Reducing Maternal Mortality in British Columbia: An Educational Process

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In April, 1894, John Wray, immigrant English schoolmaster, loaded his young wife, and five small children into a large skiff and set out to row from Vancouver to the head of Bute Inlet. There, Wray hoped to take up a homestead, but by the time he reached Pender Harbour he decided to settle on nearby Nelson Island. In subsequent years, three more children were born to the Wrays. In each case John Wray served as midwife. Fortunately, no complications developed with any of the births, and mother, infants, and father survived the ordeal.[1] About the same time, Dr. B. de F. Boyce, pioneer Kelowna physician, travelled by horse and buggy to the other side of Okanagan Lake to attend a Native woman who had been in labour for several days. Boyce was called after local midwives and tribal medicine men decided they could not deal with the complications of the birth. Boyce found the woman with an arm presentation, the baby already dead, and the exposed arm dirty and gangrenous. To facilitate the birth, Boyce twisted off the arm, turned the baby, and proceeded with the delivery. Not only did the woman survive, but she appeared the next day at Boyce's office to thank him for his help.[2] These anecdotes are typical of the conditions surrounding many of the births that occurred in the early days of British Columbia. In both these cases, the women survived the process of childbirth, but for many women the cost of childbearing was high; for some the lack of proper diet or proper care resulted in the loss of teeth if not of health. For others, the damage caused by perineal tears created chronic discomfort, and for many the price was death.[3]

Many health professionals were aware not only of the unnecessarily high number of deaths among both infants and mothers, but also of some of the causes of death. In 1912, for example, 8008 births were registered in the province of British Columbia. Of that number, 358 infants were reported to have died during their first year, 240 stillbirths were reported, and fifty-one women died as a result of childbirth.[4] During the same year, 2409 births were

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recorded in Vancouver, but life was tenuous and 306 infants died before their first birth date, 142 were stillborn, and eleven women died as the direct result of giving birth.[5] Futhermore, the reported maternal deaths did not include those women who died as a result of complications developed during pregnancy, nor those women whose deaths were caused by post-partum infections, malnutrition, or inadequate living accommodation.[6] Dr. F.T. Underhill, medical officer for Vancouver, pointed to the poor quality of life among the city's tenement dwellers as one of the causes of high infant and maternal mortality.[7] Underhill argued that conditions in the tenements created "within the expectant mother a dread and abhorrence of children, very often ending in disastrous results for both herself and the child."[8] In an address to the 1917 meeting of the province's medical health officers, Dr. Isabel Arthur of Nelson pointed out the unhealthy state of many young children in the province.[9] But, as Dr. Arthur stated, "In order to have a healthy child we must begin with healthy parents, so that the care is prenatal."[10] By prenatal care, Dr. Arthur meant not only medical attention for the mother by a qualified physician, but also the application of the eugenist's view (a popular theory of the time) that only those individuals certified healthy be permitted to marry and reproduce.[11]

But concern for maternal mortality rates was not limited to health professionals. In November, 1919, for example, the British Columbia government appointed a Royal Commission to report on the desirability of introducing a health insurance scheme for British Columbia residents. [12] The commission was chaired by E.S.H. Winn, of the Workman's Compensation Board, with Cecilia Spofford, a political activist and executive member of several early British Columbia women's organizations, T. Bennett Green, MD, and D. McCallum of the Department of Labour as members.[13] During the course of their enquiry, the commission met with health professionals, members of women's organizations, religious groups, labour leaders, and members of fraternal societies. As a result of their investigation, the commission submitted three separate reports: the first dealt with the need for mothers' pensions; the second treated the need for maternity insurance; the third discussed the need for health insurance.[14] Among other things, the commission recommended that the provincial Board of Health cooperate with other welfare agencies within the province to initiate a vigorous educational campaign aimed at British Columbia women on the subject of both prenatal and postnatal care.[15]

At the national level, the newly formed Federal Department of Health organized the Dominion Council of Health in 1919.[16] The council, composed of representatives of the provincial and territorial boards of health and the federal Department of Health, designated among other priorities the coordination of existing health services to preserve and promote public health, conserve child life, and promote child welfare.[17] In direct response to the council's concern for children, the Child Welfare Division of the federal Department of Health was formed in 1920, with Dr. Helen MacMurchy as director.[18] The publication of the 1921 Dominion Census, however, brought the magnitude of the maternal mortality problem into sharp focus when, for the first time, national maternal mortality rates appeared side-by-side with

infant mortality rates.[19] And, as MacMurchy noted, "Our national vital statistics have been of value in arousing interest in this subject [maternal mortality] among the profession and the public."[20] Statistics revealed that in terms of maternal mortality, Canada had little to boast about. Of the world's seventeen leading industrial nations, Canada's maternal mortality rate of 4.7 deaths per 1000 live births, and the United States' rate of 6.8 deaths per 1000 live births was among the highest. Denmark, Switzerland, and the Netherlands, countries which provided maternity benefits, had the lowest mortality rates of 2.0, 2.2, and 2.3, respectively.[21] British Columbia's rate of 4.8 deaths per 1000 live births was slightly higher than the national rate of 4.7, but lower than the 6.7, 5.7, and 5.2 maternal deaths per 1000 live births recorded in Alberta, Saskatchewan and Ontario.[22] Unfortunately, the scattered and migratory nature of the population and the practice of late registration of births and deaths meant that vital statistics for large rural areas in British Columbia could not be relied upon to be totally accurate.[23]

Fortunately, the publication of the 1921 census spurred health professionals into action. The 1924 conference of the Canadian Medical Association on Medical Services in Canada requested that Dr. MacMurchy and the staff of the Child Welfare Division conduct a comprehensive enquiry into maternal mortality in Canada.[24] In the process of gathering information, MacMurchy and her staff examined the death certificates of every Canadian woman of childbearing age (15 to 50 years) who died between July 1, 1925, and July 1, 1926. Of approximately 11,000 deaths, 1532 could be directly attributed to complications of pregnancy, labour or post-parturition infections. In addition, the enquiry noted another 2800 deaths that might or might not be attributed to complications of pregnancy or childbirth. Even more startling was the fact that of the 1532 maternal deaths, only 230 (twelve per cent) of the women involved had sought prenatal care.[25] Furthermore, the study disclosed that complications of child bearing was the second greatest cause of death among Canadian women. (Tuberculosis was the prime cause of death.[26])

