



# Public Health in Wales (1800-2000)

A brief history

By  
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## **About the author**

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Slate quarrymen at Waunfawr, Caernarfonshire (photo: Gwasanaeth Archifau Gwynedd/Gwynedd Archives Service); Housing in South Wales valleys (photo: Wolf Suschitzky); Welsh coalminers (photo: Edith Tudor Hart) ; Children undergoing 'artificial light' treatment in a Welsh TB sanatorium.

## **Bottom row:**

David Lloyd George (photo: © Estate of Felix H Man/National Portrait Gallery, London); Aneurin Bevan (photo: © National Portrait Gallery, London); Julian Tudor Hart; Archibald Cochrane (photo: Cochrane Archive, Llandough Hospital, Cardiff).

## **Back cover, top row from left:**

Heartbeat Wales logo; Childhood vaccination; Healthy recreation; sun awareness with Health Challenge Wales.

## **Bottom:**

Temple of Peace and Health, Cardiff (photo: Mike Weaver).



Llywodraeth Cynulliad Cymru  
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## **Public Health in Wales: A brief history**

The history of public health in Wales has been inextricably linked with changing economic and social conditions. During the modern period, tumultuous changes have occurred, including the growth and movement of populations, changes in employment, housing, diet and lifestyles. There have been tremendous improvements in terms of health and life expectancy, but to the present day there is a legacy of ill health that may be traced to the patterns of heavy and extractive industries established in Wales during the industrial revolution. The people of Wales have fought many hard struggles to improve living conditions and sustain communities through periods of unemployment, deprivation and rapid social change. They have developed strong traditions of family, solidarity and collective loyalty and contributed in significant ways to the development of the British health services and welfare state during the twentieth century. The history of public health in Wales is therefore a crucial part of our nation's history.

In the eighteenth and nineteenth centuries, Wales was transformed from a primarily pastoral economy into one of the world's powerhouses of the industrial revolution. Its resources of copper, slate, manganese, gold, iron ore and especially coal of varying qualities were the key to industrial expansion, but mining also brought very distinctive health problems for the workpeople of this country. The topography of Wales has also presented difficulties of communication that have made the provision of health services on a regional basis hard to achieve. Concerns of the 'local community' have been and continue to be of tremendous importance in Wales and this presents particular challenges for modern health service provision.

During the late twentieth century Wales was granted an increasing measure of devolved powers, with a separate 'Welsh Office' being established in 1969. In 1998 the Welsh people voted in a referendum for further devolution and the establishment of a Welsh Assembly. Foreign affairs and taxation are still decided at Parliament in Westminster, to which Wales continues to elect members. The electorate here also votes for members to represent them at the Welsh Assembly in Cardiff and this body has responsibility for health and social care, education, transport, regional policies and other devolved matters.

This pamphlet will trace the history of public health in Wales in relation to the changing economic and social conditions of Wales. It will consider the main phases in the development of public health policies and focus attention on some of the individuals who have responded to the particular challenges raised by the health needs of Wales.

## **Wales Population Trends**

In the early medieval period, Wales was an agrarian land of dispersed settlements, inhabited by a people who spoke an ancient Celtic language. This language has been one of the most tenacious survivors of all the Celtic languages, and is still spoken as the everyday language in large parts of the country. The people of Wales were regarded as a 'hardy stock', who reared sheep and cattle and cultivated cereal crops, especially oats. The Norman-Welsh cleric, Gerald of Wales (1146-1223), toured the country in AD1188 and remarked upon their attention to personal hygiene and good teeth, which they cleaned white with hazel twigs. They were renowned for their hospitality and enjoyed communal gatherings.

