee under the chair of Ron Elliott to develop a national accreditation program in 1996. Ontario at this time had a voluntary certification program. Initially this would be a voluntary program. The first province to formally regulate pharmacy technicians was Ontario with the regulatory proclamation in December 2010. It was not until 2012 that the formal mandatory accreditation requirement was put in place in most of the provinces. The insistence on examination rather than grandfather clause for current technicians was a financial and temporal burden for many technicians (in the UK the process was eased in using a grandfather clause in the legislation). Nevertheless it provided a valuable resource for pharmacists and improved the level of care and patient safety.

At the turn of the Century pharmacy had absorbed the need for enhanced patient care based on the Pharmaceutical Care model of drug related problems, the need for adherence to therapy, monitoring outcomes and preparing treatment plans. While these time consuming and record based initiatives were being encouraged the profession was faced with a shortage of pharmacists, price competition that was constraining pharmacist wages and a reluctance of government and other drug insurance plans to reimburse pharmacists for their professional activities. It was still more lucrative to dispense more medication in the allotted time than to implement Pharmaceutical Care.

Patient counseling was encouraged by industry support. Apotex introduced a program “It’s time to talk” which supported a pharmacist spending one day a week meeting with patients to review their medication. Apotex provided a framework for discussion, a four phase action plan and funding for a replacement pharmacist. This innovative program illustrates the kind of support that the pharmaceutical industry provided although there was no immediate economic benefit. Similarly, Novopharm, now Teva, provided seminars on how to improve their pharmacy business with David Windross of Novopharm doing presentations across Canada to pharmacists and pharmacy students. On the other hand, third party payers had an economic benefit perspective that focused on prices rather than drug utilization, a perspective that has continued for 25 years.

Health Quality Council of Alberta reported in 2013 that (2/3) of patients reported pharmacists giving useful advice with their prescribed medication.

In 2002 the pharmacists of Quebec were able to prescribe emergency contraceptive medication to decrease the incidence of unwanted pregnancies and abortions. Soon after, pharmacists in B.C. also received this authority .

A related issue to patient care is the concept of Seamless Care begun in the early 1990's to improve communication between hospital and community pharmacies when patients are admitted and discharged from hospital. In 1996 Toronto hospitals developed a standardized medication chart for patients to take to their pharmacy on discharge. The software was written by David Pao of the Centenary Health Centre in Scarborough. Manitoba hospitals provided leadership in this area but the concept never really got off the ground. It seemed that hospitals had little interest in patients once they were discharged. The evaluation of re-admissions and a recommendation from accrediting bodies that medication reconciliation was required established interest in the process although it is mainly a transfer of information from community pharmacies to hospitals.

In this period there was more interest in assessing the public perception of pharmacy and pharmacy services. One study funded by the Canadian Foundation for Pharmacy and funded by Altimed in 1997 is of helpful. Consumers visited a pharmacy an average of 26 times a year. The majority of patients (62%) purchasing nonprescription medication stated that they were offered advice less than three times in a year. Respondents classed pharmacist services as being a major function, minor function or not a pharmacists' function. While the usual dispensing activities were classed as major functions it was surprising to see that "Providing advice on your health condition and how to deal with it" was classed as Not a Pharmacists Function by 39%. Providing referral information for other health care providers (36%) and Follow up with Customers to ensure medication is working (42%). The features that impact choice of pharmacy were led by "The pharmacist takes the time to explain how the medication works and possible side effects" (76%). In comparison location was important to 54%, waiting time to 39%, counselling area 23%. Patients believed that prescriptions were priced on a markup basis with pharmacists receiving about 45% of the price. Patients reported that they would be willing to pay for additional services.

An important new service came of age with travel medicine. A huge increase In the number of Canadians travelling outside Canada called for a system of reducing risk from infection for the travelers and for the Canadian population on their return. While some public health clinics provided this service, mainly to high risk areas, there was a need for more accessible and less costly service. Seniors heading South for the winter required enough medication for their stay. Travelers to areas with infections disease required immunization and medication in case of illness. An association of travel medicine providers developed with pharmacists as one of the member groups. With the constant scare of pandemics there is a need for a national

integration and linkage of providers. This has become a rewarding and important part of pharmacy practice.

A major study of community pharmacist interventions was conducted by the Canadian Pharmaceutical Association In 1993-94 involving 534 pharmacies across Canada. It looked at both prescription and nonprescription drugs. For prescription drugs two per cent required intervention but overall 1.2 % with prescription renewals requiring fewer interventions. A major intervention involved distribution and supply including inadequate prescription information as the drug benefit programs were undergoing changes, mainly by delisting products. Therapeutic problems, patient information, interactions and formulation issues were also reported. The result of the intervention was to dispense the medication as written in 36.6% of cases, change the prescription in 56.3% and not dispense the product in 7.1% of cases. In the case of nonprescription drugs the main intervention was to provide information on the drug product (84.1%), provide information on a nondrug treatment (22.7%) and advise on a herbal/homeopathic product (1.8%). In 8.3% of the cases the patient was referred to a physician. For the most part the patient was educated as to the condition or the product. While the proportion of prescriptions calling for intervention was small the number of interventions was large and provided a measure of safety for the patients. The study showed a wide variance from pharmacy to pharmacy. This report documented the importance of pharmacists in patient safety and the need for more technical staff to deal with the increasing administrative issues in providing pharmacy service.

In the 1990's the threat of "managed care" surfaced in Canada. In the United States health insurance companies put their prescription business to tender and the lowest price firm was selected to provide all the prescriptions for the insured beneficiaries. This required them to deal only at the designated pharmacies. Obviously the excluded pharmacies were unhappy about losing customers. This resulted in CPhA urging pharmacists to write to the Arthritis Society which was planning to have MediTrust , a mail order firm, to provide medication. In Alberta a group of pharmacists formed Health Outcome Pharmacies to establish a high level service standard that could be discussed with health insurance firms and governments in place of low price competition. (see CPJ December/January 1995). An example of the situation in 1996 was the launch of Partners Plus program by Wal-Mart that offered employers a low dispensing fee of $2.65 or less in Ontario plus customized formularies, trial prescriptions and other incentives. Because Wal-Mart does not have pharmacies in many locations this was to be a voluntary program. The entry of mass merchandisers and grocery chains in to the pharmacy market changed the competitive marketplace for pharmacies.

In 1993 some grocery store pharmacies began to charge dispensing fees of only$1.99. This spread from Alberta to Ontario to the Atlantic provinces. It created a wave of complaint from

pharmacists and a shift in patients to some of the low priced stores. Gradually the fees shifted back to more normal levels but it this situation emphasized the impact of corporate management which focused on increased traffic flow in the stores rather than the image of the profession or the quality of care.

Through the 1990's the focus of pharmaceutical services was Pharmaceutical Care and a number of conferences, published articles, research projects and educational programs took place. The time requirement for meeting the pharmaceutical care process discouraged many pharmacists and the lack of interest of patients and third parties to pay for the higher level service combined to reduce interest in pharmaceutical care as a mainstream change in pharmacy practice. In hospitals, however, the use of pharmaceutical care was increasing through this period. A high proportion of hospital pharmacists reported using pharmaceutical care for select patients but few institutions made it available to all patients according to the 1995/96 Annual Report, Hospital Pharmacy in Canada. During this period there was also some reorganization of hospitals into regions which changed the focus of pharmacy services especially the integration of pharmacists into treatment teams.

In 1994 Health Outcome Pharmacies, a preferred provider of pharmacy services was launched in Alberta then spread to other provinces. The national office was in Ontario and member pharmacies contributed to a fund for education and the development of patient protocols for several diseases. Apotex also made a contribution to support the organization. The underlying reason for the creation of the organization was a fear that managed care, contracted prescription service by health insurance companies, was about to come to Canada and take a significant market share. Independent pharmacies were particularly at risk as they had no organization to bid for prescription contracts and could not meet the requirement over a broad geographical area. After several years of operation Health Outcome pharmacies folded due to high overhead costs and no prospective contracts.