Health professionals recognized the need to act to reduce the number of unnecessary deaths among mothers and children. As early as 1920, Dr. Henry Esson Young, Provincial Medical Health Officer, reported increased work by the Board of Health in public nursing and child care. Young stated that, "The work will embrace not only the care of the child, but will begin with prenatal work, include maternity work and continue with the child under supervision until he goes to school . . . "[27] Once children were enrolled in the school system, their physical health was monitored by school medical officials.[28]

Were health workers successful in reducing maternal mortality rates? Between 1921 and 1939, Canada's maternal mortality rate per 1000 live births dropped from 5.3 in 1924 to 4.3 in 1939, and continued to decline for the next twenty years. [29] In British Columbia, the province's maternal mortality rate declined from 6.8 in 1924 to 3.8 per 1000 live births in 1939, and continued to decline over the next fifteen years (Table 1).[30] Although the decline in maternal mortality cannot be directly attributed to any one specific cause, evidence indicates that three distinct but interrelated educational influences tried to affect the change. First, an increasing number of women were

attended at parturition by physicians. Second, an increasing number of births occurred within medical establishments such as hospitals and maternity homes. Third, an increasing quantity of both prenatal and postnatal information was provided to women by health care workers through clinics, home visits, and printed materials. Using British Columbia as a case study it is possible to demonstrate that the addition of public health services to existing but limited medical facilities and the provision of better health care and health education programs meant that from 1920 onwards British Columbian women had access to better health care, better medical attention, and were better informed about self care than their mothers had been.

TABLE 1

MATERNAL MORTALITY (DEATHS PER 1000 LIVE BIRTHS)
PROVINCE OF BRITISH COLUMBIA, 1920 to 1960

Year	Deaths per 1000 Live Births	Year	Deaths per 1000 Live Births
1920	5.0	1940	3.1
1921	5.9	1941	2.7
1922	5.6	1942	2.7
1923	6.3	1943	2.5
1924	6.8	1944	2.5
1925	5.9	1945	2.5
1926	6.4	1946	1.7
1927	6.7	1947	1.2
1928	5.8	1948	1.1
1929	5.6	1949	1.0
1930	5.8	1950	1.0
1931	6.3	1951	0.7
1932	5.2	1952	0.6
1933	4.7	1953	0.6
1934	5.0	1954	0.4
1935	5.1	1955	0.5
1936	4.7	1956	0.4
1937	4.5	1957	0.4
1938	3.8	1958	0.4
1939	3.8	1959	0.4
		1960	0.5

Sources: British Columbia Board of Health, *Reports,* 1920-1927; British Columbia Department of Vital Statistics, *Reports,* 1927-1960.

Health professions and community leaders had a twofold message for women of the 1920s. First, mothers had a special mission--to protect their homes, their families, and their children.[31] Motherhood was regarded as both a sacred state and a sacred right, and considered part of each woman's national service.[32] Helen MacMurchy wrote that women are "the one important factor in the future health of the nation, morally and physically."[33] Mary Ellen Smith, member of the Legislative Assembly for Vancouver, told the 1918 convention of the Child Welfare Association of British Columbia that she believed all girls should be looked upon and educated as potential mothers.[34] At the same convention, Victoria physician Dr. Ernest Hall recommended that the legislature immediately pass the Mother's Pension Bill "as recognition of the divine right of motherhood to be recognized as the highest service to the state."[35] High ideals indeed!

The second message to mothers assured them they need not fear childbirth.[36] By 1920, developments in medical research and health care were such that, if expectant mothers took proper care of themselves and their physicians took proper precautions, mothers would have healthier pregnancies, less dangerous deliveries, and a greater chance of survival for both themselves and their infants than had women of previous generations. Health professionals stated that puerperal septicaemia (childbed fever), the greatest killer of new mothers, need not develop if women maintained good personal health care and attending physicians and midwives took proper hygienic precautions. Death caused by either natural or induced abortions, haemorrhage, bleeding during pregnancy or labour, uncontrolled vomiting, eclampsia, and nephritis were controllable if not preventable. In many cases, difficult labour could be anticipated and birth complications could be predicted and prepared for before labour commenced.[37] Health professionals urged women to seek prenatal and postnatal care from their physicians not only to reduce the number of deaths and defects among their infants, but also to ensure their own survival.

The British Columbia Medical Act of 1898 prohibited any individual not licensed by the British Columbia College of Physicians and Surgeons to practice "medicine, surgery or midwifery for hire, gain, or hope of reward."[38] Yet, evidence indicates that prior to 1920, midwives presided at the births of many of British Columbia's early citizens.[39] British Columbia pioneer Maryane Rouse continued to practice midwifery at Pender Harbour following her move from Texada Island in 1909. Rouse attended the births of approximately forty Pender Harbour residents. She charged fifteen dollars for her services, and stayed two weeks on each case. Rouse claimed to have lost neither mother nor infant during childbirth.[40]

But not all women were attended by midwives. In her study of medical attendance in Vancouver from 1886 to 1920, social historian Margaret Andrews focused on the medical practice of physician Henri Evariste Langis.[41] Among other details of Langis' practice, Andrews noted that in proportion to their number in Vancouver society, women sought medical attention less frequently than men.[42] During two specific periods studied, 1893 to 1894 and 1903 to 1904, Andrews observed an increase in the number of women who arranged for Langis to attend them during childbirth.[43]

Furthermore, about seventy percent of the eighty-three women whom Langis attended in childbirth in 1893-1894 and of the 127 women he delivered in 1903-1904, visited him at least once prior to the onset of labour.[44] Andrews noted that neither ethnic background, economic position, occupation, nor social class appeared to determine which women sought a physician's services; rather, they were women in their first pregnancies, women who experienced difficulties during previous pregnancies, or women who anticipated problems during their present pregnancy.[45]

But if women formed a small but growing part of physicians' clientele in the late nineteenth century, they formed a major part of their clientele in the 1920s. In *Strong Medicine: History of Healing on the Northwest Coast,* Dr. Robert E. McKecknie II, son and nephew of two prominent British Columbian pioneer physicians, examined the changes in medical care over the past three centuries. McKecknie reported that during the 1920s the treatment of women and women's disorders (the result of complications of childbirth or the after effects of childbearing) constituted a major portion of most physicians' practices. Also, obstetrical work provided a substantial and certain source of income.[46] In 1921, for example, Vancouver physicians generally charged thirty-five dollars to attend a delivery, fifty dollars if the woman haemorrhaged, forty-five dollars if an instrument delivery was required, and thirty-five dollars to treat a woman who miscarried. This appears to be a substantial fee, considering office calls were usually two dollars fifty cents and the cost for major surgery, such as a double hernia, was one hundred fifty dollars.[47]