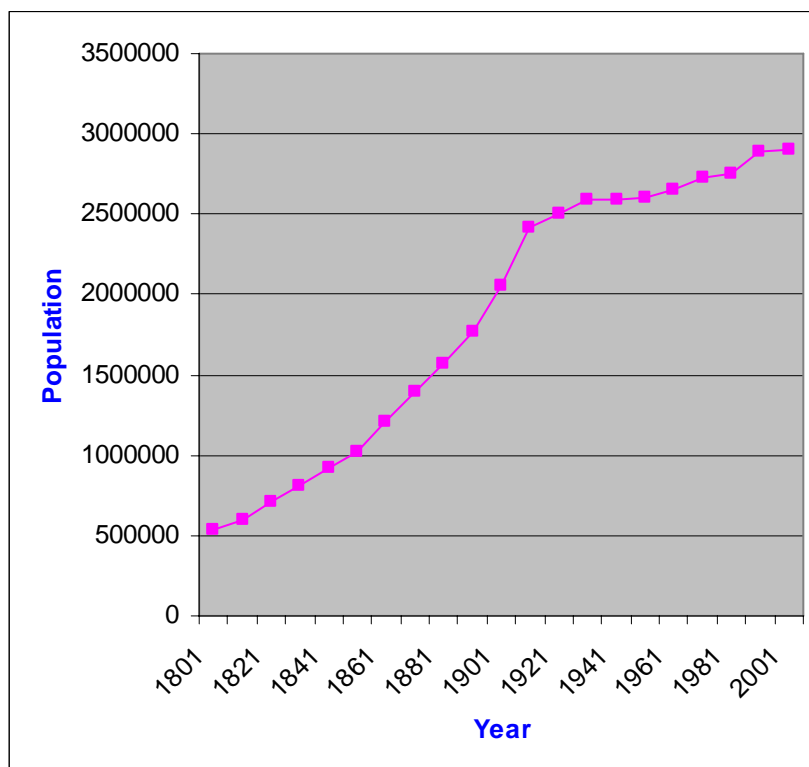
Wales had an historic tribal system of social organisation, and until the fourteenth century was ruled by its own native princes. The Norman-English conquest is still visible in Wales in the form of fortress castles, established to subdue the local populace. Wales was united with England by an Act of Union in 1536 and henceforth was governed centrally from London. Most legislation dealt with 'England and Wales' as one unit. This differed from Scotland, which being a nation-state prior to its incorporation into Britain in 1707, developed distinctive legislation and its own civil service.

Up until the seventeenth century the population of Wales was no more than 400,000. Food shortages and outbreaks of disease regularly caused episodes of excess mortality and checked any tendency toward population growth. During the eighteenth century, however, economic development provided the basis for an expanding population and by the middle of the century the number of people living in Wales had increased to roughly 450,000, reaching 587,245 by the time of the 1801 census. Iron works, copper smelting and woollen manufacture all contributed to an increasingly dynamic economy.

The period 1780-1850 is often referred to as the 'first industrial era' in Welsh history, dominated by iron manufacture and the building of canals, roads, and railways at the end of this period. The pace of change accelerated as the industrial revolution gained momentum. The iron works at Cyfartha and Dowlais led the world in terms of the quality of their output and the techniques they employed. The iron industry generated a demand for coal, and mines were opened to supply this new market.

These economic developments were to have a profound effect upon the health and welfare of the people of Wales. During the nineteenth century the acceleration of population growth may be traced through census figures collected every ten years. By 1841 there were over a million people living in Wales and by 1901 population had exceeded two million.

**Figure 1: Trends in total population, 1801 – 2001<sup>1</sup>**



<sup>1</sup> [www.visionofbritain.org.uk](http://www.visionofbritain.org.uk)

During the early decades of the nineteenth century all counties in Wales registered an increase in population. Towns and rural areas alike saw numbers of inhabitants growing and the population of Wales expanded rapidly. However, beginning in 1841, some of the rural counties of Wales experienced a demographic decline as the numbers employed in agriculture fell and workers sought better wages elsewhere. The majority of this migrant population was absorbed within Wales itself, in the industrial counties of Glamorgan and Monmouthshire. Even toward the end of the nineteenth century when agricultural depression put further pressure on rural areas and increased the pace of exodus, people were still able to find work within Wales. They moved in large numbers to industrial south Wales, but also to join the industrial sector of north east Wales or to find employment in the increasingly prosperous seaside resort towns of the north coast of Wales. The demand for labour in the coalfield areas of south Wales also attracted migrants from outside Wales, from the west of England, the border counties and from Ireland.

The county of Glamorgan saw the largest growth of any county in Wales. Its population increased from 70,879 in 1801 to 859,931 in 1901. The rapidity of expansion of some of the new industrial and mining settlements created major problems for public health. There was much overcrowding, as new workers moved in to swell the labour force and low quality housing was hastily erected. Gross overcrowding and insanitary conditions made the towns breeding grounds for disease.

