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Medical History

Two Hundred Years of Midwifery 1806 – 2006

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The Belfast Medical Society – a forerunner of the Ulster Medical Society – was founded in 1806. Following the Act of Union, in 1801, Ireland lost its own Parliament but Dublin remained the administrative capital of the country. Indeed, at that time, many regarded Dublin as the second city in the Empire. It was only natural that all the seats of learning – University and College – had been established there. Dublin University (Trinity College) had been granted a Royal Charter by Queen Elizabeth I in 1593. However, a medical school was not established in the college until 1711.[1] The College of Physicians in Ireland was granted its Charter by King Charles II in 1667. In the reign of William and Mary in 1692, it was granted another Charter which enabled it to grant licences in Medicine and Midwifery.

The College of Surgeons was granted its Charter by King George III in 1784. It appointed its first Professor of Midwifery in 1785. It was not until 1828 that the College established a Diploma in Midwifery and one in Diseases of Women and Children. In 1745, a Charter was granted to the Society of Apothecaries which enabled its officers to control the manufacture and sales of medicines in Ireland. In 1837 a School of Medicine was established.

The paper has been divided into four main sections:

1. What was the State of Midwifery in 1806?
2. Developments from 1806 - 1921 when Northern Ireland was established.
3. Developments from 1921 - 1948 when the National Health Service started.
4. Developments from 1948 - 2006.

WHAT WAS THE STATE OF MIDWIFERY IN 1806?

In Wilson's Almanac of 1775 in Dublin there were 112 registered physicians and surgeons.[2] Only 12 were licensed to practise midwifery. In 1770, lectures in Midwifery for medical students and midwives had commenced in the Rotunda Hospital. There are no details of the content of either the lectures or the numbers who attended.

Physicians were the only medical practitioners to have even a smattering of scientific training. Surgeons and apothecaries received their training as apprentices. Regulations as regards qualifications and the right to practise were rarely enforced.

The position of obstetricians ("men midwives") was even poorer. Midwifery was looked upon by physicians as totally beneath their high calling. In case of difficulty they were sometimes called in consultation, but as they had never studied the subject, their advice was of little use. The situation for midwives was even worse. In 1692 the College had been empowered to examine and license midwives. In the following 50 years only four had been granted a licence to practise. Indeed in 1753, the College issued a statement in which they refused to license in medicine any person who practised midwifery. Midwifery was learned the hard way – both for the patient and attendant. A few doctors went abroad to study the subject.

Bartholomew Mosse (*fig 1*) studied the subject in Holland and France. His friend Fielding Ould studied in Paris. Ould obtained a licence from the College of Physicians to practise midwifery. In 1769 he delivered the Countess of Mornington,

Fig 1. Bartholomew Mosse.

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near Dublin when she was returning from a holiday in the family home in Belvoir Park, Belfast. The baby, a boy, later became the Duke of Wellington, the victor of the Battle of Waterloo. After he had been knighted for his services to the Countess he applied to Trinity College to be examined in Medicine. The authorities of Trinity and the College of Physicians had an agreement not to award a degree in Medicine to one who practised Midwifery! After acrimonious negotiations, both Trinity and the College eventually awarded him a degree in Medicine.

Pregnancy was regarded as a normal event so no special attention had been given to pregnant women during the antenatal period and in labour. When Mosse returned to Dublin in 1742 he was horrified at the conditions in which poor pregnant women lived, were delivered and reared their children. He wrote "Their lodgings are generally in cold garrets open to every wind, or in damp cellars subject to floods from excessive rains; themselves destitute of attendance, medicines and often proper food; by which hundreds perish with their little infants and the community is at once deprived of mother and child."

He immediately decided to help. He collected money from friends and opened, in 1745, the Dublin Lying–In Hospital in Great George's Street. It contained facilities for twelve beds. This was the first lying-in hospital in Ireland and the second in the British Isles – the forerunner of Queen Charlotte's had been opened in London in 1739. In 1787 he had collected sufficient funds to open a larger hospital, still known today as the Rotunda Hospital, a name taken from the Concert Hall built in the grounds of the hospital and used as a source of income for the hospital.

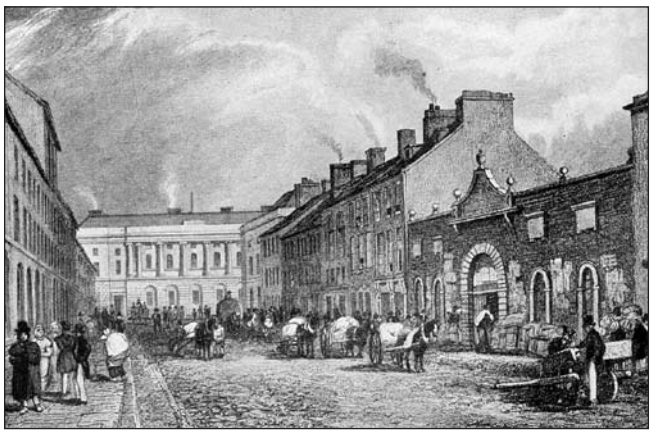

Fig 2. Lying-In Hospital – Donegall Street.