McKecknie also noted that during the 1920s, physicians increasingly assumed control over obstetrical work.[48] In fact, as early as 1918, Dr. W.B. Burnett, obstetrician at Vancouver General Hospital, told the 1918 meeting of the British Columbia Hospital Association that midwifery was no longer a problem in the thickly populated areas of the province, but in the sparsely populated rural areas midwives were still in use.[49] By law, only physicians registered with the College of Physicians and Surgeons were permitted to give medical or surgical assistance at births. Furthermore, no training programs in midwifery were offered in the province's schools of nursing.[50] Therefore, British Columbia's physicians dominated obstetrical care both legally and in terms of professional skill. As a result, their monopoly gave physicians an aura of expertise and authority that seemed to make them experts in all aspects of childbirth and childcare.[51]

To add to the aura that surrounded physicians, the Victorian Order of Nurses (VON) and public health nurses reinforced the role of physicians as obstetricians. The VON, for example, attended cases only when patients were under the care of a legally certified physician.[52] As part of prenatal care, British Columbia's public health nurses urged women to obtain their physician's advice early in their pregnancies.[53] By 1931, Saanich's public health nurse, Audrey Payne, noted that even in rural districts of the province the majority of women made two or three visits to their family physicians before giving birth.[54] Women appeared to believe the presence of a physician would increase their comfort and ensure a safer, speedier delivery.

Undoubtedly, the increased use of anaesthetics contributed to the desire

of women to have a physician present during at least the final stages of childbirth. In British Columbia, as in other parts of Canada, only physicians were permitted by law to administer anaesthetics; therefore, if women were to escape the pains of childbirth they must have a physician in attendance.[55] When no other health professional was available to assist, physicians such as Vancouver's W.C. McKecknie, had the patient hold a chloroform soaked gauze over her face while he proceeded with the delivery.[56] Expectant mothers had no desire to face the pangs and pains of natural childbirth when such discomfort could at least be partially alleviated.

Although it is impossible to determine how many expectant mothers made prenatal visits to their physicians, the records of the VON, the comments of the public health nurses, and the increased number of births in hospitals (nearly eighty-five percent by 1940) indicate that most women were attended in childbirth by medical practitioners (Table 2). The first report of the Department of Vital Statistics that recorded the presence of physicians at births (1952) noted that more than ninety-eight percent of the births in British Columbia were attended by physicians, and that by 1960, the number of births attended by physicians had reached ninety-nine percent.[57]

The practice of women entering medical establishments for childbirth gradually increased during the early part of the twentieth century. Andrews noted that most of Langis' patients preferred to have their babies at home, although between 1894 and 1903 an increasing number of women arranged to give birth and recuperate in maternity hospitals.[58] Vancouver physician W.C. McKecknie delivered nearly five thousand babies during his practicing years (1905-1946), most of whom were delivered in homes.[59] The practice of home births might be partially explained by the cost of hospital care.[60] In 1906, for example, Vancouver General Hospital charged each patient a weekly rate of ten dollars--a substantial amount for most families when the attending physician's fee was added to the hospital bill.[61]

The new forms of health insurance that existed prior to 1921 (through mining and railroad companies and fraternal societies) made only minimal provision for maternity care. A few companies such as the BC Southern Railway at Cranbrook and Fernie paid up to fifteen dollars to help meet the cost of maternity care.[62] Other companies paid lesser amounts, or, as did fraternal organizations that were involved in health insurance, gave no financial aid at all. Because the family had to bear the cost of physician and hospital care, financial factors determined where the woman gave birth to her child.

In response to the demand for lying-in facilities, the first women's hospital was established in Victoria in 1864. It was merged into the existing Royal Hospital in 1869.[63] Twenty-five years later, Alexandra Hospital for women was opened in the rapidly growing centre of Vancouver, but as other maternity care facilities developed at the Vancouver General Hospital, the Salvation Army's Grace Hospital for unwed mothers, and St. Paul's Hospital, the Alexandra Hospital was converted into an orphanage.[64]

In 1905, Vancouver General Hospital (VGH) provided three small rooms for maternity care. The facilities included a labour room, located next to the elevator, and two small wards holding three or four beds each. During the

TABLE 2

PERCENTAGE OF LIVE BIRTHS IN HOSPITAL FOR TWO URBAN AREAS AND FOR THE PROVINCE OF BRITISH COLUMBIA, 1927-1960

Year	Prince Rupert	Vancouver	BC
1927	68.5	67.9	46.7
1928	72.6	67.9	49.2
1929	78.5	70.5	58.2
1930	82.5	76.8	64.2
1931	80.0	77.8	65.0
1932	83.0	78.4	66.0
1933	86.0	79.7	67.0
1934	84.6	75.7	67.8
1935	85.0	77.8	71.6
1936	86.6	80.1	75.3
1937	97.9	83.7	76.7
1938	97.5	86.0	80.0
1939	96.0	89.0	82.0
1940	96.0	92.2	84.4
1941	97.9	94.3	87.5
1942	93.0	95.6	89.2
1943	97.8	98.5	92.1
1944	94.4	99.2	93.1
1945	100.0	99.2	93.4
1946	98.9	99.2	94.9
1947	98.3	99.4	95.6
1948	98.8	99.5	96.0
1949	99.1	99.6	96.6
1950	99.4	99.5	96.9
1951	100.0	99.7	97.2
1952	100.0	99.7	98.1
1953	98.7	99.7	97.5
1954	99.3	99.7	97.8
1955	99.7	99.7	98.1
1956	99.6	99.6	98.2
1957	100.0	99.8	98.4
1958	98.1	99.8	98.4
1959	99.6	99.8	98.6
1960	98.9	99.8	98.7

Source: British Columbia Department of Vital Statistics, *Reports,* 1927 to 1960.

first year of operation (1906), twenty-five births (3.2 percent of births recorded) occurred at VGH. After this, the number of births at VGH steadily increased, and by 1914 the hospital board took steps to provide a new maternity wing.[65] Two years later, 661 births (24.6 percent of all births recorded in Vancouver) occurred at VGH. This number did not include those births which occurred in St. Paul's Hospital, Grace Hospital, or in one of the registered maternity homes in the city. By 1940, 92.2 percent of births recorded in Vancouver were in medical establishments, and of that number 2436(sixty percent) were in VGH. Between 1916 and 1940, there was almost a four hundred percent increase in the number of births in VGH alone.[66]