Drug costs were also a problem in the United States leading to patients attempting to order medication from outside the U.S., especially Canada where prescription prices for brand name drugs was only about half that in the US due to compulsory licensing. In 2004 the estimated Canadian prescription sales to US residents ranged from $800 million to $1 billion. Canadian pharmaceutical firms and pharmacy organizations attempted to stop this diversion of products with the result that between 2004 and 2007 the number of Canadian Internet pharmacies decreased from about 50 to 25 with about half inManitoba, the major centre.

In the late 1990's there was a rapid increase in the use of psychotherapeutic products with the number of prescription rising from 9 million in 1996 to 15 million in 2001. A controversy developed around the increased prescribing with charges that the pharmaceutical industry was

making normal, if symptomatic, conditions classed as diseases requiring treatment. On the other hand both physicians and patients considered this to be helpful to patients.

In 1999 Viagra was introduced for erectile dysfunction, a side effect of the drug that was originally used to grow hair on bald men. This raised the issue of drugs being used for nonmedical (social) conditions. Similar discussion surrounded the use of oral contraceptives and later around religious aspects of contraception.

An anthrax scare in the United States led to Ontario stockpiling ciprofloxacin as a precaution. There was concern over bioterrorism and pharmacists were provided information on the actions to take in informing patients about safety precautions. These were, essentially, to maintain their health and keep a stock of the required medication so that they always were able to maintain their health.

Adherence Enhancement

To encourage people to discuss hypertension, nutrition, exercise and medication, Shoppers Drug Mart with the support of Novopharm initiated Checkpoints'92 program in the community so people could fill in a lifestyle questionnaire then go from one display to another to discuss health issues. This program began in Victoria where 2,000 people took part then moved to other cities. In 2001 Shoppers Drug Mart initiated Health Watch Easy Refill system, an ordering system/Integrated Voice Response service that lets patients renew prescriptions online.

Pharmacist counselling activities emphasized adherence to product use. This helped improve the low rates for many chronic disease medications, especially for hypertension where there were no disease symptoms. Computers were used to flag medication that had not been renewed and some pharmacies phoned patients to remind them of the need to continue therapy. In 1996 Merck Frosst commissioned a study by CPhA into the effectiveness of their new adherence program called Vital Interest. The results demonstrated an improvement in adherence but equally important it showed that pharmacists activities had raised the level even before the program took place.

The slow pace of evaluating new drugs for the Canadian market results in other countries having products available for some time before they are available in Canada. Canada took twice as long as many other countries and in 1995 it was taking 3 years for a firm to market a product. This means that if a patient needs one of these products their physician must request it under the Special Access program as an "emergency drug". Based on recommendations of a 1992 report by Dr. Denis Gagnon of the University of Montreal, a process to provide emergency medication had been initiated by the Drugs Directorate. In 1993 14,000 drug releases were authorized despite the fact that the process for this was cumbersome and involved 3

government departments. In 1995 a streamlined process was developed run from one department and available to all physicians. The intention was that “a patient would never be denied access to a drug in a medical emergency”. Although successful, the volume of drugs provided by a firm awaiting a Notice of Compliance was expensive and led to requests for charging patients, something not done initially. The delays in providing service by Health Canada resulted in increased patient expenses, a conflict with their stated objective of reducing drug prices.

Physician samples were a continuing problem and a resolution in 1990 was presented to limit their use in medical practice. Pharmacists have a long history of opposing physician sample as they are not recorded and the pharmacists do not know what the patient is taking. Also, they are not given with written instruction or labeling. Various approaches have been taken to address this issue. One is to have the physician give a “sample” order to the patient to be obtained at the pharmacy at no charge. This cost is covered by the pharmaceutical firm. Another approach is to have trial prescriptions where the patient only receives a small quantity of medication and if there are no problems then they return for a larger quantity. This was a popular approach in the late 1990’s. While effective it required governmental support but this was not continued beyond the initial support and was observed in the breach.

Another problem raised in the 1990 resolutions was the very high usage of exempt codeine products in Canada compared to other countries. A resolution to have provincial licensing bodies and the federal government examine the issue and to notify pharmacists of the dimensions of the problem. Two decades later nothing has been done and there continues to be a major health hazard. In the early period of CPhA one of the issues was the need for more regulation of narcotics and in this they were successful. It was 2017 before Health Canada stated that it intended to ban exempt codeine products.

The introduction of pharmaceutical products that could be used as abortifacients (RU-486) or as morning-after pills (Preven) gave rise to an ethical discussion in the profession. Some pharmacists were placed in the position that their desire to help a patient came into conflict with their moral or religious convictions. Various health organizations at the time (1999) were promoting greater access to emergency postcoital contraception. If pharmacist refused to dispense these products could they be fired? At what point do your personal beliefs supersede your obligation to the patient? The Alberta group Concerned Pharmacists for Conscience has asked for a conscience clause to protect pharmacists in such situations. NAPRA recommends reasonable accommodation of a pharmacist’s right while CPhA insisted that care must be taken to ensure that patients are not left without options if a pharmacist raises moral or religious

concerns. More recently (2016) the same issues are being raised in the context of physician assisted death using a “lethal cocktail” from a pharmacy.

NAPRA Draft Pharmacist’s Conscience Clause

Any person being a duly licensed pharmacist, who shall object on personal, ethical , oral or religious grounds, to the performance of any act or omission o any act In the normal course of professional dispensing or performance, rights of conscience will be respected.

Further, such a refusal to perform any act or the omission of any act abased on such a claim of conscience, shall not form the basis of any claim for damages or any recriminatory or discriminatory action against such a person.

Any such person making such a claim of conscience, or who states a willingness or intention to make such a claim of conscience, should not be denied employment, or terminated form employment, or discriminated against in any manner related to employment because of such a claim of conscience*.*

The ‘90’s were the period when circumstances led to the shift of many prescription drugs to nonprescription status. This took place in a dramatic way in Denmark with 18 drugs in a number of product categories were switched as a cost saving initiative since prescription drugs were covered by health insurance programs and nonprescription drugs were the responsibility of the patient. In Canada and the United States there had been a slow shift but it accelerated in the ‘90’s. This movement led to many more effective, powerful products being available for self care. It enabled pharmacists to make a case for different levels of control In Canada, our schedule II, III and IV products regulated by the Drug Advisory Committee. In 1988 a list of scheduling criteria were formulated to guide the committee. In the United States there remains only one nonprescription drug schedule under the term “OTC”. In 1998 nicotine patches became a nonprescription product in most provinces and sales increased rapidly.

In 1999 Health Canada decided to establish a new regulatory body (Office of Natural Health Products) to regulate natural products. At that time 2/3 of natural products were purchased through pharmacies. A group of 17 individuals were appointed to help establish the type of structure needed. One pharmacist, Claudia McKeen of Ottawa, was appointed. The Canadian Pharmacists Association opposed the establishment of this new organization. The group identified three types of claims: structure function (calcium builds strong bones), risk reduction (garlic reduces your risk of cardiovascular disease), and therapeutic (St.John’s Wart relieves depression). Evidence for each is required. In the following decade attempts to strengthen regulatory control of natural products faced strong opposition from health food stores and manufacturers claiming that the regulations similar to those for pharmaceutical products were

primarily due to lobbying by pharmaceutical firms. A key issue is labeling, the product must meet the claims on the label. In many cases the product in the container is not what is on the label and the active ingredient is not in the dose labeled. The wide variation in quality is a concern to pharmacists and should be to the public.

The Canadian Pharmacist Association has had strong support from the profession and pharmaceutical industry for its publications, especially Therapeutic Choices. Despite this there has been a continual erosion of their membership. Efforts to improve services based on member surveys took place in 1999 and resulted in a strategic plan to improve communications, reimbursement, pharmacists' image, and recognition of pharmacists in health planning. Membership has been bolstered by the recent (2015) re-organization with professional organizations now link their members to CPhA. In 2016 the CPJ is being distributed to all pharmacists.