In Belfast conditions for pregnant women were the same as in Dublin. In contrast to the work of Mosse and his friends, doctors did not take part in the establishment of the first lying-in hospital. The suggestion to provide one had been made by the Revd John Clark, then a curate in St Anne's Church. A charity called "The Humane Female Society for the Relief of Lying-In Women" was established at a meeting in the Linen Hall in 1793. The original 180 members subscribed 10s 6d each per year. A house, 25 Donegall Street, (*fig 2*) was rented. It held six beds for patients. It opened in 1794. During 1803, sixty three women were delivered. The resident staff was a midwife and a maid. If difficulties arose the midwife had permission to call in a Dr Stephenson for advice.

DEVELOPMENTS FROM 1806 – 1921

In 1806 all pregnant women were delivered at home except the few who were admitted to the lying-in hospitals in Dublin and Belfast. The majority were delivered by 'handy-women' – ladies who had no training but had learned from older women or their own experiences of pregnancy and labour.

The population of Belfast increased dramatically – due to the ravages of the famine during the 1840's in the West and South of the country. In addition, there was rapid industrialisation in the City with the development of a cotton manufacturing industry, followed by the linen industry – both employing mainly female workers. At the same time there was also a rapid development in shipbuilding, which, of course, employed men.

In 1806 the population was 22,000. There were 19 doctors[2] in the city. In 1831 the population was 50,000 while in 1881 it had risen to 100,000. At the end of the century it was 348,180.[3] This rapid expansion led to gross overcrowding which in turn led to a series of epidemics with a very high mortality.

The Rev W M O'Hanlon's letters in the Northern Whig drew attention to the deplorable conditions of the poor who inhabited the back streets, courts and alleys of the rapidly expanding and populous town. The letters were later published in a book.[4] In that year (1882) Dr Andrew Malcolm[5] read a paper to the British Association which was holding its meeting in Belfast. He gave proof of the connection between filth and fever. He reported that in the epidemic during 1847, 70% of the homes deficient in sewerage had fever while in those with such facilities only 19% had the problem. He calculated that in 1852 the average age of death in Belfast was nine years because infant mortality was absolutely excessive. It was in these homes that women were delivered.

Developments in the Speciality

The establishment of lying-in hospitals stimulated interest in and research into the care of pregnant women and drew attention to the necessity of improvements in the practice of Midwifery.

The first development was the result of work carried out by a doctor from Northern Ireland in Paris, and later in Dublin. John Creevy Ferguson was born in Tandragee, Co Armagh in 1802. His father, an apothecary, moved to Dublin to enable his family to have a better life. The boy was educated in Dublin and enrolled in the Trinity Medical School from which he graduated in 1823. In that year, he went to Edinburgh with his friend William Stokes for one year and then went to Paris for another year.

In 1816, Laennec had invented the first stethoscope. Ferguson met him and his colleague de Kergardac. The latter invited him to listen to the abdomen of a pregnant patient in anticipation of hearing the fetus splash in the liquor. Instead he heard the fetal heart. Thus, Ferguson was the first person from the British Isles to hear the fetal heart. He returned to Dublin. He commenced practice as a physician but demonstrated the

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use of the instrument to colleagues in the Rotunda Hospital. It was immediately introduced into the routine work in the hospital. In 1833, Evory Kennedy, while Master of the Rotunda, published his experiences of fetal auscultation. Many readers believed that he had introduced the stethoscope into obstetric practice!

Fortunately, Ferguson[6] had read a paper to members of the Association of Fellows and Licentiates of King's and Queen's College of Physicians in Ireland in November 1829. In the paper he described the use of the stethoscope in three women to confirm the diagnosis of pregnancy. He was appointed in turn Professor of Medicine in Apothecaries Hall 1832, Professor of Medicine in Trinity College in 1846 and finally moving to Belfast in 1850, he became the first Professor of Medicine in the new faculty of Queen's College. In 1862 he became the first President of the Ulster Medical Society which had been formed by the amalgamation of the Belfast Medical and the Belfast Clinical and Pathological Societies.

Professor JHM Pinkerton[7] extensively researched the life and work of Professor Ferguson. He found a photograph of Ferguson in the College of Physicians in Dublin. At the conclusion of his lecture to the Society he presented a photograph of Ferguson to Dr Margaret Haire, the then President, for display in the Society Rooms.

Intermittent fetal monitoring using the fetal stethoscope has now been used for many years during antenatal examinations and regularly during the course of labour. Irregularities in the heart rate were regarded as a sign of fetal distress. Recently its use in practice has been replaced by ultra-sound studies.