The iron industry was concentrated in an arc at the top of the valleys of south Wales, and the fastest growing town was Merthyr Tydfil. The population increased from 11,104 in 1811 to 46,378 in 1851, at which time only a quarter of the inhabitants had been born there. The iron industry employed water from the River Taff to power the wheels of its great furnaces; the water then passed through various ponds before returning, black and filthy, to the river again. People had to collect water for domestic purposes from various springs or spouts, but these tended to run dry in the hot summer months. Unsurprisingly, inhabitants of Merthyr were frequently afflicted with diarrhoea and sickness; typhus, smallpox and scarlet fever were endemic. Between 1846 and 1855 the death rate from all causes was 332 per 10,000 inhabitants. The chances of survival for young children in this environment were poor, and two out of every five children born during the years 1848-1853 could expect to die before reaching the age of five, many dying before they reached their first birthday.<sup>2</sup>

In Wales, as in the rest of Britain, the challenges of the long century of industrialisation and population growth and the subsequent periods of modernity and evolution of the post-war welfare state meant that the discipline of Public Health itself underwent a series of transitions. Initial concerns about dirt and disease were reflected in a *sanitary phase* based on the general theory of miasma and characterised by responses based on sanitation and environmental improvements<sup>3</sup>. In 1842 Edwin Chadwick published his *Report on the Sanitary Condition of the Labouring Population* highlighting how the problems of the industrialising cities - lack of safe water, poor sanitation, overcrowding and poor nutrition - affected the health of their populations. In December 1844, the Health of the Towns Association was formed to advise the public of the dangers arising from insanitary

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<sup>2</sup> Jones, Ieuan Gwynedd 'Merthyr Tydfil: The Politics of Survival', in *Communities: Essays in the Social History of Victorian Wales*, Llandysul, Gomer Press, 1987, 239-262; Grant, Raymond K.J. 'Merthyr Tydfil in the Mid- Nineteenth Century: The Struggle for Public Health', *The Welsh History Review*, Vol. 14, 1986-1989, 574-594.

<sup>3</sup> Goraya, A. Scambler, G. (1998) From old to new public health: role tensions and contradictions, *Critical Public Health*, 8 (2): 141-151.

conditions. In 1844, Sir Henry de la Beche reported to the Health of the Towns Commission on the drainage and sanitation of Merthyr Tydfil in these terms:

*In these respects the town is in a sad state of neglect; with the exception of some little care in the main streets and regulations about removing ashes before the doors in Dowlais, all else is in a miserable condition. From the poorer inhabitants, who constitute the mass of the population, throwing all slops and refuse into the nearest open gutter before their houses, from the impeded course of such channels and the scarcity of privies, some parts of the town are complete networks of filth, emitting noxious exhalations. Fortunately the fall of the ground is commonly so good that heavy rains carry away some of this filth. There is no Local Act for drainage and cleansing, the Highway Act being that in force, and the chief lines of road appearing to be under the Commissioners of the Turnpikes. During the rapid increase of this town no attention seems to have been paid to its drainage and the streets and houses have been built at random, as it suited the views of those who speculated in them.<sup>4</sup>*

The Public Health Act of 1848 created a new central department, the General Board of Health, and provided for local boards of health to be established. The Act contained numerous clauses on sanitation and empowered local boards to appoint an 'officer of health', who had to be a legally qualified medical practitioner. While it was a great improvement on what had existed before, the Public Health Act was paternalistic and relied heavily on philanthropy.

## Infectious Disease

Asiatic cholera, spread by bacteria in contaminated water or food, swept across Europe in 1831 and 1832. In Wales mortality was relatively low, although cholera did affect some areas, such as Denbigh and Flint.<sup>5</sup> The outbreak of 1848/49 was far more serious and over 3,000 people died in the county of Glamorgan. In Cardiff there was a total of at least 350 deaths.<sup>6</sup> Merthyr Tydfil was the worst affected town, suffering a total of 1,389 deaths from cholera, perhaps more.<sup>7</sup> Within the town, two thirds of the deaths occurred in Upper Merthyr, which had the highest levels of poverty and overcrowding.