Pharmacy practice research in Canada was stimulated by the Pharmaceutical Care model which identified a number of drug related problems. To quantify these problems and examine the interventions initiated by pharmacists for serum cholesterol control, a major study (Study of Cardiovascular Risk Intervention by Pharmacists (SCRIP) was conducted in 54 pharmacists in Alberta and Saskatchewan. The interventions, consisting of verbal and written information by the community pharmacist, a cholesterol measurement performed in the pharmacy, referral to a family physician and on-gong follow up by the pharmacist for 16 weeks. The results suggest that community pharmacists can improve the process of cholesterol management in high risk patients. In this regard it was very successful. This was one of many reports showing the benefits of pharmacists' intervention.

A drug information service for consumers was initiated in Saskatchewan in 1991. An assessment of its effectiveness was conducted in 1999. The Saskatchewan Consumer Drug Information Service (SCDIS) is located In the College of Pharmacy and Nutrition at the University of Saskatchewan and is funded by the Department of Health. Its goal is to improve drug utilization by the public by providing accurate and timely information. Of 106 people requesting information, 99 completed a survey. The majority of calls requested information on side effects or adverse reactions. The respondents found the information provided to be useful and timely. Although most of the respondents relied on their pharmacists for information, they called the Centre because the information was unclear or inadequate or they desired a second opinion. This service was seen to be a valuable contribution to the public. Similar services have been initiated in other provinces.

In the 1990's the Drug Caution Code slowly disappeared in the four Western provinces where it had been popular. While effective, the Code required a lot of attention and soaked up staff time in a period when there were staff shortages and economic turmoil. In this context the pharmacies were less prepared to devote financial and staff resources to the project. While the range of new, effective products in pharmacies increased, the service level to ensure their proper use declined.

Pharmacy Awareness Week, initially began by hospital pharmacists, became a national program with activities in each province during a week in March. In 1999 Pharmacy Practice Journal and AltiMed pharmaceuticals teamed up to prepare an innovative package of posters, consumer brochures and a consumer contest "My favourite pharmacist". In 2001 Pharmacy Practice journal provided a summary of the programs in each of the provinces. The media were used for interviews, advertising, collection of unneeded medication and needles, contests and demonstrations of compounding and blood pressure monitoring. This has been an event at which pharmacy students excel.

Patient Safety

Adverse reactions to drugs became more apparent with the flood of new drugs on the market resulting in patients taking several drugs with resultant interactions. A centre to encourage the reporting of reactions was established in Saskatchewan in the early 1990's to increase the number of reports. This is part of a national program to establish reporting centres throughout Canada. Most provinces established centres but some, such as Alberta, did not participate. Because Alberta did not submit a proposal to have a reporting centre the federal government established one with its own staff in Alberta. In the first two years the number of reports in Saskatchewan, increased by 40%. The underlying reason for this was to monitor the new drugs being marketed as a foundation for post marketing surveillance. Early reports of problems with new drugs would allow intervention before too many people were injured. Post marketing surveillance has been a goal for the pharmaceutical system for several decades but the necessary regulatory and financial requirements have been lacking at the national level even though a Senate Committee had recommended such action.

Adverse reactions to drugs became an issue In the United States in the 1970's. A study by Visconti in 1975 showed that the cost of drug reactions in a hospital were higher than the cost of the medication for the hospital. In Canada the first study of Canadian Adverse Events was in 2002 in 5 provinces by the University of Toronto's Department of Health Policy. The incidents of occurance were higher than expected and led to further studies such as the one at the Ottawa General Hospital that reported 2 out of 5 discharges revealed drug events.

Although post marketing surveillance has been widely advocated for a number of years, there has been little progress. In 2008 the federal government invested $1 million in the creation of a Drug Safety and Effectiveness Network with the goal of improving post marketing information on the safety and effectiveness of pharmaceuticals. This system would generate information on the use of medication in the "real world" as opposed to the rigid clinical trial process. The information would be widely available to link pharmaceutical researchers and policy makers. Wonderful objectives were promoted but insufficient funding and weak industrial links resulted in few results by 2013.

Post marketing surveillance was linked to the development of drug utilization review in many hospitals and long term care facilities. There was also some interest shown by provincial governments but despite the potential for the safe use of drugs many of the programs tended to focus on using it to lower drug expenditures. This focus on surveillance of drug use led to the development and use of pharmacoepidemiology. The expected new regulations for drugs to treat rare disease will outline research requirements (jointly developed with Health Canada) monitoring of medication, and data on drug reactions.

To support pharmacy patient care initiatives Apotex created the PACE program in the late 1990's under the direction of Jim Mann. Innovative practices and dispensary designs were featured in the CPJ. In 2002 the PACE staff consisted of Alan Kyte, Yvan Lagace, Allan Malek, and Karen Sullivan. There was also an advisory board consisting of Catherine Biggs, Michael Boivin, Scott Davidson, Sylvie Gregoire, Jeff Leger, Kirk Munroe, Parkash Ragsdale and Anne Marie Whelan. The discrepancy between support from industry and government in improving patient care is a continual embarrassment for public health programs.

Reimbursement for services became a major issue for pharmacists as they received a large part of their prescription business from third parties. In addition, they were developing additional services for which they wished to be paid. CPhA established a Working Group on Pharmacy Reimbursement Methods (1999) with the task of preparing a Canadian Pharmacists' Professional Service (CPPS) Codes for computer billing. There were several codes in existence but the aim was to develop one that was straight forward, easy to learn and use. The members of the Working Group were: Garry Cruickshank, Fred Smith, Joseph Amiel, Ian Stewart, Doug Sadler, Harold Lopatka, Barbara Ogle, Christine Stewart, Linda MacKeigan, David U, Melanie Rantucci, Kirk Munroe, Igor Shaskin, and Byron Bergh. The importance of the codes is their application to billing. The Pharmacy Electronic Communications Standard (PECS) will be the standard used for all pharmacies in Canada to submit their prescription drug claims. This standard coding system has five major categories, each with sub categories.

Major Categories of CPPS Codes

0000 – Professional Dispensing Codes

1000 – Enhanced Dispensing Services

2000 – Standardized Patient Care by Protocol or Guidelines

3000 – Individual Patient Care Services

4000 – Specialized Professional Services

The importance of this standard code for billing is shown by the decision in 2000 by the Alberta College of Pharmacists that all pharmacies must have an electronic billing system in place that year.

Medication errors were also featured in the press and professional publications. The two main issues were the manner in which the pharmacists dealt with the errors, often creating more of a problem than the error itself. The second, and related issue, was that the legal advice to the pharmacists at the time was to avoid saying anything that could be used in a legal suit, In effect not admitting the error. This unprofessional stance was finally removed and standards put in place, first by some corporate stores, and then by the licensing bodies.

Drug utilization was increasingly recognized as a key issue in pharmaceutical economics. According to Dorothy Smith the cost to treat complications of patient mismanagement of prescription drugs is equal to or higher than the cost to purchase the drugs. Medication with higher incidence of adverse effects will be more likely to result in higher levels of noncompliance and indirectly raise overall health care costs. This is why the least expensive medication with the highest incidence of side effects will not always be the most cost effective. Although these aspects of therapy are well known they tend to be ignored by governments in their efforts to reduce drug expenditures by focusing on drug price.

In 2002 at the annual CPhA conference Francois Schubert described the advances in genetics and their implication for pharmacy. He urged the universities to begin teaching in the new field of pharmacogenetics. The concept took decades to permeate pharmacy curricula.