Vancouver was not the only city that needed to increase its maternity care facilities. Victoria's Royal Jubilee Hospital opened its first maternity ward in 1916, and within four years the space available for maternity care was taxed to the limit. By 1925, the Royal Jubilee opened a new thirty-two bed maternity wing.[67] New Westminster Royal Columbia Hospital, established in 1853, initially providing care for injured miners, loggers, and local citizens, merged with an existing women's hospital in 1902, and commenced maternity care for those New Westminster women who entered hospital for birthing.[68]

At least twenty hospitals of varying sizes were opened in British Columbia between 1858 and 1899, and an additional twenty-two hospitals were opened between 1900 and 1920.[69] In addition to the maternity wards of these public hospitals, scattered about the province were numerous unlicensed, uncontrolled, unsupervised private hospitals and maternity homes.[70] Although physicians attended patients in these private maternity homes, medical practitioners complained that some were dirty, ill-kept, crowded, and all too frequently "caught fire with some puerperal blaze of infection."[71] Such outbreaks of infection, physicians pointed out, could lead to the deaths of several otherwise healthy and recently delivered mothers. Furthermore, at least one physician found unscrupulous operators of such establishments engaged in the baby-selling business.[72] Therefore, at the urging of some British Columbia physicians, the government passed the "Amendment to the Hospital Act, 1913."[73] The Act ordered that all private hospitals and maternity homes be licensed to ensure they met specified requirements in terms of proper equipment and facilities, and employed qualified or certified staff to operate them.[74] Those establishments that did not meet minimum requirements of the Board of Health were immediately closed. During 1914, the first year of inspection, licenses were issued to thirty-five private medical establishments, and fourteen were refused licenses and compelled to close.[75] Frank de Grey, Inspector of Hospitals, reported that over the next few years he kept constant vigilance on the operation of such establishments, and quickly closed those that failed to meet licensing standards.[76]

Although the well-being of the patients was one reason for demanding private hospitals and maternity homes be inspected and licensed, physicians may have had other reasons for wanting those places supervised. What better way to establish control of obstetrical work than to admit patients to medical establishments in close proximity where physicians could supervise each woman's confinement.[77] Furthermore, physicians found it easier to attend

births in a nearby hospital or maternity home where materials, equipment, and assistance was immediately available than to go to private homes where conditions might be rough and equipment lacking.[78] Increasingly, physicians urged expectant mothers of the 1920s and 1930s to go into hospitals or licensed nursing homes to give birth.[79]

There were advantages for women in entering a medical establishment to have their babies. Dr. R.W. Irvin of Kamloops told the 1923 meeting of the British Columbia Hospital Association that people (especially those from Europe) preferred a nursing home "which means that they wish to go to a pay institution and have the selection of their own physician."[80] Those unable to pay hospital costs either gave birth at home or were placed in large public wards where, as indigent cases, they were attended by staff physicians on duty at the time of delivery. Yet, in spite of the financial difficulties created for many families by the great Depression of the 1930s, the trend to go to hospitals for childbirth continued to grow. In 1932, Elizabeth Smellie, Chief Superintendent for the VON, commented on the increasing number of births in medical establishments. She reported that "maternity cases who were in former time looked after in the homes...are now admitted as indigent cases."[81] Dr. T.F. Rose noted that St. Paul's Hospital reported only one birth in its first year of operation in 1892. During the next fifty years, twenty thousand births were recorded at St. Paul's.[82] Even in the more isolated communities of the province, more women entered hospitals or maternity homes for childbirth. In one such area, Prince Rupert, until 1943 accessible only by boat or train, almost the same percentage of births occurred in medical establishments as in the urban area of Vancouver.[83] (Table 2)

Although it is impossible to draw a direct cause and effect relationship between the decline in maternal mortality and the increase of births in medical establishments, women who gave birth in a hospital setting certainly had the advantage of superior care and treatment in a more sterile environment than those who gave birth at home.[84]

Undoubtedly, the provision of better medical care in a hospital setting led to some reduction in the province's maternal mortality rate, but the process of educating women to the necessity of both prenatal and postnatal care also influenced the care they took of their own health and the preparations they made for their maternity. Public health nurses, VON, and other health professionals attempted to educate mothers through three different procedures: having women attend prenatal clinics; visiting the women in their own homes; disseminating information through the distribution of printed materials, through conducting classes, by giving lectures, radio broadcasts, and by showing films.

Health professionals believed that periodic prenatal clinics was an efficient way to educate women. Saanich health centre nurses made plans to establish a prenatal clinic as early as 1922, but it took two years to organize and then attendance was ensured only if the nursing staff supplied transportation to and from the clinics.[85]

Because the Saanich clinics were not as successful as the nurses hoped they would be, home visits replaced the clinics in 1927. Nurses found the clinics excessively time-consuming in proportion to the number of expectant

mothers who attended.[86] Other public health nurses appear to have been no more successful. In 1930, Olive Garrood, the indefatigable health nurse for Kamloops, attempted to establish a prenatal clinic, but she also encountered difficulty convincing women to attend. Garrood reported that pregnant women still did not seem to understand the importance of prenatal care.[87] Yet, these same women, reluctant to attend clinics relative to their own health care, were willing to bring their infants to well-baby clinics.

Attempts to establish prenatal clinics in urban areas met with little more success than in rural areas. The 1920 organizational plans for the newly formed Vancouver Division of Child Hygiene included a weekly prenatal clinic at Vancouver General Hospital, and the Vancouver Board of Health annual report optimistically stated, "The Department commences with the expectant mother."[88] Reports from 1921 through to 1939, however, fail to mention prenatal clinics. Furthermore, as late as 1937, Dr. Stewart Murry, Director of Child Hygiene for Vancouver, reported that the Vancouver Health Unit still had no definite prenatal program, and whenever maternity cases were found they were referred either to the woman's physician or to VON clinics.[89]

During the mid-1930s, the VON organized what appears to be the first regular prenatal clinic in Vancouver.[90] This clinic, operated by the VON's Junior League, had a nurse in attendance to give prenatal instruction and advice. VON Supervisor Margaret Duffield noted that the Mothers' Health Education class "has become one of [our] most active and best attended classes."[91] The program, involving twenty-four women, consisted of nine lectures on prenatal care, instructions and distribution of materials for making layettes, and a social time over a cup of tea.[92]

Home visits by nurses met with more success, but again, reluctance of expectant mothers to contact nurses made it difficult for nurses to know who was pregnant.[93] In 1921, Dr. Young noted that (unnamed) organizations were trying to introduce the practice of voluntary registration of pregnancies; however, the practice was never implemented and health workers had no sure method to locate mothers-to-be.[94] Health workers relied on the less-than-effective method of word-of-mouth to advise expectant mothers about prenatal services available to them, and for supplying the names of known pregnant women to health professionals. But this method was also inadequate. The reports of the Department of Vital Statistics indicate 137 births registered in Kelowna in 1927, 153 births in 1928, 156 births in 1929, 144 births in 1930, and 166 births in 1931, yet public health nurses report visiting only four prenatal cases in 1927-1928, nine in 1928-1929, four in 1929-1930, and no cases in 1930-1931.[95] Even though birth registrations included those in both rural and urban areas of the Kelowna District, they demonstrated that public health nurses were making scant inroads into prenatal work.