The cholera epidemic gave a sense of urgency to the need to carry out sanitary improvements across Wales. The Public Health Act of 1848 permitted the establishment of local Boards of Health and the new position of Medical Officers of Health (MOHs). It was an enabling, not a compulsory act and implementation depended on the initiatives of local communities. The work of the local Boards of Health reflected the tensions in local politics,

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<sup>4</sup> From: *Second Report of the Commissioners for enquiring into the state of Large Towns and Populous Districts* (1845), Appendix, Pt. I, 142-151; cited in G Penrhyn Jones, *National Library of Wales Journal* Vol X/3 Summer 1958, 281-300.

<sup>5</sup> G. Penrhyn Jones, 'Cholera in Wales' *National Library of Wales Journal*, Vol. X, No. 3 (Summer 1958), 281-300; Fletcher, Allan 'Cholera in North-east Wales, 1832' *Denbighshire Historical Society*, Vol. 44, 25-44.

<sup>6</sup> James, D.C. 'The Cholera Epidemic of 1849 in Cardiff: A Case Study', *Morgannwg, the Journal of Glamorgan History*, 1981, Vol. XXV, 164-179.

<sup>7</sup> Jones, Ieuan Gwynedd 'Merthyr Tydfil: The Politics of Survival', in *Communities: Essays in the Social History of Victorian Wales*, Llandysul, Gomer Press, 1987, 239-262, 251; Grant, Raymond K.J. 'Merthyr Tydfil in the Mid-Nineteenth Century: The Struggle for Public Health', *The Welsh History Review*, Vol. 14, 1986-1989, 574-594.

and their actions and effectiveness varied.<sup>8</sup> There was little central government direction and powers were limited.

Some 17 towns in south Wales petitioned to form Boards of Health around the time of the cholera epidemic, among them Cardiff and Swansea in 1848, Merthyr Tydfil in 1850, Aberdare in 1854 and Maesteg in 1858. All brought about some improvement in sanitation, but the effectiveness of reform depended greatly upon the balance of local interests. In Merthyr Tydfil, despite some opposition from local ironmasters concerned to safeguard their own industrial water needs, a public water supply was established. A reservoir was completed in 1863, and sewage pipes were laid underground.

Although the Public Health Act of 1875 consolidated the powers of the Boards of Health, and made the appointment of MOHs compulsory, progress was often slow and powers of enforcement remained limited.<sup>9</sup> Nevertheless, the Boards did provide a framework for sanitary reform and between 1848 and 1872 £1.2 million was invested in sewerage, drainage and water supply,<sup>10</sup> the equivalent of £2.5 billion today.<sup>11</sup>

The reports of the new MOHs provide invaluable documentation of the sanitary conditions, housing and health status of the population. They provide detailed statistical information concerning death rates in different districts, causes of death and patterns of disease. High levels of mortality were often linked with districts where overcrowding was rife. In 1858 the MOH for Cardiff provided a list of 222 dwellings housing 2,920 people, including one house with 26 inhabitants. Gradually, additional powers became available through legislation, such as the Sanitary Act of 1866, which was the first largely compulsory public health act. Where investment was made and where the Medical Officers of Health were active and had resources available from the rates, improvements were significant.

In Cardiff nearly £100,000 was invested in drainage and water supplies between 1848 and 1872. The town was growing at an ever increasing pace, with the construction of the Bute Docks and the growth of commerce. The town attracted many young people seeking work and this resulted in a marked rise in the birth rate. In 1891 the birth rate in Cardiff was 39.3 per 1,000 persons living, compared with the average rate for England and Wales for that year of 29.7. This presented a considerable challenge to public health in the town. The infant mortality rate reached 189 per 1,000 births in 1885, but through careful monitoring and intervention and the exercise of their sanitary powers, the MOH and his staff succeeded in bringing the rate down to 148 by 1891.