The second development in the diagnosis of pregnancy also took place in Dublin. William Featherstone Montgomery (*fig 3*) was born in Dublin in 1797 and died there in 1859. In 1829 he had been appointed as the first Professor of Midwifery in the College of Physicians, Dublin. He was an extremely able doctor and was twice elected President of the College. Despite this, little was known about him by local obstetricians until 1958 when the American Medical Historian Harold Spreet, included the life of Montgomery in his book "Obstetric and Gynaecological Milestones".[8] This stimulated Professor J B Fleming[9] to seek further information about him. These findings were later published.

Fig 3. Professor WF Montgomery

Before the development of biological and biochemical tests for the diagnosis of pregnancy the doctors only means of assessment were the interpretation of the various body changes which the pregnant state produced. A series of such signs were named after various authors, for example, Hegar, Braxton Hicks, Jacquemier etc. Breast changes in pregnancy were first adequately described in English by Montgomery in his book 'An Exposition of the Signs and Symptoms of Pregnancy' published in 1837.

In the book, Montgomery[10] produced seven coloured drawings of a patient's breasts from the third until the ninth month. The patient permitted an artist to do this at each visit. With each drawing, Montgomery wrote a long description of the changes from previous months. The change in colour from a delicate pink to a deep red in the areola was noted. He also pointed out that a regression in the colour change was due to an intra-uterine death.

Montgomery did not have an attachment to any of the well known Lying-In Hospitals. Although the fetal stethoscope was in common use in Dublin he did not refer to it in his book. His method could not compete with it and soon fell into disrepute. He had been honoured by noting the colour changes in the areola during pregnancy but today is only remembered for the presence of Montgomery's Glands – sebaceous glands – in that part of the breast.

His great grandson was the late HL Hardy Greer, for many years senior obstetrician and gynaecologist in the Royal Hospitals, Clinical Lecturer in Queens and Council Member of the Royal College of Obstetricians and Gynaecologist in London. He was also the first assessor of Maternal Deaths in Northern Ireland. The first specialist staffed maternity hospital in Downpatrick was named Hardy Greer House in his honour.

Further Development in the Service

The hospital in Donegall Street soon became too small. In 1830 a larger hospital having 18 beds was opened in Clifton Street, (*fig 4*) built on land owned by the Belfast Charitable

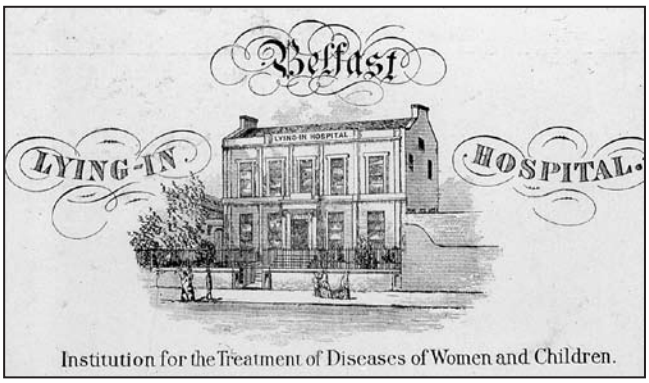

Fig 4. Lying-In Hospital – Clifton Street

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Fig 5. Belfast Incorporated Lying-In Hospital – Townsend Street.

Society. In 1837 Dr Burden (later Professor) replaced Dr Stephenson.

The next milestone was the passage of the Poor Law Act in 1838.[11] One hundred and thirty "Unions" were created in Ireland. Each was managed by a Board of Guardians. In each Union a workhouse to accommodate paupers was built. These were built to a definite plan to house 200 to 1,000 paupers. The Belfast Workhouse held 1,000 people – men, women and children. Obviously a small number of pregnant destitute women were delivered in these institutions.

At this time there were many dispensary doctors in the Province who were employed by various bodies. In 1862 the Charities Act was passed. This led to the establishment of 180 dispensary districts in the Province. All these were managed by the Boards of Guardians. A dispensary doctor and midwife were appointed in each district. The doctors duties were to care for the poor and destitute while the midwife was expected to deliver the poor pregnant women.

In 1898 local councils – urban and rural were established. They were empowered to offer ante-natal care to all pregnant women. These midwives did not undertake any deliveries. In 1921 only 21 of the 64 councils now comprising Northern Ireland offered this service. Many women had to pay 'handy-women' or a midwife to care for them in labour.[12]

There was a gradual development in hospital deliveries. The Lying-In Hospital in Clifton Street became too small. In November 1904 it transferred to a larger hospital with 28 beds in Townsend Street, now known as the Incorporated Belfast Maternity Hospital (*fig 5*).[13] In the Union Infirmary Ward 11 was reserved for pregnant women. In time this became too small so a dedicated maternity hospital "Ivy Cottage" together with a nurses home was built adjacent to the Infirmary. The unit contained 30 beds.[14] A small unit – St Mary's Maternity Hospital opened in 1912 in Londsdale Terrace as part of the Mater Infirmorum Hospital. It closed early in the First World War and the beds were used for injured soldiers returning from France.[15] In 1912 only 8% of deliveries took place in hospital in the Belfast area.[16]