By using the records of the local relief officer, health workers in the Peace River District were at least partially successful in locating expectant mothers. In 1936, nurses made 325 prenatal calls and in 1937 they made 220 calls.[96] Nurses took the opportunity to insist pregnant women seek prenatal advice and to monitor the women's health during their pregnancies. In other areas of the province where relief work was one of the public health nurse's

responsibilities, nurses frequently contacted pregnant clients through routine social service calls.[97]

While public health workers in the rural areas of the province may have had problems ferreting out the names of expectant mothers, the VON in the lower mainland area appears to have been kept busy. Working in co-operation with family physicians and the Vancouver Board of Health, the Greater Vancouver branch of the VON reported it had made 1274 prenatal visits in 1922, 1569 in 1929, and 2737 in 1936.[98] Their visits were educational and advisory in nature. Mothers-to-be were instructed to consult their family physicians, to observe good personal hygiene, to ensure a proper diet, rest, and exercise, to prepare for birth, to arrange for help within their homes during their recuperation and to prepare layettes for their infants.[99]

In terms of reaching expectant mothers, home visits were more effective than prenatal clinics, but health workers certainly did not reach all pregnant women. This may have been because of the reluctance of women to seek prenatal aid from public health workers, and the tendency of women to think that one or two visits to their physicians was all the prenatal care necessary.[100] These women frequently did not contact the public health or the VON nurse until they were home with their babies. In some cases, the nurses utilized the list of newly registered births issued by the Board of Health as the basis of their first postnatal visits.[101]

The third approach to educate expectant mothers was through the distribution of relevant printed materials. By 1920, the Provincial Board of Health produced a set of ten advisory letters and five diet folders for distribution. These materials were mailed at monthly intervals to mothers-to-be, one prenatal letter at a time, in plain brown envelopes.[102] The letters urged mothers to seek prenatal care early in their pregnancies, to eat a balanced diet, and to get plenty of rest. The letters also carried instructions for the preparation of a layette and outlined the arrangements to be made for a home birth.[103] After the publication of *The Canadian Mother's Book* in 1921, this publication was also included in the information mailed to expectant mothers.[104] Unfortunately, no record exists showing the total number of prenatal and postnatal letters distributed throughout the province, but in 1939, 1705 sets of prenatal letters and 3642 sets of postnatal letters were mailed to mothers. This number does not include thousands of pamphlets, bulletins, and other materials provided through local health units, by other health care agencies, or by community workers. From 1920, when the letters were first prepared, through the next two decades, thousands of sets of letters were distributed to British Columbia mothers.[105] Health professionals associated with the Provincial Board of Health, the Vancouver Board of Health, and the VON distributed free materials either prepared by their own agencies or reprinted from materials prepared by health agencies in Great Britain, New Zealand, or the United States.[106] Although prenatal materials were available through health care agencies, only occasionally did newspapers or magazines provide prenatal advice or urge mothers to seek medical attention early in their pregnancies. In samples of ninety-eight issues of *Chatelaine* magazine (1928-1939) examined for this study, only six articles dealt with some aspect of prenatal care.[107] Even though expectant mothers could seek prenatal care and

advice from public health personnel and from their own physicians, pregnancy certainly was not a topic for discussion in the popular press.

Through continuous efforts by health professionals during the first four decades of this century, British Columbia women were made cognizant of advances in health care that not only assured greater chances of survival for infants, but also healthier pregnancies, less dangerous deliveries, and a greater chance of survival for the mothers than had previously existed. Women were continuously instructed by health care workers and informed through propaganda from various health care agencies that their prenatal health and self care were the most important factors in determining their chances for survival, so important, in fact, that all pregnancies must be monitored by physicians. Increasingly, women turned to physicians to attend them during childbirth. Women were assured by both physicians and other health professionals that the presence of a physician made childbirth less hazardous and less painful than it had been for their mothers. Furthermore, if physicians saw women early in their pregnancies, difficult labours and birth complications could be predicted and then planned for, before parturition. Physicians had access to anaesthetics and obstetrical instruments, both of which increased the comfort and decreased the dangers of prolonged childbirth. By restricting the licensing of those who could practice midwifery, and by providing no training in midwifery at schools of nursing, physicians assumed control of obstetrical work in British Columbia.

Paralleling the rise of the physician as obstetrician was the increased number of births in both public and private hospitals and maternity homes. No longer were hospitals regarded as places to die, but rather as places to receive medical care and treatment. Fewer and fewer births occurred within home settings, and more within the disinfected environment of medical establishments where physicians had access to medical equipment. Within hospital settings, maternity cases were treated as surgical cases, and as a result, fewer women developed puerperal septicaemia (childbed fever).

What this study has not considered is the possibility that changes in medical care and treatment during childbirth may also have lowered the maternal mortality rate. In the early twentieth century, new mothers were required to remain in bed for the first ten days after parturition. This practice not only weakened women, but may have led to complications such as blood clots. Also, as physicians received better obstetrical training, they became more aware of the need for scrupulous cleanliness of their own hands, clothing and equipment. Whether the decline in British Columbia's maternal mortality rate was the result of educating women or educating physicians, one thing is evident: British Columbia's mothers and their families were the ones who gained.

Footnotes

I am grateful to Neil Sutherland for his comments on this paper which was originally prepared in the summer of 1982.