The last serious cholera epidemic was in 1866, although a minor outbreak was experienced in Cardiff in 1893.<sup>12</sup> However, sporadic infections of typhoid fever continued into the twentieth century and these can be seen as a sensitive indicator of sanitary conditions. In Swansea a hundred people died of typhoid fever in 1879, and in Bangor in 1882 about 690 people contracted the disease, resulting in 89 deaths. Two further outbreaks occurred in Swansea, killing 63 in 1885, and 43 in an outbreak the following year. At the time there was some uncertainty as to the cause of the disease. In Bangor,

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<sup>8</sup> James, D.C. 'The genesis of sanitary reform in Cardiff, 1774-1850', *The Welsh History Review*, 1982/3, 50-66.

<sup>9</sup> Jones, Peter Ellis 'The Bangor Local Board of Health, 1850-1883', *Transactions of the Caernarvonshire Historical Society*, Volume 37, 1976, 87-132.

<sup>10</sup> Jones, Ieuan Gwynedd, 'The People's Health in Mid-Victorian Wales', in *Mid-Victorian Wales: The Observers and the Observed*, Cardiff, University of Wales Press, 1992, 24-53: 35.

<sup>11</sup> See <http://www.measuringworth.com> for conversion to modern prices.

<sup>12</sup> Jones, G Penrhyn 'Cholera in Wales', *National Library of Wales Journal*, Vol X, 3, Summer 1958, 281-300.



clothes and bedding were burnt, milk was inspected, but little attention was paid to sanitary conditions. Bangor was in fact celebrating the opening of its new water supply from a newly constructed reservoir, which had been hailed as introducing a new purity of water. Local officials were reluctant to contemplate that it might be the source of the infection. When the local MOH visited the house of a cholera victim above the reservoir he found that slops were being emptied directly into a sink that fed into a stream. He reported this to the Bangor Board of Health, and water samples were sent for analysis in London. Despite a negative result, when the recommendations of the MOH to renew the filter beds and dig an intercepting trench to prevent the untreated effluent entering the water were carried out, the epidemic was brought to a belated end.

At this time bacteriology was a new science, made feasible by Koch's invention of solid-medium culture plates, reported in 1883. Koch identified the tubercle bacillus in 1882 and Gaffky described the typhoid bacilli in 1884 (the year after the Bangor outbreak). The MOH for Ebbw Vale, Dr J.W. Power, suggested that courses in bacteriology should be organised for MOHs, and in 1886 one was established at King's College, London.<sup>13</sup> In 1898 a public health laboratory was established in Cardiff, jointly funded by Glamorgan County Council and the City of Cardiff.

By the end of the nineteenth century Wales had undergone a major transformation. The sanitary movement and public health reforms had been instrumental in moderating the worst effects of rapid industrialisation and in improving the health of the people. Wales was beginning to develop a modern scientific approach to disease detection and control, to establish new institutions, and initiate training and research in the field of health.

## **The Growth of the Welsh Economy**

The Welsh economy remained buoyant in the early twentieth century, with further rapid expansion of industrial production, manufacturing and commerce. The key to this expansion was coal, in particular the high quality steam coal required to power ships. Already producing 16 million tons a year in the early 1870s, output from the south Wales coalfield had increased to 30 million tons by 1891. By 1913 it was producing 56.8 million tons, one fifth of total British coal production. The demand for labour continued to increase and during the decade 1901-1911 nearly one hundred thousand people moved into south Wales. Other industries that were important in south Wales included steel making, tin-plate rolling, metal smelting, patent fuel manufacture, oil refining and flour-milling. Cardiff became the busiest shipping port in the world, and Newport was also very important. In 1921 a total of 6,698 vessels entered the port of Cardiff and nearly six million tons of goods were exported.

The port presented specific challenges to public health, and involved a great deal of work inspecting ships and isolating any crew members who were ill. A special isolation hospital was in existence, the Royal Hamadryad Hospital. Besides treating sailors for a variety of illnesses, the hospital also ran a busy clinic for venereal disease. Infectious disease cases were treated at a hospital at Flat Holm, a small island in the Bristol Channel. This was an important strategic public health resource, because it meant that suspected fever and other cases could be removed before ships docked, thereby avoiding the catastrophe of

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<sup>13</sup> Williams, Sir Robert, 'The history of the Public Health Laboratory Service', in *The Public Health Challenge*, edited by Stephen Farrow, published by Hutchinson in association with the Faculty of Community Medicine of the Royal Colleges of Physicians of the United Kingdom, London, 1987, p.37.

having to declare an 'infected port', with all the interruption to trade that this status would incur.