Caesarean Section was rarely performed. In 1816 Dr Todd performed the first operation in the Rotunda Hospital on a Mrs McClarey from Loughbrickland, Co Down. The baby survived but the mother died. In 1829 Dr McKibben performed the operation in the Belfast Lying-In Hospital. The antero-posterior diameter of pelvic brim was only 1½ inches. No anaesthesia was used. The baby was still born and the mother died seventeen hours later. In 1849 Dr John Campbell, Medical Officer to the Lisburn Infirmary performed the operation in the patient's home – described as a wretched cabin – near Dromara. Chloroform was used. Simpson of Edinburgh had only reported its use in obstetrics in 1847.[17]

The use of the obstetric forceps is always associated with the Chamberlain family in England. They always performed the delivery under a sheet so that no one could see the procedure! Many Irish obstetricians had their own special forceps made. None are in use except the Neville axis traction handle which fitted on to the Barnes forceps. The handle was necessary during a high cavity operative delivery. The operation has been abandoned and in such situations delivery is now effected by Caesarean Section. The axis traction handle is still in use in a low cavity forceps delivery. Neville, an Assistant Master in the Coombe, introduced his handle in 1886.[18]

Feeding of the infant using cows milk was attempted in the 18th Century. Frequently, the milk supplier had diluted the milk, which again was diluted by the attendant, so the calorie count was low on many occasions! Attempts were made to make artificial teats from linen, leather or sponge – all fertile fields for bacteria! The milk was not pasteurised and frequently it contained the bovine tuberculous organism.

Breast feeding has always been a problem but at this time before the introduction of the modern artificial milk feeds, the inability of a mother to breast feed regularly led to the death of the baby. In each annual report from the lying-in hospital an appeal was made to other mothers to act as a wet nurse for such infants.

Development of Medical Education

In 1835 a medical school was established in the Royal Belfast Academical Institution (INST).[20] Professors were appointed to various faculties. Dr Little was appointed as Professor of Midwifery. The school closed in 1849 and students transferred to newly opened Queen's College. Dr Burden[13] was appointed to the Chair in 1840 and moved to the Queen's College in 1849. Burden had a junior attachment to the Lying-In Hospital. He was succeeded by RF Dill in 1867. He retired from the Chair in 1893. Prior to his appointment, Dill had resigned from the staff of the hospital so he taught his students practical midwifery in the patients homes and gave his lectures in his own home. He was succeeded in 1893 by Professor JW Byers. Prof CG Lowry succeeded him in 1920.

There was a marked antipathy to training of medical students in midwifery. Three students attended the lying-in hospital in 1854. In the following year members of the Charitable Society did not approve and demanded rent from the hospital committee. The hospital had been built on land owned by the Society in Clifton Street. The Bishop of Down and

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others withdrew their annual subscription and in turn the Management charged both Professor Burden and the students fees for the use of the facilities!

In 1852 an ordinance of the University had shown a standard of training which was higher than that demanded by the General Medical Council today. The General Medical Council was established in 1858. In 1886 the Council made it compulsory for students to be proficient in midwifery. The present rules were adopted in 1906. All Universities in Ireland award the degree of Bachelor of the Art of Obstetrics (BAO). The degree is not registered by the General Medical Council.

The Training of Midwives

Professor Burden attempted to train midwives in the hospital. He invited a Mrs Hamill to the hospital – to attend on the same terms as a medical student. In addition he arranged to give her extra tuition on a one to one basis.

The Obstetrical Society was founded in London in 1870.[14] This body conducted examinations and issued certificates of proficiency in Midwifery until 1905 when it was replaced by the Central Midwives Board. Pupil midwives had to travel to London to take this examination. In April 1901, in Ireland, a Code of Training was laid down. The course of training, which until then was only 3 months, was now increased to six months in recognised hospitals. An Ulster Board of Examiners was established. The examination consisted of both a written paper and an oral examination.

The Midwives Act (Ireland) was not passed until 1918. It controlled the training and registration of midwives. It also forbade unregistered midwives to practice and outlawed the use of 'handy-women'.

DEVELOPMENTS FROM 1921 – 1948

In 1921 Northern Ireland was established as part of the UK. In 1924 Sir Dawson Bates established an enquiry to examine the provision of the health service. In 1928 the Minister thanked the Committee but stated that there was no money to carry out any of its recommendations.[12] At that time the Province had the highest maternal mortality and second highest infant mortality in the United Kingdom. Several of the Union Infirmaries were converted to district hospitals, and the Minister was loathe to agree to these changes as hospitals were a charge on the Exchequer, while Infirmaries were supported by the Poor Law Rates! These hospitals were usually staffed by local general practitioners. Pregnant women with complications could be admitted to these hospitals as fee-paying patients.