1. Emily Dillabough, Vancouver, and Ruth Lewis, Kelowna, were the two youngest children to make the boat trip.
2. T.F. Rose, *From Shaman to Modern Medicine: A Century of Healing Arts in British Columbia* (Vancouver: Mitchell Press, 1972): 26-27.
3. Robert E. McKecknie, *Strong Medicine: History of Healing on the Northwest Coast* (Vancouver: J.J. Douglas, 1972): 155-157.
4. British Columbia Board of Health, *Report,* 1912: 15.
5. Vancouver Board of Health, *Report,* 1912: 4; British Columbia Board of Health, 1912: 15; British Columbia's medical officers did not believe all stillborns were reported. See "Second Meeting of the Medical Health Officers of British Columbia," *Ibid., Report,* 1918: G232.
6. H. MacMurchy, "Classification of Maternal Deaths," *Canadian Public Health Journal,* XXII (August, 1931): 412-419.
7. Vancouver Board of Health, *Report,* 1912: 3.
8. *Ibid.*
9. Isabel Arthur, "Child Welfare," British Columbia Board of Health, *Report,* 1918: G132-140.
10. *Ibid.*
11. *Ibid.*
12. Marjorie C. Holmes, *Royal Commissions and Commissions of Enquiry Under the "Public Inquiries Act" in British Columbia, 1872-1942* (Victoria: C.F. Banfield, 1945): 48-49.
13. *Ibid.*
14. Commission on Health Insurance, *Report on Mothers' Pensions,* March 22, 1920.
15. *Report on Maternity Insurance* : 11.
16. Canada, *Statutes,* 1919, "An Act Representing the Department of Health."
17. *Ibid.,* Section 4 (a).
18. *Handbook of Child Welfare Work in Canada* (Department of Health: King's Printer, 1923): 7-8.
19. *Enquiry into Maternal Mortality in Canada, July 1, 1925, to July 1, 1926* (Department of Health, Ottawa: King's Printer, 1927): 6-7.
20. *Ibid.*: 6.
21. *Need Our Mothers Die?* The Division of Maternal and Child Hygiene, Canadian Welfare Council, Ottawa, 1935: 17, table IV. "Trend of Maternal Mortality in Canada"; see also *Handbook of Child Welfare Work in Canada*: 2.
22. MacMurchy, "Classification of Maternal Deaths" : 413, table 1, "Maternal Mortality Rates for the Years 1921-1928.
23. British Columbia Board of Health, *Report,* 1918: G226-230; see also Herbert B. French, "The Low Birth Rate of British Columbia--Some Causes and a Remedy," *Canadian Public Health Journal,* XVIII (June 1927): 263; for a discussion of the 1921 Dominion Census see Enid Charles, *The Changing Size of the Family in Canada,* "Eighth Census of Canada, Census Monograph no. 1" (Ottawa: King's Printer, 1941).
24. *Maternal Mortality in Canada:* 7.
25. *Ibid.*: 9-12.
26. *Ibid.*: 11-12.
27. British Columbia Board of Health, *Report,* 1921: A7.

28. F.W. Andrew, "Medical Inspection of School Children," *Women's Institute Quarterly,* 11(October, 1916): 9-13.
29. M.C. Urquhart and K.A.H. Buckley, *Historical Statistics of Canada* (Toronto: Macmillan, 1965): 32.
30. British Columbia Department of Vital Statistics, *Reports,* 1927 to 1960; British Columbia Board of Health, *Reports,* 1920 to 1927; Jo Oppenheimer, "Childbirth in Ontario: The Transition from Home to Hospital in the Early Twentieth Century, " *Ontario History,* LXXV (March, 1983): 36-59 notes convenience was a strong reason for hospitalization.
31. *The Canadian Mother's Book* (Ottawa: King's Printer, 1923): 5, 8.
32. *Ibid.:* 8; see also "A Series of Nine Prenatal Letters for the Protection of Mother and Child," The Division on Maternal and Child Hygiene, *The Canadian Welfare Council,* 1937, 7th edition.
33. *Maternity and Child Welfare,* June, 1920, cited in *Maternal Care* (Department of Health: Ottawa: King's Printer, 1931): 2.
34. Child Welfare Association of British Columbia, *Report,* 1918: 3.
35. *Ibid.;* see also *Report on Mothers' Pensions,* 1920: T3. "The Mother's Pension Act," came into effect July 1, 1920.
36. Atkinson, "Motherhood - Its Relations to our Country and the Empire," *Handbook of the Women's Institute,* 1913: M105.
37. Medical developments in obstetrical care are discussed and summarized in the following sources: Fred Bryans, "Obstetrics and Gynecology," in *The Woodward Wellcome Symposium: British Contributions to Medical Science,* W.C. Gibson, ed. (London: Wellcome Institute), 1977: 141-154; J.W. Ballantyre, *Expectant Motherhood: Its Supervision and Hygiene* (Toronto: Casswell), 1914; *Mothercraft* (London: The National League for Health, Maternity and Child Welfare, 1925): 1-44.
38. British Columbia, *Statutes,* "An Act Respecting the Profession of Medicine and Surgery, " May 20, 1898, Sec. 53, 55; for a discussion of the midwife vs. physician, see Claire Gilbride Fox, "Toward a Sound Historical Basis for Nurse Midwifery," *Bulletin of Nurse-Midwives,* XIV (August, 1969): 76-82; David Harris, "The Development of Nurse Midwifery in New York, " *Journal of Nurse Midwifery,* XIV (February, 1969): 4-12; Jean Dennison, *Midwives and Medical Men: A History of Interprofessional Rivalries and Women's Rights* (London: Heinemann, 1977); Diane Scully, *Men Who Control Women's Health* (Boston: Houghton Mifflin, 1980): 24-60; Jane B. Donegan, *Women and Men Midwives: Medicine Morality and Misogyny in Early America* (London: Greenwood Press, 1978); for a study of the situation in Ontario, see C. Leslie Biggs, "The Case of the Missing Midwives: A History of Midwifery in Ontario from 1795-1900," *Ontario History,* LXXV (March, 1983): 21-35.
39. *Golden Jubilee: 1900-1950:* 27; McKecknie, *Strong Medicine:* 15; see also Margaret A. Ormsby, *A Pioneer Gentlewoman in British Columbia* (Vancouver: University of British Columbia Press): 176; Susan Allison's first child, born in the 1890s, was delivered by a Native midwife; the three youngest Wray children to make the boat trip, Charles, Emily, and Ruth, were delivered by Vancouver midwives.
40. Jackie Holecka, "They Don't Make 'em Anymore Dept.," *Raincoast Chronicles, First Five Years* (Madera Park: Harbour Publishing, 1976): 52.
41. Margaret W. Andrews, "Medical Attendance in Vancouver, 1886-1920, " *BC Studies,* 40 (Winter, 1978-79): 49-52.
42. *Ibid.*: 46.
43. *Ibid.*: 47-55.
44. *Ibid.*: 49.
45. *Ibid.*: 49-50.