Disposal of unwanted medication evolved in the 1990's with pharmacies providing containers in which people could put outdated and unused medication (EnvirRx). The majority of the products were prescription drugs and most were expired. The drugs were collected and taken to an efficient incinerator for destruction. The promotion of this service along with the safety aspect was an excellent PR campaign for organized pharmacy. In Ontario the concept was accepted but there was no governmental support for disposal. In Alberta , an early proponent,

the government funded the disposition of collected medication but then ended their support. Support from the pharmaceutical industry has been obtained in B.C and Alberta through their pharmacy associations although the generic and nonprescription industry has reduced their involvement. In 2014 a total of 71 tonnes of medication in Alberta was shipped to the incinerator. In Nova Scotia the Medication Disposal Program as of 1998 (replacing the Dead Drug Disposal program sponsored by Medis Atlantic) is operated by Pharmacy Association of Nova Scotia (PANS), the Nova Scotia Pharmaceutical Society, the Pharmaceutical Manufacturers Association of Canada (now Rx&D), the Canadian Drug Manufacturers Association, and the Nonprescription Drug Manufacturers Association of Canada (now the Health Care Products Association). Each manufacturer is requested to subscribe annually for $200. In addition PANS has initiated a sharps disposal program, the first in Canada. Patients obtaining medication that requires a container for the used sharps receive a suitable container that they then return to the pharmacy for pick up by a biomedical disposal company. The manufacturers of the product have agreed to cover the cost. Increasingly public health measures that were once the purview of government have now shifted to the private sector.

The triplicate prescription program initially brought to Alberta from Idaho in 1982 spread to other provinces. This program requires physicians to use a specially designed prescription form for a list of products that have a potential abuse. There are three copies and one is compiled into a data base, usually by the physicians' regulatory authority, so that it can be used to detect and act on illicit transactions. The theft and use of these prescription pads is one more problem in drug distribution that pharmacists must monitor. Despite the cost and problems with this program it has been somewhat successful despite the delays in data analysis. In 1991 Manitoba reported that in its first year the use of this system reduced the use of drugs covered by 34.4% saving the province $700,000. Currently there is a realization that in the electronic age this kind of paper system needs to be updated and made more accurate. In Newfoundland the prescription drug monitoring system run by the Newfoundland Medical Board was discontinued (2002) after 2 years as there was no significant decline in the number of prescriptions for narcotics and sedatives.

Patient safety, particularly in hospitals, was a continuing concern in pharmacy. Studies of adverse reactions and medication errors in the 1960's and 1970's resulted in safer distribution systems, first with unit dose medication and later with computers. Another step forward was the use of barcodes. Barcode enabled medication administration after 2000 allowed the nurse to scan the barcode just before the medication is given. This was assisted by pharmaceutical products using bar codes on their packaging. The pharmaceutical industry was far behind other sectors in the use of bar codes.

Tobacco sales in pharmacies was a lively issue over a period of two decades. In 1990 Alberta pharmacists passed a resolution calling for the removal of tobacco products from pharmacies. Although most pharmacists supported the resolution to voluntarily remove tobacco products only 16% of pharmacies did not sell tobacco. This issue bubbled along for twenty years before the government passed legislation that tobacco products could not be visibly promoted in pharmacies and could not be sold in educational institutions. The incentive for change came from psychiatry as most addicts smoked and when they entered pharmacies for medication saw large displays of tobacco products which they could no longer use as it was contrary to their therapy. In 1998, in the province of Quebec Le Groupe Jean Coutu has refused to comply with the college of pharmacists ruling for all pharmacies to stop selling tobacco. The issue was sent to the Quebec Superior Court. Pharmacists selling tobacco products could take this into account when dispensing medication as it has a substantive impact on therapy with some drugs. This was not utilized to the extent that it should have been and was not given emphasis in the smoking debate. Alberta banned the sale of tobacco in pharmacies in 2007 following Quebec, Ontario and the Atlantic provinces.

Health information for patients was a major initiative during the 1990's. IDA in Ontario launched a free in-store video library program called Health-View. It featured 19 health and wellness titles. Pharmacies established links with pharmaceutical firms to provide videos, pamphlets and books on health care. International sales by pharmacists to prescription and health products customers in the United States grew rapidly over the past decade due to the lower Canadian dollar and the availability of medication produced under compulsory licensing.

In 1995 Health Outcome Pharmacies was established in Alberta by Stan Dabisza. It comprised a group of independent pharmacies who wanted to give employers a higher standard of pharmacy service in order to compete with the mail order and preferred provider services that were emerging. The cornerstone of HOP was Councelus, a program that included six disease management modules, a cognitive fee invoice, a patient questionnaire and a tip sheet, a pharmaceutical marketing plan and a software program that generated medication discussions each time a patient renewed a drug. The program became national and attempted to gain 200 members to become viable but was unable to do so. It folded in 2001 and the programs were sold to various pharmacy organizations. The original software was developed by Dave Robertson as Simplicity Plus and marketed by Health Plus.

Pharmaceutical technology advanced in the field of drug administration with new, small infusion pumps to provide medication in a more controlled manner. Some pumps and reservoirs were implanted under the skin and some were worn outside the body with a stent. Insulin pumps became more sophisticated and were a boon to many patients. Unfortunately their cost has created a barrier for patients and government programs in many jurisdictions do

not provide pumps as a benefit despite recommendations from user groups and diabetes organizations.

A national survey of pharmacists by Trends and Insights 2004 reported that specialty pharmaceutical care services were led by diabetes control (44% of respondents), followed by smoking cessation (31%), and hypertension management (28%). About one quarter of pharmacists do not provide specialty services due to lack of time (51%) or lack of training (43%). Of the 13% that provide disease management services 36% say they charge extra. Most pharmacists (71%) support independent credentialing for specialty services. Two thirds of the pharmacists agree that their pharmacy should do more to improve patient compliance and half say more should be done to prevent medication errors. Pharmacists reported that the proportion of time spent on dispensing (42.5%) is much higher than an ideal proportion of 27.7%. For Prescription counselling 21.3% of time was spent compared to an ideal of 33.8%. The most frustrating part of the job was drug plan issues (17%) and non-pharmaceutical issues (13%).

In 2003 the Canadian Pharmacists Association was in discussion with Health Canada regarding the distribution of marihuana. This was the choice of Health Canada but the matter was one of provincial responsibility and each province was to develop their own system. While medical marihuana was being sold, physicians were reluctant to prescribe it as they did not fully understand its benefits and side effects. In 2017 marihuana for recreational use was approved federally with regulations appearing in 2018. Each province then established distribution controls.

In 2005 the Canadian Pharmacists Association initiated the Blueprint for Pharmacy. It was a long term, multi-stakeholder strategy “designed to catalyze, coordinate and facilitate changes to align pharmacy practices with the health care needs of Canadians”. The intent was to unite the pharmacy sector and in this they were successful in getting the various pharmacy organizations (77 organizations) to support the process in principle. The more difficult aspect was getting agreement on the actions needed for the future. There were widespread consultation and meetings supported by funding from the Government of Canada. Research and discussion devolved onto 9 strategic project areas over the period 2005-2015. This identification of a common vision has provided some commonality in direction for pharmacy as the rapid pace of change pulls the profession in several directions.

Research in Vancouver (2008) showed that one in nine emergency visits was due to drug related problems and most (68%) were preventable. The reasons for the problems were: adverse reactions (39.3%), non-adherence (27.9%), and the use of the wrong or suboptimal

drug (11.3%). Despite the health and economic impact provincial governments were slow to shift their emphasis from drug prices to drug utilization.

Pharmacy Education

To celebrate 50 years as an organization the Association of Faculties of Pharmacy of Canada prepared a book outlining their history, Celebrating our Heritage, edited by Bernard E. Riedel and Ernst W. Stieb. This is a detailed and comprehensive compilation of the work done by the Association. It records the names of the various office holders, award recipients and various reports produced.

The introduction of Pharmaceutical Care concept by Linda Strand and Peter Morley had an immediate and powerful impact on pharmacy education. The concepts were taught and the perception of pharmacy practice shifted to a more patient focused model. In 1996 the University of Toronto introduced a course on Pharmaceutical Care in their curriculum. This focus on Pharmaceutical Care was seen as a major step forward in pharmacy education.