The first hospital antenatal clinic was established in 1921 by HL Hardy Greer[19] in the Incorporated Maternity Hospital in Townsend Street. This was a very important step as often as that time this was the first occasion at which the women had a complete medical examination – being before the school medical service and the pre-employment medical examination. At this examination medical problems were diagnosed and treated, some problems in pregnancy could be prevented and complications like transverse lie or breech presentation corrected.

In 1933 the lying-in hospital moved to its present site and became the Royal Maternity Hospital. (*fig 6*) A ward was reserved for septic patients. It was opened officially in 1934.[20] In 1935 the Belfast Board of Guardians officially opened the Jubilee Maternity Hospital.[14] (*fig 7*) Ivy Cottage (*fig 8*) was retained as an isolation unit for patients with puerperal sepsis. The Management of the Mater Infirmorum Hospital opened a 24 bed hospital in 1942. These three specialist hospitals were staffed by ten consultants. There were no specialist units outside Belfast.

Fig 6. Royal Maternity Hospital.

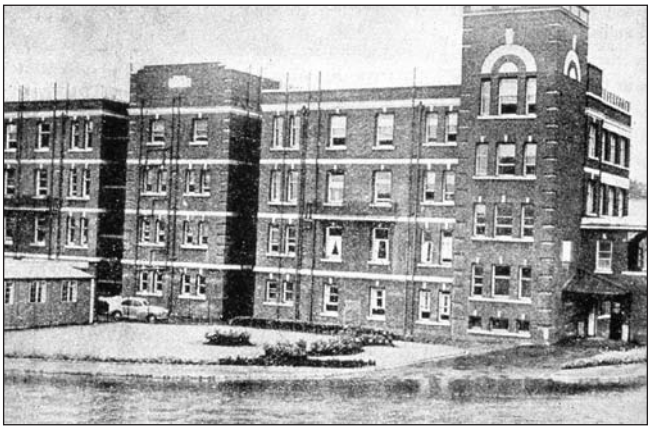

Fig 7. Jubilee Maternity Hospital.

Fig 8. Ivy Cottage.

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In 1926, Dr Bailie, Medical Officer of Health for Belfast wrote to the local branch of the British Medical Association reporting that 27 patients in the district had been notified to have developed puerperal sepsis in the previous three years 1923 – 1925. Thirteen had died. They all lived in poor circumstances and the husbands had been unemployed. Among the survivors he reported that eleven had comfortable homes. (A Eakins, personal communication 2005).

A very limited ante-natal care service was commenced in Jubilee in 1938.[14] Only patients who attended a Dispensary Doctor could be seen at the clinic or admitted. These women were poor or destitute and been given a 'line' by an officer of the Guardians. Likewise only dispensary doctors – they being employees of the Board of Guardians – could have patients admitted to Jubilee. While the Royal Maternity had "booked" and emergency admissions, the vast majority of patients were admitted with complications which had developed in their own homes.

In 1936 the first enquiry into maternal mortality was held in the Province. The rate was 7.3 per 1000 live births. In 1941 members of the Belfast Corporation Health Committee invited Dr Carnwath[22] to investigate health problems in the City. One of his recommendations was the establishment of the Obstetrical Emergency Service (Flying Squad) based in the Royal and Jubilee Maternity Hospitals.

At this time the majority of pregnant women were delivered at home. In 1947 52% of patients in Belfast were now delivered in hospital.[16] There were no maternity hospital provision outside the city. The condition of many houses was still very bad. They have been described by Nic Suibhne,[23] Ballard[24] and a Ligoniel midwife.[25] Many 'handy-women' were still in practice despite the fact that their actions had been made illegal in 1917 (Donaldson).[26] They did not charge fees but usually received a small financial gift from the patient.

Analgesia was rarely available. Intermittent chloroform was often given in the later stages of labour if a doctor had been engaged to perform the delivery. "Twilight sleep" induced by morphine and scopolamine was used by specialists in private practice.

Obstetricians now began to look at their practice and analyse their results. Mr McClure[27] published the results of a series of twin deliveries in the Incorporated Hospital in Townsend Street and the Royal Maternity Hospital between 1926 – 1937. The maternal mortality was 25.5 per thousand live births and the corrected infant mortality was 66 per thousand. In another paper, also published in 1937,[28] he reported on the maternal mortality in both the hospitals from 1926 – 1937. The overall maternal mortality was 12.9 per 1000 live births but 51.5 per 1000 live births in the group of emergency admissions.

Breech delivery was always associated with a high infant mortality. Macafee and McClure[29] discussed all such deliveries in the Royal Maternity Hospital between 1932 – 1936. There were 349 such deliveries. The uncorrected fetal mortality was 33.8%. The corrected figures for primigravidae was 10% and for multiparous women was 3.42%. In the article they described what became known as the "Belfast Manoeuvre" to the extended posterior arm. Breech delivery is seldom performed today. In the majority of such patients the delivery is by elective Caesarean Section. With the availability of ultra sound the diagnosis is seldom missed.