In north Wales, the quarrying industry of Caernarfonshire and Merionethshire had already passed its zenith, and the number of men employed was declining. In 1898, nearly 19,000 men had been employed in the slate quarries and mines of north Wales, but by 1914 that number had fallen to less than 12,000. With no new industries to offer alternative employment, the slate centres of Bethesda and Blaenau Ffestiniog faced a long period of decline.

Coal and slate mining had two things in common in terms of dangers to health: accidents and dust disease. The coal industry of south Wales had a very poor record of safety. There were many small accidents, regularly maiming and killing workers, and some major catastrophes, including the deaths of 439 miners following an explosion at a pit at Senghenydd in 1913.<sup>14</sup>

## Nutrition and Child Health

During the early years of the twentieth century a number of new approaches to public health were adopted, targeting the health of expectant mothers, infants and children. This followed a shift from a focus on infectious disease toward a concern with the underlying health status of the population. The Boer War of 1899-1902 had exposed the poor physical health of many military recruits. An investigation was conducted into the 'physical deterioration of the British race'. The prevalence of rickets and poor teeth suggested that nutritional problems were a root cause of poor health. Also, as death rates generally were falling, the continued high level of infant mortality gained priority attention. Attention therefore turned toward improving the health and nutrition of children, and legislation was passed introducing free school meals in 1906 and a system of school medical inspection in 1907.<sup>15</sup> Some local authorities established a school medical service and instituted schools meals. Some began to establish infant welfare clinics and employ health visitors to advise mothers in the home. In 1918 the Maternity and Child Welfare Act made this approach a cornerstone of policy.

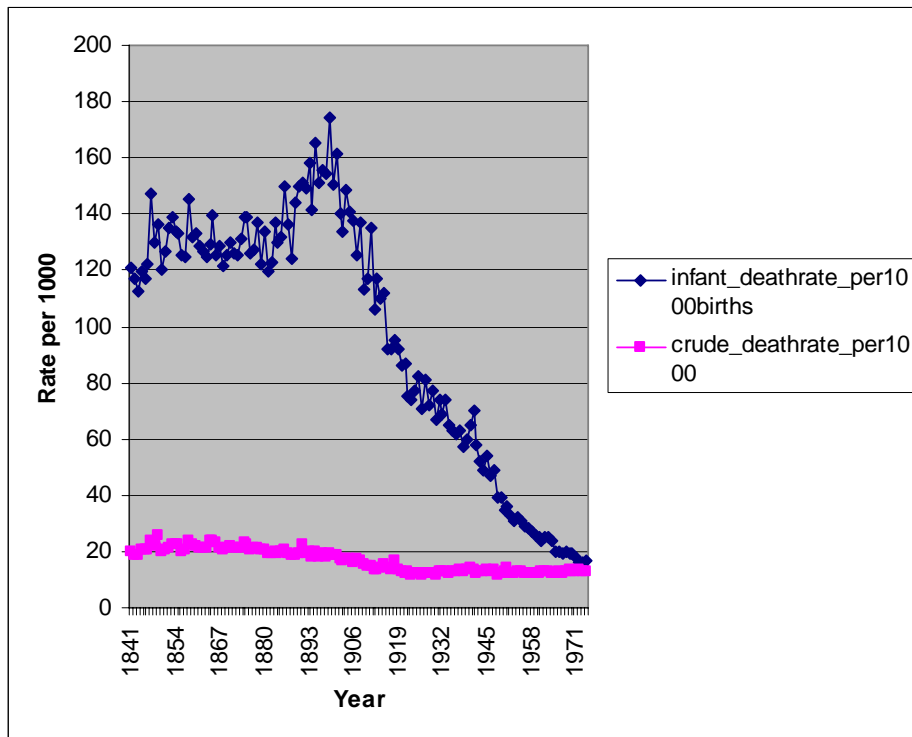
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<sup>14</sup> Borsay, Anne and Knight, Sara, (2007) *Medical Records for the South Wales Coalfield, c. 1890-1948: An Annotated Guide to the South Wales Coalfield Collection*, Cardiff: University of Wales Press. Chapter 4 is devoted to Accidents, and includes details of reports, compensation claims, and an 'In Loving Memory' card for 3,589 miners killed in colliery disasters in north and south Wales and Monmouth between 1837 and 1927 (p.128).