The financial rewards from the flood of new products and the ending of compulsory licensing enabled the pharmaceutical manufacturers to provide more funding for pharmacy education. In 1991 the Health Research Foundation of the Pharmaceutical Manufacturers Association of Canada provided Pharmacy faculties with four 2 year postdoctoral fellowships, six two year graduate scholarships and 18 summer student research scholarships. In addition many pharmacy students were employed during the summer in pharmaceutical firms.

In 1990 Memorial University completed construction of its School of Pharmacy which provided space for all four years of students. The first graduates were in 1990. The first students had been admitted in 1986-87. Funding for construction had been solicited from pharmaceutical companies and this initial funding enabled the school to be built.

In 1992 the University of Toronto introduced a two year Pharm. D. degree following pharmacy graduation It's purpose was to prepare students for advanced clinical pharmacy positions. The program consists of 13 months of academic study comprising 9 required courses, a research project and 11 months of clinical rotations. Twelve applicants will be accepted each year. The fee for the program is $15,000 per year and provision is made for Canadian students to receive a $10,000 fellowship. Glaxo Canada donated $100,000 toward these fellowships. This is the second Pharm D program in Canada as B.C. had initiated a similar program earlier.

To assist pharmacists manage their pharmacies the Canadian Pharmacists Association published a book Pharmacy Management in Canada. It was sponsored by the Upjohn Company and was edited by Dr. John Bachynsky and Dr. Harold Segal. This was reasonably helpful to many pharmacy managers and students with a second edition produced. More importantly the decision of the Pharmacy Examining Board of Canada to include exam questions dealing with practice management retained the teaching of this subject area in the schools of pharmacy. In 2016 the Canadian Foundation for Pharmacy introduced an updated book on Pharmacy Management.

The University of Toronto also demonstrated innovation in launching a community pharmacy residency in 1995. This one year program emphasizes pharmaceutical care and is designed to broaden the resident's scope of practice. The first resident, Irena Peti, served her residency in Marchese Pharmacy in Hamilton, Ontario. The Faculty of Pharmacy provides academic guidance and a certificate on completion of the residency.

Pharmacy management was given a higher profile with the creation of the Koffler Institute for Pharmacy Management in 1990. It was created to help pharmacists improve their management skills. Dr. Harold Segal was appointed the Director of the Institute. Shoppers Drug Mart founder Murray Koffler initiated support to create a building dedicated to pharmacy management on his retirement as chairman of the Board of SDM. Unfortunately there was insufficient funding for operations and over time the building reverted to a University of Toronto academic building and the operations shrank to a continuing education function.

Pharmacy students working during the summer of 1989 reported average earnings of $9.97 in community pharmacy, $8.84 in hospital pharmacy and 9.79 in industry. Those working outside pharmacy reported an average wage of $ 8.86. These low wages made it difficult for students to save enough to pay for their university education. They also had to rely on student loans and working in a pharmacy while attending university.

Pharmacy research grew rapidly and on a broad front from the 1980's onward. Researchers had more government funding and researchers were skillful in searching out funds from non-health departments, pharmaceutical firms, foundations, U.S. granting agencies and private firms. This was enabled by substantive increases in academic staff, some of whom were hired solely to do research, and increased funding. The Medical Research Council of Canada with a budget of $25 million for many years had a policy of providing money only to medical school researchers. By the end of the 1980's the scope of funding was broadened and researchers in other faculties included. The ending of compulsory licensing in Canada in return for increased research by pharmaceutical firms resulted in the growth of research funding to $1 billion in pharmaceutical research, mostly clinical, this was beneficial to many pharmacy programs. Next, the federal

government consolidated their research funding into the Canadian Foundation for Health Research and initially this increased the amount available and the size of grants. A federal commitment to 1% of health care expenditures was honoured in the breach as research funding was increasingly inadequate for the large number of researchers hired into health faculties in Canada.

In 2001 the PEBC qualifying examination was expanded to include a performance assessment component known as OSCE (objective structured clinical examination). This was pretested at UBC in 1998 and 1999 then became a standard part of the examination. Other countries such as Japan have also adopted this exam component.

Pharmacy Education; Association of Faculties of Pharmacy of Canada

The core curriculum advocated by the Association of Faculties of Pharmacy of Canada (AFPC) continued to develop the clinical component following the decision to allocate a third of the teaching hours. Experiential education was expanded and discussions of an entry level Pharm.D. program were initiated. B.C. began a graduate level Pharm.D. program followed by the University of Toronto . AFPC recommended that all pharmacy schools adopt the Pharm.D. degree as the entry level standard by 2020.

The need for an accreditation body was recognized and AFPC initiated the formation of the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) which was established in 1993 with the first evaluations in 1996-97. The evaluations were on a 3 year cycle with accreditation for periods up to 7 years. The first Executive Director appointed was Dr. Bruce Schnell of Saskatchewan.

Canadian Society of Hospital Pharmacists

Membership exceeded 2000 for the first time in 1990. The society was extremely active in their communication with other organizations including pharmacy organizations in Canada and abroad, government organizations, and commercial organizations. Formal communication activity with 16 organizations was reported on in their annual report. A document on Standards, Statements and Guidelines was produced and distributed.

A discussion paper on IV admixtures and Unit Dose distribution was published and circulated to members.

CSHP moved to Ottawa in 1990.

Robotic dispensing appeared in 1997 when Sunnybrook hospital acquired a robot system to dispense unit dose medication. The machine was 7 feet wide, 32 feet long and 8 feet high. Automated medication systems also began to appear with Toronto's West Park Hospital installing the Autros system for automating physician orders, pharmacist verification, dispensing, medication administration and inventory control.

Canadian Association of Chain Drug Stores (CACDS)

The association was formed in 1989 and became an associate organization under CPhA. The first chairman of the organization was David Bloom. Their position on tobacco sales was that any legal product should be able to be sold in a pharmacy at the discretion of the pharmacist. This issue was mainly in respect to pressure to have tobacco products removed from pharmacies.

Provincial Pharmacy Developments.

In the provinces negotiations with the provincial governments to increase funding for professional services were disappointing as provinces found it easier to just avoid negotiations from year to year thereby freezing the fees. When this resulted in 3-6 year delays in obtaining a new contract the financial impact on pharmacy was substantive. In most cases the provincial contract was also the basis for dispensing private prescriptions which exacerbated the situation.

Following Alberta's example the other provinces initiated a greater scope of practice for pharmacists and provided some reimbursement. Overall, it is a slow and difficult process to have provinces change regulations and budgets.

Generally the provinces have followed the economic path of health insurance companies in operating drug benefit programs. They limit benefits to a list of drugs, add and drop drugs without notice or consultation, reimburse pharmacies on a monthly basis rather than in real time, require evidence that a treatment is not working before allowing a different treatment, and use a deductible. Deductibles are used in the insurance industry to reduce the number of claims and it has been effective. Its application to medication is bizarre, but used in most provinces. The purpose of a drug benefit program is to remove or reduce the financial barrier to care. The deductible imposes a financial barrier which has a negative impact on patient care.

Manitoba:

In Manitoba there was only one negotiated contract in the period 1986 to 1991. Over the next decade there was an improved climate for change and by 2010 a new Pharmaceutical Act was in place with regulations that had been developed over a period of years. The regulations

encompassed an expanded scope of practice, methadone dispensing, extemporaneous compounding, hospital standards of practice and international pharmacy.

Manitoba renamed their association from the Manitoba Society of Professional Pharmacist to the Manitoba Society of Pharmacists in 1990.

In the 1990's hospitals began to invite community pharmacies to locate in hospitals to provide prescription services to outpatients and staff. Some hospitals also began to compete against community pharmacies by bidding on nursing home pharmacy services as was the case in Portage La Prairie. An advantage held by hospitals at the time was that they received lower prices on drugs from firms. The firms began to move to a one price system as a result of abuses based on price differentials.

Manitoba's deductible feature in its public programs posed a major financial barrier for many patients and in 2007 the program allowed patients to pay the deductible in monthly payments if their drug costs were more than 25% of their income.