Rupture of the uterus is a serious complication which few obstetricians would have to deal with today. Mr JA Price read a paper[30] to members of the Ulster Obstetrical and Gynaecological Society in which he described the management of and results of treatment in Jubilee Maternity Hospital between 1937 - 1954. There were 30 such patients. In only four was there a previous uterine scan. The other causes were an abnormal lie or disproportion. The mortality was 30%. He pointed out that the last 10 patients admitted between 1948 – 1954 survived after the beginning of the National Health Service. He attributed this to both the ready availability of blood transfusion and expert anaesthesia.

Fig 9. Professor CHG Macafee.

Of great importance was the introduction of the Conservative Treatment of Placenta Previa.[31] This method was based entirely on the clinical observation of CHG Macafee (1937 – 1945) (*fig 9*) in the Royal Maternity Hospital. Although the placenta can now be located by ultrasound Macafee's management is still standard practice throughout the world. Delivery may be effected earlier than recommended in some hospitals with excellent neonatal services.

The Training of Medical Students and Doctors 1921 – 1948

It was not until the appointment of Professor CG Lowry that teaching, as we know it today, was revised. The format of the course was continued by Professor Macafee. Formal lectures were given on four days each week for 30 weeks in the University in the penultimate year of Training. In the final year, three lectures and one case discussion were given for 30 weeks by the Consultant staff of the Royal Maternity Hospital. In the final year there were two months

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of compulsory residence in a recognised teaching hospital and the delivery of twelve patients under supervision. Until the late 1940's many of the students undertook their practical training in the Rotunda Hospital, Dublin. Student deliveries in that unit were based in the huge district service which the hospital controlled and as future general practitioners would practise in such circumstances many felt that this experience was superior to that offered locally.

There was no formal training for doctors. A few would have gained some experience while acting as "house-men" in the specialist hospitals. Several specialists obtained the Fellowship of the Royal College of Surgeons in Edinburgh which had an examination in Midwifery and Gynaecology.

In 1929 the College (later Royal) of Obstetricians and Gynaecologists was founded in London. Professor Lowry was a founder member. Several consultants were granted honorary membership. Examination for its Diploma or Membership commenced in 1932. The Belfast Hospitals were not recognised for training until 1947.

The Training of Midwives 1921 – 1948

In the Province, Midwives trained in the Belfast Incorporated Maternity Hospital (later in 1934 to become the Royal Maternity Hospital), the Belfast City Hospital (known as the Union Infirmary until 1942) and in the Union Infirmary in Lurgan, and Malone Place Hospital, Belfast. The course of training was increased from 4 months to 6 months in 1926. The course was again lengthened to one year in 1937.

DEVELOPMENTS FROM 1948 – 2006

Service Provision

The Health Services Act (NI) 1946 swept away all piecemeal health care. Free health care was offered to all from 5 July 1948. County Health Committees became responsible for domiciliary midwifery, the fees of family doctors who cared for pregnant women, the provision of a free home help service in difficult pregnancies and a maternity grant to all patients. The Hospitals Authority was made responsible for all maternity hospitals – specialist and general practitioners. Specialist hospitals were established throughout the Province – the last being in 1963. General practitioner hospitals both "stand-alone" and adjacent to specialist units also were established – the last being in 1973.

The facilities offered to the domiciliary patients was enormous including the building of many new homes in the post war era. But the increasing number of women in employment meant there was a sharp decrease in help from family and neighbours, at and after delivery, so home confinement reduced dramatically. In turn the newer developments in the speciality, e.g. monitoring and scanning increased the demand for confinement in specialist units at the expense of both domiciliary deliveries and general practitioner units. General practitioner hospitals gradually closed – Sanderson[32] and Rutherford[33] have described their work as general practitioner obstetricians.

It was the policy of Government to maintain a large domiciliary service. Women who had their baby at home received a monetary grant which was not given to those delivered in hospital. However, there was a constant demand for hospital beds. This was achieved by the earlier discharge of women and their babies to their homes. In 1948 after delivery in hospital, women remained in bed for 12 days, were then allowed up to toilet etc. for two days before discharge. In many hospitals today some women are discharged within 12 hours of delivery! It had been hoped that many would breast feed their babies as there was constant midwife availability. Unfortunately this did not happen.

The tremendous developments in medical knowledge in the speciality and other specialists who offered services to obstetricians revolutionised maternity care. Many general practitioners only undertook ante-natal care so the general practitioners maternity hospitals closed – the last in 1990 as did the domiciliary service.