46. McKecknie, *Strong Medicine*: 155. R.E. McKecknie's father, Dr. W.C. McKecknie, practiced medicine in British Columbia from 1908 to 1946, and his uncle, Dr. R.E. McKecknie, from 1891 to 1944; see also Andrews, "Medical Attendance in Vancouver" : 55. Andrews notes an increase in Langis' income because of an increase in the number of obstetrical and surgical cases.

47. *Report of the British Columbia Royal Commission on Health Insurance,* March 18, 1921: 55-57. The *Report* lists the fees adopted by the Vancouver Medical Association and notes these fees are similar to those charged by other physicians throughout British Columbia.

48. McKecknie, *Strong Medicine:* 155; for a discussion of the history of childbirth, see Nancy Schrom Dye, "History of Childbirth in America," *Signs,* 6 (Autumn, 1980): 97-108; see also Richard Wertz and Dorothy C. Wertz, *Lying In: A History of Childbirth in America* (London: Collier Macmillan, 1977): 93; John Duffy, *The Healers: The Rise of the Medical Establishment* (New York: McGraw-Hill, 1976): 235, 271; Mitchinson, "Historical Attitudes Toward Childbirth,": 21-32; for comments by the Canadian Medical Profession on the dangers of untrained midwives and the advantages of having a physician attend a birth, see *Maternal Mortality in Canada* : 23-25.

49. British Columbia Hospital Association, *Report,* 1918 : 80; Herbert Murphy, *Royal Jubilee Hospital, 1858-1958* (Victoria: Hebben Printing, 1957): 25-26; *After the Wind: Vancouver General Hospital,* 1966, no page given.

50. *Maternity Care in the World, International Survey of Midwifery Practice and Training* (London: Pergaman Press, 1966): 128.

51. *Golden Jubilee: 1905-1950,* The British Columbia Medical Association, 1950 : 27. Following the formation of the British Columbia College of Physicians and Surgeons, physicians wishing to practice in British Columbia must achieve 75 percent in the examination in obstetrics and diseases of women and children. They need achieve 50 percent in anatomy; see also Dye, "History of Childbirth in America": 98; for a discussion of the role of health professionals, see Mitchinson, "Historical Attitudes Toward Women and Childbirth": 25-27; C.D. Naylor, "Medical Agression," *The Canadian Forum,* Vol. LX (April, 1981): 5-9.

52. Victorian Order of Nurses, *Report,* 1920 : 144; *Ibid.*, 1924 : 252; Vancouver Board of Health, *Report,* 1936 : 5; *Ibid.*, 1937 : 5; for an interesting discussion of the inter-health professional rivalries on the training of midwives see Suzann Buckley, "Ladies or Midwives? Efforts to Reduce Infant and Maternal Mortality," in Linda Kealey, *A Not Unreasonable Claim* (Toronto: Women's Press, 1979): 131-149.

53. P. Charlton, "Lesson from Public Health Nurse," *Public Health Nurses' Bulletin,* 1 (April, 1929): 6-7.

54. Audrey B. Payne, "Public Health Nursing in Montreal and Saanich," *PHNB*, 1 (March, 1931): 41.

55. British Columbia, *Statutes,* "An Act Respecting the Profession of Medicine and Surgery," 1898, Sec. 55; Rose, *From Shaman to Modern Medicine* : 10-11. Anaesthetic was first used in British Columbia in 1890 by Dr. Wm. Richardson during surgery at Victoria's Royal Jubilee Hospital; Diana Scully, *Men Who Control Women's Health* (Boston: Houghton Mifflin, 1980): 27. Scully suggests anaesthetic came into general use after 1860; see also *Physicians Panel on Canadian Medical History,* Canadian Medical Association, 1966, no page given; see also Duffy, *The Healers* : 152.

56. McKecknie, *Strong Medicine* : 188 ff.; Rose, *From Shaman to Modern Medicine* : 26. Dr. A.S. Underhill (Kamloops) and a neighbour administered the chloroform while he delivered a transverse arrest.

57. British Columbia Department of Vital Statistics, *Reports,* 1927-1950.

58. Andrews, "Medical Attendance in Vancouver" : 51; British Columbia Hospital Association, *Report,* 1918 : 11.
59. McKecknie, *Strong Medicine* : 183 ff.
60. Rose, *From Shaman to Modern Medicine* : 83, 85. Rates at Royal Columbian Hospital in 1885 were ten dollars a week. Patients were expected to assist on the ward, and non-paying patients helped with grounds work.
61. Rose, *From Shaman to Modern Medicine* : 82-83.
62. For a detailed list, see the *Report of the Royal Commission on Health Insurance,* March 18, 1921 : 52-69. The physician's fee for a delivery was probably thirty-five dollars or more. That fee did not cover hospital costs.
63. A.S. Munro, *The Medical History of British Columbia,* reprinted from *The Canadian Medical Journal,* 1931-1932 : 24; see also *Golden Jubilee, 1900-1950* : 57-62.
64. *Romance of Vancouver and Jubilee Number,* Native Sons of British Columbia, 1936 : 38.
65. *After the Wild Wind,* Vancouver General Hospital, 1966, Sec. 1905, Maternity; Vancouver General Hospital *Annual Reports,* 1903 to 1960; British Columbia Department of Vital Statistics, *Reports,* 1905 to 1960.
66. Vancouver General Hospital, *Reports,* 1903 to 1960; British Columbia Department of Vital Statistics, *Reports,* 1905 to 1960.
67. Herbert Murphy, *Royal Jubilee Hospital 1858-1958* (Victoria: Hebben Printing, 1957) : 25-26.
68. Munro, *The Medical History of British Columbia*: 25. No date is available on the women's hospital; Rose, *From Shaman to Modern Medicine* gives 1895 as the founding date of the Royal Columbia Hospital.
69. Rose, *From Shaman to Modern Medicine* : 75.
70. British Columbia Board of Health, *Report,* 1914 : F15; *Ibid.*, 1917 : H16-18; *The Report of the Vancouver Hospital Survey Commission Upon the Hospital Situation in Greater Vancouver,* 1930 : 37, lists Royal Columbia, Vancouver General, St. Paul's, Grace, Kitsilano Nursing Home, Chatham House, Hume and Bute Street Private Hospitals.
71. *Golden Jubilee, 1900-1950* : 58.
72. *Ibid.*: 43. The price was twenty-five dollars for a baby or thirty-five dollars to register baby in adopting parent's name.
73. British Columbia, *Statutes,* "An Act to Amend the Hospital Act," March 1, 1913.
74. *Ibid.*
75. British Columbia Board of Health, *Report,* 1914 : F15.
76. *Ibid.,* 1918 : G15. Frank de Grey, Hospital Inspector, reported thirty-five licensed private establishments in the province, fifteen in Greater Vancouver, six in Victoria, two each in Cranbrook and Kamloops, one each in Saanich, Port Coquitlam, Nelson, Prince George, and Britannia.
77. Wertz, *Lying-in* : 132-164. See also Neal Devitt, "The Transition from Home to Hospital Birth in the United States, 1930-1960," *Birth and Family Journal,* 4 (Summer, 1977) : 47-57; Jo Oppenheimer, "Childbirth in Ontario: The Transition from Home to Hospital in the Early Twentieth Century, " *Ontario History,* LXXV (March, 1983) : 21-35. Oppenheimer notes the shift to the hospital may have been for convenience of the physicians as well as to reduce infant and maternal mortality.
78. W.B. Burnett, "Maternity Work in the Small Community," *Report of the British Columbia Hospital Association,* 1918 : 80-82; for problems created by lack of equipment, see Victoria Order of Nurses, *Report,* 1925 : 247. BC District Superintendent E.D. Calhoun reported how a VON and an attending physician