Alberta:

In Alberta after two years without a contract the government in 1991 demanded that the Alberta Pharmaceutical Association create an independent organization to negotiate reimbursement. This set in motion the formation of the Alberta Pharmacists Association (RxA). Negotiations were off to a rocky start with the Association preferring to stay with the current contract rather than initiate negotiations with the government which wanted to reduce fees. A meaningful outcome was not achieved until 2014 when the Alberta government appointed a consultant, Roger Palmer a former Deputy Minister, to negotiate a new contract.

The "independent" professional association formed for negotiations was established as a subsidiary of the College of Pharmacists. This arrangement was clearly a conflict of interest and led to dissention. After several years the pharmacists association was split from the College but the lost years left Alberta pharmacists behind in professional activities. This is one of the blunders that exemplifies the profession shooting itself in the foot.

In 1995 Alberta legislation allowed publically appointed members to sit on the council of the Alberta Pharmaceutical Association, student members were also appointed but not as voting members. The new legislation also allowed the Association to take disciplinary action against owners even if they are not pharmacists. This was a first in Canada and arose from corporate advertising that was in conflict with pharmacy legislation.

Concern over rising drug expenditures led to the formation of an Expert Committee in 1996. It was a joint endeavor with representation the Alberta College of Pharmacists, Alberta Medical Association, Pharmacists Association of Alberta, Alberta Health and Wellness, Regional Health Authorities, College of Physicians and Surgeons, College of Physicians and Surgeons, University of Alberta, University of Calgary and Alberta Blue Cross. The conclusion was that "utilization management offered the best opportunity to control costs". This approach was ignored by government although a Utilization Committee was formed and an academic detailing program tested then cancelled. A major accomplishment of the Alberta Drug Utilization Program was a trial prescription program (Checkpoint program). This approach with strong support of all organizations was about to launch a province wide academic detailing program when it was shut down to save the government money.

To improve health and decrease waste, pharmacy initiated a trial prescription program in 2000. It was expected that this would also lower drug costs. The program called Checkpoint was validated by a pretest that reported 18% of initial prescriptions needed to be changed. This is thought to have reduced the number of adverse reactions. This service was reimbursed by government at $10 and was reasonably popular with most pharmacies participating. A decade later it was rarely used.

Following legislation to broaden the scope of practice for pharmacists by prescribing, a pilot project of 30 pharmacists enrolled in a program to gain additional prescribing authorization in 2007. This was in addition to the regulatory changes that allowed pharmacists to adapt prescriptions and prescribe in emergencies.

The Alberta College of Pharmacists passed regulations prohibiting the sale of tobacco products in pharmacies in 2007 following strong support for the measure by pharmacists and their organizations.

Over this period the Government made a number of changes to compensation by lowering the percentage mark- up that the pharmacists received in addition to their fee and then removing the mark up altogether so that overall the reimbursement was reduced. A Pharmaceutical Strategy ((focus on access, fairness, reasonable pricing, appropriateness and governance – none of which acted on) was introduced in 2007. The first phase was a major change, without consultation, to the seniors' drug benefit program making it an income based program as in Manitoba. The net effect of this program would provide free drugs to half the seniors and remove benefits from the other half. Instead of government paying 80% of the program cost they would only pay about half. In face of a flood of opposition this change was dropped. Instead the government initiated some efforts to reduce drug expenditures through product

listing agreements, province wide purchasing and unilateral reduction in generic drug reimbursement (to 56% of brand then down to 18%). There were some positive steps as well. In 2009 a Pharmacy Transition Team was created to initiate pharmacy services based on the expanded role of service. The most visible of these was the authority to inject drugs and immunizing agents. Pharmacists also received authorization to order laboratory tests in 2009.

In 2011 the Alberta College of Pharmacists and RxA celebrated the 100 years of regulated pharmacy in Alberta (before that the Northwest Territories regulated pharmacy practice).

The three levels of fee adopted when mark-ups were dropped were based on the cost of the medication, these fees were consolidated into a uniform fee of $12.30 in 2014. A small mark-up that would increase in half per cent increments each year to a maximum of 7.0% in 2017 was allowed to take into account the cost of the medication. This new agreement markedly reduced pharmacy revenue and was to be compensated for by providing reimbursement for monitoring patients with some chronic diseases. This was an important change in reimbursement as it forced pharmacists to actively interact with patients in order to earn fees for the review of medication. There was also a higher fee for pharmacists qualified to prescribe. The oddity to this arrangement is that prescribing pharmacists are paid more to do exactly the same thing as other pharmacists but are not paid to do what they alone are authorized to do, prescribe.

Alberta pharmacists attempted to prevent the use of loyalty benefits for prescription sales but the courts did not initially support this when a legal challenge was raised. Later there was a change and the loyalty programs were discontinued.

British Columbia:

In B.C. (1994) initiated a requirement for seniors to pay pharmacy dispensing fees up to $200 per year and the deductible for families was increased.

In 1990 in British Columbia the professional association underwent a massive reorganization and new staff under the name The British Columbia Pharmacy Association. The loss of prescription check off and other economic factors led to the decision to make the changes recommended by a task force. Despite the difficulties the membership of provincial pharmacists remained at about 75%. In 1994 they merged with Prepaid Pharmacy Services Association to streamline the administration of public and private drug insurance.

Hospital pharmacists in 2001 received an increase in salary of 14.25% over 3 years. This was in the period when there was a widespread shortage of pharmacists.

The British Columbia Pharmacy Association commissioned a study that reported in 2002 on patient acceptance of expanded pharmacy services. The response was very positive with over 90% reporting that the level of service they received usually meets or exceeds expectations. It was found that 40% frequently consult a pharmacist and 35% occasionally consult a pharmacist for advice. Of particular interest was the support (over 90%) for pharmacists to manage asthma drug therapy, long term medications, warfarin monitoring, and cardiovascular risk reduction.

The BC College of Pharmacists adopted a new protocol for adapting a prescription in 2007 in order to optimize the therapeutic outcome of treatment with the prescribed drug.

Remuneration negotiations are awkward and the interim agreement ending in 2008 was extended to 2010. Under this agreement generic prices are limited to 50% of the brand product. Attempts to use some of the savings for expanded pharmacy services were initiated by pharmacy.

The BC government proposed competitive bidding of drug firms for the Pharmacare program in 2008 to control the rapidly rising expenditures for pharmaceuticals which had increased 57% from 2001. Pharmacists were concerned that this would result in patient care problems as was the case in other countries where this approach was used. It would also threaten the pharmaceutical supply chain.

As of 1 January 2009, B.C. pharmacists gained the authority to adapt prescriptions with remuneration to a maximum of $17.20. and $25.80 for therapeutic substitution (including the regular dispensing fee). Pharmacists in 2009 received authorization to administer injections such as immunization. Payment of $10 for each injection is made to the 500 pharmacists who have completed the accredited training program. The professional fee in 2010 was $8.60.

B.C began to register pharmacy technicians in 2010. Technicians (12,000) will have to meet the standards of the accreditation program.

Loyalty programs in B.C. continue although the points are awarded only for the patient contribution to the prescription cost.

Ontario:

Economics was the basis for the Pharmaceutical Inquiry of Ontario (Lowy Report) 1990 which examined the pharmaceutical system and made recommendations for changing practice models. While some of the recommendations, such as more focus on educating patients, were laudable there was little evidence that the Commission understood the practice of pharmacy and the constraints on practice. The goals advocated were the goals of pharmacy but the

purpose of the Inquiry was to guide the government in helping pharmacy to achieve the goals. The situation was described in the following way "Pharmacists are not meeting their full professional potential as members of the health care team. They do not have the opportunity to use all the skills and knowledge they have acquired because their role is defined too narrowly. Only a few of the 147 recommendations were implemented by government and these were to save the government money. Several decades later the goals remain valid and there has been little progress in meeting them, particularly in terms of the recommendations made. In 1992 the University of Toronto initiated its Pharm.D. program (the second in Canada) as an advanced clinical pharmacy program. The two year course is divided into 13 months of academic study and 11 months of clinical rotations. There are 12 places available each year.