With an improved ante-natal service, attention to the fetus in utero and the baby after birth developed. Perinatal Surveys were carried out in England and Wales in 1958 and 1970. The term perinatal mortality which includes stillbirths and first week neonatal deaths was first used in England in 1953 and is regarded as a guide to the standard of care offered to mother and baby. A survey was undertaken here of neonatal deaths in 1976. One of their recommendations was the establishment of a committee to investigate infant mortality and handicap in the Province. This committee chaired by Dr Baird recommended that maternity hospitals should be large enough not only to have sufficient obstetricians but also dedicated obstetric anaesthetists and neonatologists. This report was accepted and many of the smaller specialist maternity hospitals have closed. They include Tyrone County (1992), Waveney (1994), Larne (1994), South Tyrone (1999), Ards (1997), Ballymoney (2001), Downpatrick (2003). The closure of Jubilee and transfer of services to Royal Maternity was made not because of this report but the lack of cardiac neo-natal services. The transfer took place in 2000. Several specialist hospitals which do not fulfil the recommendation of the "Baird Report" remain open. On 28 September the Minister of Health announced that £300,000,000 was to be spent on a new Children's and new Maternity Hospital to replace present hospitals on the Royal site. He allocated £2.62 million to Management to plan the new hospitals. Work is expected to start in May 2008 and be completed in 2017.[35]

During the 1970's the introduced of the 'Syntocinon" drip and the use of Prostaglandin made induction of labour a much safer procedure than the old fashioned Oil, Bath and Enema. Obstetricians gradually changed their motto from that of "Masterly Inactivity" to that of "Active Intervention". This led to an increase in the rate of delivery by Caesarean Section. In 1953[40] the rate in Northern Ireland was 2.8% whereas in 2004 it had risen to 27.48%. (Margaret Boyle personal communication).

Development of the Speciality and those Allied to it

Electronic fetal monitoring had been introduced in the USA by Hon in 1950. It was first used in Belfast in 1970 by Professor CR Whitfield[36] who had trained in that unit. Ultrasound scanning of the pregnancy had been developed in Glasgow by Donald in 1958.[37] The first commercial machine was brought into the Province in 1973 by Professor JHM Pinkerton. Rhesus incompatibility[38] was a major problem in the Province. At one time 15% of all admissions into Royal

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Maternity had this problem. Clarke and his colleagues in Liverpool developed a prophylaxis programme. This was introduced into clinical use in the Province in 1968.

The development of a group of doctors who dedicated their work to obstetric anaesthesia led to the increased safety of operative obstetrics. Hospitals could now offer a 24 hour epidural analgesic service. A society of like minded doctors to advance this sub-specialty was founded in 1976. Dr M Lewis was the local founder member.

Family Planning

For generations this was achieved by abstinence or coitus interruptus – both unsatisfactory methods. Male barrier methods using various products have been used from pre-historic times but it was not until the 1930's when latex was developed that the condom became a satisfactory method. Female barrier methods were not introduced until the late 19th century.

The first attempt to establish a clinic in the Province was made by Marie Stopes in 1934.[39] This closed in 1947 due to a lack of demand! A small clinic started in Royal Maternity Hospital in 1940 and a second in Malone Place Hospital in 1951. A revolution took place when the contraceptive pill was introduced into clinical practice in 1963. These drugs became freely available on the National Health Service. A major advance in the provision of this service was achieved when all forms of family planning became part of the National Health Service in 1974.[40]

Blood transfusion[41] has saved many lives. The service was established here by Sir Thomas Houston and Professor JH Biggart in 1943. Dr Ruth Huth became the first full time Director in 1946. Not only was blood readily available but every pregnant women had blood grouping and other tests carried out by the services. The anti-D serum used in Rhesus negative was obtained by removing blood from patients with the complication. As the numbers decreased the officers of the service injected D antigen into Rhesus negative male volunteers in order to maintain supplies of the serum.

Investigation into the problems of babies with congenital abnormalities was started when Dr (later Professor) N Nevin was appointed to the Department of Epidemiology and Medical Statistics in Queen's University in 1969. He held clinics in both Royal Maternity and Jubilee Hospitals. Amniocentesis was performed where necessary.

Neonatology

The greatest advance in the entire obstetrical and allied services was that of Neonatology. Following the various reports Neonatal intensive care units were established in 3 hospitals, Altnagelvin, Craigavon and then Ballymena/Antrim complex – now Antrim only. A highly sophisticated Regional intensive care unit was developed in the Royal Maternity Hospital.

Obstetric consultants were encouraged to send women in premature labour to these hospitals. A 'neonatal flying squad' was recommended to transport the premature babies if delivered in a hospital without adequate facilities.

The presence at all "difficult" or premature births of a doctor trained in neonatology improved the survival of many babies. The use of oxygen administered intermittently by a face mask was replaced by passing of an endotracheal tube. Whiskey on a midwife's finger was replaced by modern drugs! Heated resuscitation cots were provided in all labour wards.

Respiratory distress syndrome was first described as a specific pathological entity in 1953 when it was known as 'hyaline membrane disease'. The Lecthin Sphingomyelin Area Ratio (LSAR) test performed on liquor obtained by amniocentesis was a test which could predict respiratory problems. Whitfield *et al*[42] developed this test from one introduced by Gluck. For many years Belfast was the most advanced centre for this study in Great Britain. It was known that the use of surfactant would prevent the complication. Using artificial surfactant produced in Sweden, Halliday[43] and his colleagues reported dramatic results. Numerous multi-centre clinical trials have been performed. Professor Halliday[44] was the co-ordinator for the European trials.