braved two large billy goats guarding the front door of a home, and then shooed the baby chicks into the kitchen before they could proceed with the delivery.

79. Such a physician is exemplified by Dr. William Albert Moffett, general practitioner in Vancouver 1912-1940. Dr. Moffett attended patients in the following private hospitals: Miss Tolmies, Bute Street, Grandview, Haro Street, Salvation Army Grace. *Biographies of Early British Columbia Doctors,* University of British Columbia, Woodward Library, Memorial Room (three unpublished volumes). See also Victorian Order *Reports,* 1926 : 243; *Ibid.*, 1929 : 300; *Ibid.*, 1936 : 17; *Ibid.*, 1939 : 27; see also Wertz, *Lying-in:* 132-173; Devitt, "The Transition from Home to Hospital": 47.

80. British Columbia Hospital Association, *Report,* 1923 : 19.

81. Victorian Order of Nurses, *Report,* 1932 : 30.

82. Rose, *From Shaman to Modern Medicine* : 83-84.

83. British Columbia Department of Vital Statistics, *Reports,* 1927 to 1960.

84. Devitt, "Transition from Home to Hospital Birth" : 47-58. Devitt argues that home births were not less safe than hospital births.

85. British Columbia Board of Health, *Report,* 1922 : B7; *Ibid.,* 1923 : E7.

86. David Berman, "First Full-Time Unit at Saanich in British Columbia," *Bulletin of the British Columbia Board of Health* 6 (July, 1932) : 142.

87. Olive Garrood, "Public Health Kamloops," *Public Health Nurse's Bulletin,* May, 1930 : 20; see also Norah Armstrong, "The North Vancouver Health Unit," *Ibid.,* 1 (March, 1932) : 50.

88. Vancouver Board of Health, *Report,* 1920 : 17.

89. *Ibid.,* 1937 : 5; *Ibid.,* 1936 : 5; see also *Report of the Vancouver Hospital Survey Commission Upon the Hospital Situation of Greater Vancouver* 1930: 24-25, 27. Apparently the only prenatal work in Vancouver was conducted by the VON and by the Salvation Army Grace Hospital.

90. "Victorian Order Encourages Self-help for Body and Mind," *The Vancouver Province,* October 5, 1936 : 12; see also Victorian Order of Nurses, *Reports* 1936 : 188. The report notes a series of nine women's health education classes with twenty-four women enrolled.

91. "Victorian Order Encourages Self-help" : 12.

92. *Ibid.,* Victorian Order of Nurses, *Report,* 1936 : 12.

93. Garrood, "Public Health in Kamloops" : 29; Helen Kely, "Saanich," (October, 1924) : 10; A.J. Lee and M.J. Wood, "Nanaimo," 1 (April, 1926) : 9-10; Hilda Barton, "Summary of Year's Work," *Ibid.,* 1 (March, 1932) : 10-11; Armstrong, "The North Vancouver Health Unit," *Ibid.* : 49-51.

94. British Columbia Board of Health, *Report,* 1921 : B6; see also *Handbook of Child Welfare Work in Canada* : 26.

95. British Columbia Department of Vital Statistics, *Reports,* 1927 to 1931; British Columbia Board of Health, *Reports,* 1927 to 1931.

96. British Columbia Board of Health, *Report,* 1936 : M33; *Ibid.,* 1937 : M32.

97. Myrtle Harvey, "The Effects of the Depression on Public Health," *Public Health Nurse's Bulletin,* 1 (March, 1932) : 41.

98. Victorian Order of Nurses, *Report,* 1922 : 59. *Ibid.,* 1929 : 302; *Ibid.,* 1936 : 187.

99. *Ibid.,* 1920 : 144.

100. Audrey Payne, "Public Health Nursing in Montreal and Saanich," *Public Health Nurse's Bulletin,* 1 (March, 1931) : 15-17; Victorian Order of Nurses, *Report,* 1923 : 245; *Ibid.,* 1928 : 271.

101. Nora Higgs, "Child Welfare Work in Saanich," *Public Health Nurse's Bulletin,* 1 (April, 1928) : 14-15; Florences Fullerton, "Saanich," *Ibid.,* 1 (April, 1925) : 2-4.

102. V.S. Maclachlan, "Child Health in British Columbia," *Canadian Public Health Journal,* XIV (January, 1923) : 119-126.
103. *Nine Prenatal Letters,* British Columbia Board of Health, 1931 ed. Although these letters were available from as early as 1920, no set from that period appears to be available.
104. *Ibid.,* Maclachlan, "The Prenatal and Postnatal Letter Service - The Experience of a Women's Institute Member," *Bulletin of the British Columbia Board of Health,* 7 (August, 1937) : 138.
105. British Columbia Board of Health, *Report,* 1939 : CC9.
106. Maclachlan, "The Prenatal and Postnatal Service" : 7.
107. Bertha Hall, "Must Women Die?" *Chatelaine,* July, 1928 : 6-7; Anne E. Wilson, "Teaching Men to Legislate for Women: A Remedy for the Loss of Canadian Motherhood," *Ibid.* : 8; Charlotte Whitton, "For the Children of the World," *Ibid.,* August, 1928 : 6-7; Stella E. Pines, "We Want Perfect Parents," *Ibid.,* September, 1928 : 12-13; J.W.S. McCullough, "Should Canada Have Midwives?" *Ibid.,* October, 1931 : 12; "The Baby Clinic - The Baby's Mother," *Ibid.,* August, 1935 : 46.