In 1992 Ontario cut more than 230 drugs from the benefit list. Most of them were nonprescription drugs. Pharmacists were upset with the lack of consultation and the short time line to make the changes. The Savings and Restructuring Act in Ontario (1996) the government would set maximum dispensing fees unilaterally instead of negotiating them with pharmacists. The Ontario government also raised the deductible for patients in the public program

In Ontario in mid 1990's the issue of commercial loyalty benefits for prescriptions began with Pharma Plus. It was also an issue in B.C. In 2012 it was a major legal issue as the Alberta College of Pharmacists proposed to prevent loyalty programs for prescription expenditures. One reason was the abuse when people on expensive, publically funded medication obtained excessive medication in order to get loyalty points. A strong public outcry as well as pharmacy chain opposition challenged the College.

In 1995 a study of the factors affecting the costs of private plans, funded by Merck Frosst, showed that the four cost drivers were: increased utilization (56.6%), drug costs (25.1%), pharmacy costs (16.7%) and distribution (1.6%). Despite this evidence the provincial drug programs continue to focus on drug prices rather than drug utilization.

In 1996 the Supreme Court refused to accept an appeal on Ontario government's legislation to prohibit tobacco sales in pharmacies. The court case was appealed by Shoppers Drug Mart which was owned by a tobacco company at the time. Removal of tobacco from many small pharmacies was a significant loss of revenue. In subsequent years the government in Ontario initiated a number of programs to reduce drug costs which also reduced pharmacists' revenue.

The Ottawa General Hospital initiated a hospital pharmacy residency in drug information. It is unique in that it is a partnership with Glaxo Wellcome in which the resident spends 6 month in the firm.

In 2000 the Ontario College of Pharmacists banned loyalty or bonus points for sale of pharmaceuticals. This is likely to be a continuing issue.

In 2000 in the town of Walkerton an E. Coli contamination of the water supply resulted in a major public health disaster with 1,346 reported cases, 7 deaths and 8 children undergoing dialysis. Symptoms of include severe cramping, diarrhea, abdominal pain and vomiting. The two pharmacies in town were deluged with requests for information and supplies of drugs including the investigational drug Synsorb. Misinformation was a major problem and the pharmacists spent a lot of time just talking to people and providing advice. The hospital and physicians were swamped and not available to the public. On the positive side it led to health professionals working together and clarifying the role of pharmacists in disasters of this kind.

An innovative study of Managed Care took place in Timmins, Ontario 1995 and 1997. It was reported in the CPJ February 2000. The project involved collaboration between the pharmacists and seven employers as well as the cooperation of the employees, their physicians, and several pharmaceutical companies. The purpose was to encourage appropriate drug utilization and to reduce drug plan costs. The pharmacists' interventions involved patient education as well as generic and non-formulary interchange and 90 day supply of maintenance medications. Pharmacists conducted educational clinics for several diseases. There was a decrease on 15.9% in the total number of prescriptions for employees and families. A reduction in drug costs of 5.7% was reported. Managed care with active pharmacist participation markedly reduced medication costs and the increase in patient education improved health outcomes. The consistent reporting of better care and lower costs for managed care raised the question of why it is not utilized more aggressively in drug benefit programs.

In May 2006 the Ontario Health Minister George Smitherman reported that he planned to cut drug spending. Pharmacists wearing white lab coats protested while he was making this announcement. Pharmacists were concerned that the plan would ban rebates from pharmaceutical firms, funding they depended on as the fee levels were very low and had not been raised. The approach of the Ontario government was that pharmacy and pharmaceuticals were an area that would yield savings in health expenditures that they could then transfer to other areas of rapidly rising health costs such as physicians and hospitals.

In 2006 a new association the Ontario Association of Compounding Pharmacists was formed with David Garshowitz as President.

In 2007 the pharmacists in Ontario began providing a new medication review service called MedsCheck. The purpose was to ensure that patients knew how to take their medication and to

provide a medication history. While the program was well received by the patients there were a number of barriers to its implementation in pharmacies. Mainly the lack of time and a workflow that was not conducive to an appointment based service. However the majority of pharmacies (60%) participated in the program launch.

Francophones in Ontario have long campaigned for a bilingual pharmacy school in Ottawa to meet the needs of the francophone community in Eastern Ontario, however the province has been reluctant to establish a second school. At a local level Jean-Paul Desjardins obtained provincial funding in 1992 to enlist French-speaking pharmacists to help patients get counseling and other pharmacy services in French. There have been few French speaking pharmacists graduating from the University of Toronto over the past fifty years. A joint program between the University of Ottawa and the University of Moncton have initiated a joint program for francophones (2014?)

A second school of pharmacy was begun with the first class being admitted to the University of Waterloo. The first class of 92 students was admitted into a program that has a co-op component, the first in Canada. The school will be in the health sciences campus in downtown Kitchener. The director of the program is Dr. Jake Thiessen, former associate Dean of Pharmacy at the University of Toronto.

The period 2007-2008 was a transformative period with pharmacists initiating many new approaches to care. In Sault Ste. Marie pharmacists working with the Group Health Care Centre were linked to patients' electronic medical records containing physicians' progress notes, information on allergies, and diagnostic tests. This pilot project was successful in improving inter-professional communication and medication management. Pharmacists became more aware of the need for documentation of services and outcomes particularly in hospitals. It was during this period that the Ontario pharmacists began a push for prescribing rights to improve patient care.

Under the Regulated Health Professions Statute Law Amendment Act, 2009, pharmacists' were authorized to administer drugs by inhalation or injection, adapt or extend a prescription, initiate a prescription and perform a procedure on the tissue below the dermis.

A major concern in 2010 was the impact of the government's plan to cut professional allowances and reduce the cost of generics by 50% (from 50% of brand down to 25%) over the next three years. The dispensing fee for the Ontario Drug Benefit program was increased to $8.00. The government also prohibited professional allowances (generic rebates) which were estimated as a loss of $750 million to pharmacies. It was anticipated that this would lead to a substantive decline in net profit. In response Shoppers Drug Mart announced that it would increase its front store business in food, cosmetics and electronics. A few years later the front

store revenue was greater than that from prescriptions. Another response by the profession was the formation of Ontario's Community Pharmacy coalition linking major pharmacy organizations. While there was some discussion of using some of the savings ($100 million) for pharmacy services the Health Minister stated that the pharmacy savings would be used to fund other health programs. This resulted in an acrimonious relationship.

The Ontario College of Pharmacists registered the first group of pharmacy technicians in 2010. Licensing exams will be initiated.

Prince Edward Island:

In Prince Edward Island the province arbitrarily changed the monthly dispensing of medication (1998) to seniors to a 3 month supply system for most medication. In 2000 some provinces (Saskatchewan and Alberta) required pharmacies to submit their third party billings by computer.

A Drug Information System (DIS) was approved in 2007 with a grant of $2 million from Canada Health Infoway. It was finally implemented in 2010, the system records all prescribed medication in PEI.

The Seniors' Drug Cost Assistance Program reduced the co-payment by 25% in 2010. Seniors pay the pharmacy professional fee plus $8.25 per prescription.

In 2010 a decision has been made by the Board that Pharmacy technicians will be registered

Quebec:

Quebec established a Pharmaceutical Opinion program in 1978 with revisions in 1983 and 1992 but no further revisions until after 2110 in which pharmacists were paid to provide a written opinion on patient care. It covered seniors and welfare recipients. In the private sector similar programs have been established. A pharmacist-motivated opinion on the pharmaco-therapeutic profile of a patient, or on the therapeutic value of one or combined prescribed treatments, drafted under the authority of the pharmacist, given in writing to the prescriber. It requires that a drug on the provincial formulary be included and there must be a recommendation concerning the patient.