Much research has been undertaken in the Royal Maternity Hospital into the nutritional problems of premature babies. Special high calorie 'milks' for premature babies have been manufactured following this work. Halliday[44] was able to report on 40% survival of babies weight less than 1000 grams.

The Training of General Practitioner Obstetricians

At the beginning of the National Health Service all doctors who practised midwifery were placed on the obstetric list. From January 1967 it became compulsory to have completed 6 months as a houseman in a recognised hospital before admission to the list was granted. Thereafter the doctor had to attend a certain number of deliveries and attend refresher courses to remain on the list. As the number of births decreased these regulations had to be frequently altered. In Northern Ireland doctors did not get a fee for shared antenatal care with the hospital staff unless they were on the Obstetric List.

The Training of Specialist Obstetricians

The training of the Specialist Obstetrician is controlled by the Royal College of Obstetricians and Gynaecologists. Like general practitioners the course of training has been changed. There are now 4 sub-specialities within the overall training. The minimum requirement for a consultant appointment is to hold the membership examination of the College or equivalent.

For many years the College acted only as an Examination Body. Study days commenced in 1962 and now study days and weeks are held on a regular basis.

In the early 1950's when the specialist service was established there was only one consultant in each speciality in a hospital. Efforts were made to develop a further education programme. Through the work of Mr Bill Laird, of the Waveney Hospital, the Ulster Obstetrical and Gynaecological Society was formed in 1952. Members met four times each year for "study days". The programme consisted of demonstration of operative technique, case discussions and lectures. At these, there was always a "guest lecturer" from outside the Province.

The Training of Medical Students

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In 1945 Professor Lowry had retired and was succeeded by Professor CHG Macafee. He retired in 1963 and was succeeded by Professor JHM Pinkerton. During his term of office Dr JGMcD Harley was awarded an Honorary Clinical Chair in 1973. Professor WJ Thompson was appointed to a second Chair in 1980 and succeeded Professor Pinkerton in 1985. Professor Neil McClure is the present holder of the Chair following Professor Thompson in 2000.

The training in midwifery remained unchanged until the entire course of medical undergraduate training was shortened and changed. The course was reduced to a hospital attachment for 8 weeks. Compulsory residence was abolished in 1985.

The midwifery and gynaecological course now consists of only a 6 week attachment to one of seven recognised teaching hospitals in the Province. During this time all students attend 3 days of lectures – a total of 14 lectures. During the attachment, time is spent between the labour ward, clinics which include maternity/gynaecological and genitourinary diseases and observing gynaecological operations. The student of today performs only three deliveries.

At the end of the attachment the students sit an examination – Objective Structured Clinical Examination (OSCE). This replaces the Final Medical Examination. Since the late 1980's, the majority of medical students are female. Women doctors now occupy most of the trainee posts in obstetrics and gynaecology and now there are many women consultants in the speciality in the Province.

Midwife Training

Important developments in midwife training were governed by the establishment of the following: the Joint Nurses and Midwives Council for Northern Ireland in 1922; the Northern Ireland Council for Nurses and Midwives in 1971 and the National Board for Nursing, Midwifery and Health Visiting for Northern Ireland in 1979.

In 1980 the period of training was increased to eighteen months. In 1971 a Central School of Midwifery was established by amalgamation of the existing schools in Jubilee and Royal Maternity Hospitals. Later this was expanded to include Altnagelvin and the Ulster Hospitals.

The training of midwives became the responsibility of Queen's University in 1997. The course consists of both theoretical lectures given in the University and practical work in the main maternity hospitals in the Province. The duration of the course is either 18 months or three years depending on previous experience of the candidate. The faculty is under the direction of Professor Jean Orr. Forty eight students are admitted each year.

CONCLUSION

The story of the development of Midwifery is one of overall continuous progress in abolishing almost completely the maternal mortality rate and markedly reducing the perinatal mortality rate. These remarkable results could not have been achieved without marked alterations to the care of the pregnant woman and her baby. In 1806 only a few poor women were delivered in hospitals. Now almost all deliveries take place in specialist hospitals with full neonatal, laboratory, anaesthetic and family planning services. Interested general practitioners now only offer 'shared care' with the hospital staff.

The development of better housing and the improvement in general health have contributed to these results. The continual compulsory refresher courses for specialists and midwives plays an important part in this progress.

The "Obstetric Physician" of old has been replaced by the modern "Surgical Obstetrician". Has active intervention gone too far? Future obstetricians will have to decide!

Sections of the article have been taken from the unpublished thesis by the author "The Development of Maternity Services in Northern Ireland 1948 – 1992" which is available in Queen's University Science Library.

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