Remuneration has been a continuing issue. Pharmacists asked for an increase in 1998 to their $6.61 fee with increases up to $8.15 by 2002. A unilateral decision by government increased the fee incrementally to $7.47 in 2002. In this period there has not been a negotiation.

In Quebec a legal challenge was raised in 1996 regarding the pharmacy legislation requiring all pharmacies to be owned by a pharmacist. This legislation refers to the prescription and nonprescription drug products. As a result the pharmacies have a front store plus an area partitioned for the pharmacy. This is the only province in Canada that insists on pharmacy ownership. It has prevented mass merchandisers and grocery stores from having a dominant pharmacy presence.

In 1997 Quebec pharmacists threatened to pull out of the provincial drug insurance program when a 6% cut in fees was announced.

In 1998 the Faculty of Pharmacy initiated an MBA program in Pharmaceutical Management in response to the growing size and complexity of pharmacy practice. Plans for 30 students per year have been implemented.

In response to budget cuts in Quebec hospital patients were encouraged to bring their expensive medication into the hospital with them in a quietly initiated program in 1999.

The province of Quebec moved to reduce generic prices in 2011.

About 2003 the province developed a collective prescription responsibilities linking the Quebec Order of Pharmacists, Quebec College of Physicians, and the Quebec Order of Nurses. The intent was to improve inter professional communications but instead there were misunderstandings and problems that required a government mediator.

Nova Scotia:

Nova Scotia introduced a universal drug benefit for seniors based on premium payment. The patients have an option to drop out but were warned that they should ensure that they have some form of coverage. It was estimated that only about 10% of seniors would opt out. Initially it was thought that all seniors were required to be included in the program.

To control drug costs in 1994 the Nova Scotia government initiated a charge-back system to bill physicians that overprescribed. When some charge-backs amounted to $50,000 there was a strong push back by physicians based on the fuzzy rules and need for more medication for seniors. The monitoring of physician prescribing was a key factor In the design of this program.

The Pharmacy Association of Nova Scotia in 1994 prepared a document "The New Realities: Pharmacists' Role in the Changing Health Care System" which discusses drug use management, self-treatment counseling and educational programs for patients to take more responsibility for their own health. It also discusses the pharmacists' role in home care. This was part of province wide review of medication use in seniors. The province's Pharmacare Reform Working Group recommended a change in the format of the benefit formulary. It is based on first line therapy being in a Green list, second line therapy is in an amber list with the red list consisting of drugs held in reserve because of high cost, potential for serious toxicity or because physicians must have special knowledge to prescribe them effectively.

In March 2001 Nova Scotia pharmacists initiated a Sharps program to return needles and syringes. Containers were provided to patients and 24,000 were used, each one holding about 200 syringes. An academic detailing program was initiated for physicians and pharmacists. Evaluations of drug products and treatment were provided by Queen Elizabeth II Health Sciences Centre.`

In 2010 prescribing regulations were passed by the Nova Scotia College of Pharmacists. Standards of Practice will enable pharmacists to renew prescriptions, extending prescription orders, adapting prescriptions and prescribing certain drugs so they can be covered by patients' insurance plans. Pharmacists will also be given authority with respect to diagnostic tests. The College is developing standards of practice for methadone dispensing that will make the pharmacist an advocate for the patient while preserving the safety of the public. Drug management for expense control is worked on collaboratively with government.

The Nova Scotia College of Pharmacists has requested the province's Health Professions Regulatory Review Committee to have pharmacy technicians become a regulated profession (2010).

Newfoundland:

Newfoundland established a drug information centre at Memorial University School of Pharmacy in1994 with start up funding from several pharmaceutical firms (Eli Lilly, Merck-Frosst, Miles Canada, Rhone-Poulenc, Rorer and Syntex).

In 2008 the government, observing the reduction in generic prices in Ontario, proposed to reduce generic prices in Newfoundland to the same low level as in Ontario. This was announced without any discussion or evaluation. It represented a significant reduction in income to pharmacists and the profession attempted to slow the initiation of the changes. They were more damaging in Newfoundland as they would apply to all programs not just government programs as in Ontario.

In June 2010 new regulations and standards of practice were passed by the Newfoundland and Labrador Pharmacy Board that allows pharmacists to renew expired prescriptions, release short term emergency supplies without a prescription and adapt prescriptions. Planning for advanced practice has also been initiated.

The Pharmacy Network was initiated as part of the provinces drug information system that records all medication prescribed to patients. This will form part of the electronic medical record system in the province.

Saskatchewan:

Government drug benefit billings went electronic in 1990 with patients being issued magnetized strip cards. This enabled the pharmacist to simply add the quantity and unit cost of the medication and the amount to be paid by the patient and the amount government pays the pharmacist are calculated. Pharmacists are paid weekly by cheque although this would change soon after to direct deposits. To assist the pharmacists in the transition an extra 60 cents per prescription is being paid to the pharmacists .

In 1997 Saskatchewan drug program processed $70 million in drug benefits. The program has a $850 deductible and above this amount the family pays 35%. Elderly patients have a deductible of $200 and Social Assistance recipients have a $100 deductible. Reimbursement to pharmacists was $6.93 plus 30% on ingredient cost of $7 and under, plus 15% on ingredient cost of $8-15 and plus 10% for ingredient cost over $15. A trial prescription program of 7 or 10 days was also introduced for a limited list of products.

Pharmacists in Saskatchewan formed an advocacy organization, the Representative Board of Saskatchewan Pharmacists in 2001 later changed to the Pharmacists' Association of Saskatchewan (PAS). This forms a legally separate organization from the regulatory organization the Saskatchewan Pharmaceutical Association later the College of Pharmacists . In 1999 the Saskatchewan Pharmaceutical Association in conjunction with the Medical Services Branch of Health Canada hired a field officer to monitor drug utilization in Saskatchewan. Garth Walls was hired to conduct audits for the Non-Insured Health Benefits program. The incentive to begin this plan was an Auditor General Report on a poorly regulated system operated by Health Canada.

In 2001 the Premier of Saskatchewan, Lorne Calvert, advocated working with the federal government to implement a national pharmacare program. He said that he would cooperate with the federal government to make drugs more affordable. He suggested governments look at buying medication in bulk and in reviewing patent legislation to bring cheaper generic drugs

to market faster. He carried on the tradition of doing the same things again and hoping for a different outcome.

In 2007 the Pharmacists Association of Saskatchewan proposed a medication review program for seniors and mental health patients who received their medication in compliance packaging. These were identified as patients at risk who would benefit from a continuing safety review. Instead the government shifted the seniors program from an income based system to one in which seniors would pay a maximum of $15 for a prescription.

Saskatchewan's RxFiles program marked its 10th anniversary as a an evidence based information system for health professionals.

In 2009 the fee for service increased to $9.15 and the next year to $9.43. Planning also began on an expanded scope of practice with two levels of prescribing. At this time drug shortages were a major concern to pharmacy managers. The top three drugs were Diltiazem, folic acid and Allopurinol. Shortages not only took a lot of staff time, it also required more discussion with patients and rebuilding patient confidence in the pharmaceutical system.

Public interest in drug information was growing and the University of Saskatchewan College of Pharmacy and Nutrition initiated a consumer drug information service. This initiative has been widely acclaimed and appears to fill a need. Consumer response is positive and government has responded by reducing the amount of money available so that the hours of service have been reduced.

Technicians were designated as a new health care group and member class under the Saskatchewan College of Pharmacists in November 2010

New Brunswick:

The New Brunswick pharmacists were without a new contract from 1995 to 2010. Interim increases in fee were made in 2009. There is no mark up and most fees are $9.40. Pharmacists are estimated to prescribe 20,000 prescriptions per month.

The New Brunswick Pharmaceutical Society (NBPS)approved legislative changes that they wanted adopted in a new pharmacy act about 2010. It would catch up on a number of issues that needed to be addressed as well as proposing prescribing privileges for hospital pharmacists and establish pharmacist prescribing for minor ailments

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