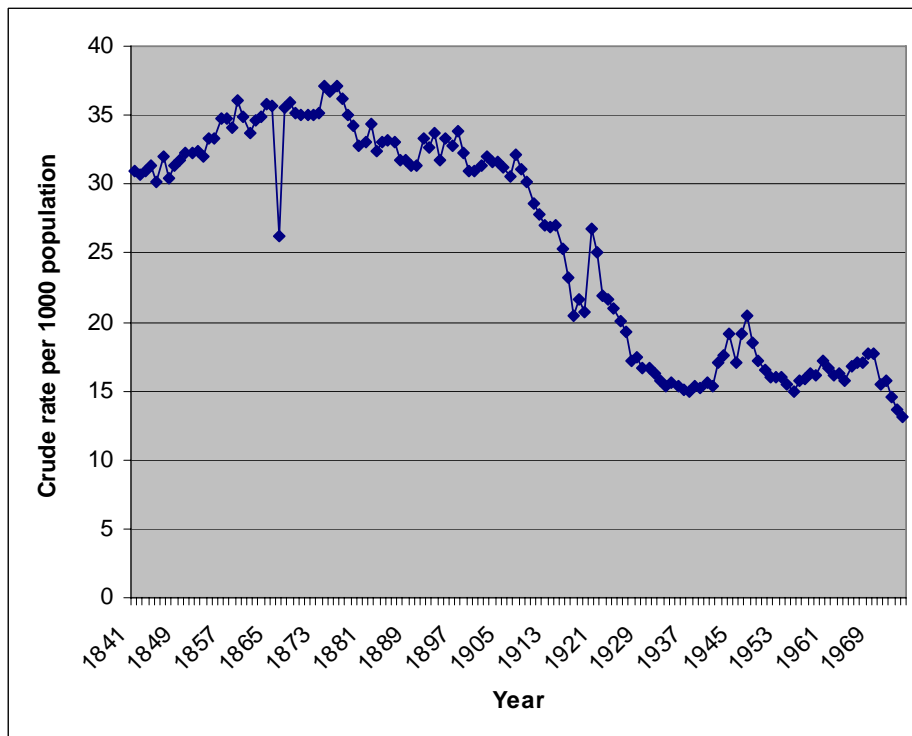
<sup>15</sup> Hirst, David (2003) 'The Early School Medical Service in Wales: Public Care or Private Responsibility?' in Borsay, Anne (Ed) *Medicine in Wales, c. 1800-2000: Public Service or Private Commodity?* Cardiff, University of Wales Press, 65-85.

The following graph clearly demonstrates the rapid decline in infant mortality which occurred in Wales during the first half of the twentieth century:

**Figure 2: Wales death rates 1841 – 1974<sup>16</sup>**



**Figure 3: Wales birth rates 1841 – 1974**



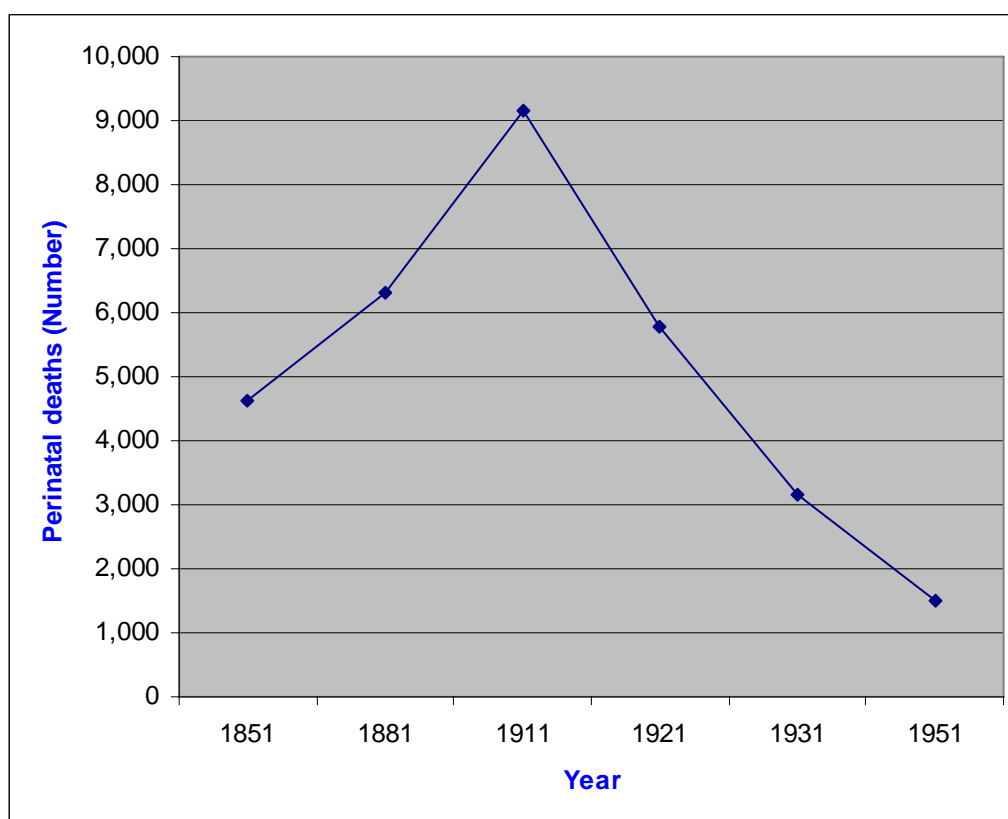
As the prospects for survival of infants improved, so families began to limit the number of children that they had and birth rates began to fall. (See figure 3)

<sup>16</sup> Figures 2 & 3, *Digest of Welsh Historical Statistics 1700-1974*.

Perinatal death rates are perhaps the most sensitive indicator of the health status of mothers and babies and Figure 4 shows how rates were increasing up until the time of the 1911 census and also demonstrates how steeply the death rate fell thereafter. It shows the strain on women's health in the period of rapid industrial expansion of the late nineteenth and early twentieth century and the vulnerability of babies born into those conditions.

The concerns for the welfare of women and children during the early years of the twentieth century were clearly justified. The emphasis placed on the role of health visitors seems to have been indicated by the outcomes, although undoubtedly several factors were involved, including general improvements in diet.

**Figure 4: Wales Perinatal deaths 1851- 1951<sup>17</sup>**



## Introduction of the National Insurance Scheme

Other debates focused on the problems faced by the adult sick and the situation of the elderly. Under the existing Poor Law system, the destitute could be cared for in the workhouse, but this was seen as a last resort. Working people often paid into an insurance scheme, or joined a friendly society, but the benefits varied greatly. In some communities, prepaid medical welfare schemes for miners and tinplate industry workers provided a safety net of effective health care.<sup>18</sup> Those just above the poverty level without either private insurance or membership of a society were vulnerable to periods of illness, threatening not only their health but also their livelihood.

<sup>17</sup> [www.visionofbritain.org.uk](http://www.visionofbritain.org.uk), Perinatal deaths include all still births and deaths in the first week of after birth.

<sup>18</sup> Thompson, Steven (2003) 'A Proletarian public Sphere: Working-Class Provision of Medical Services and Care in South Wales, c. 1900-1948', in Borsay, Anne (ed) *Medicine in Wales, c. 1800-2000: Public Service or Private Commodity?*, Cardiff, University of Wales Press, 86-110.

In 1911, the National Insurance Scheme was introduced in the UK, providing contributors with access to a doctor and sickness benefits. It owed its origin to the Welshman, David Lloyd George, who was then Chancellor of the Exchequer. Although trained as a solicitor, he was not from a privileged background, and was familiar with the situation faced by working people in times of sickness, particularly in the rural and quarrying districts.

Lloyd George visited Germany to look at the health insurance system already in operation there and returned armed with financial data and a firm idea of what was required. The system that he introduced provided for free consultation with a panel doctor and medicines, but not for hospital treatment. The legislation did include a clause which provided for free sanatorium treatment for those suffering from tuberculosis. Thomas Jones, (T.J.), later one of his trusted Welsh advisers, recalled visiting Lloyd George together with David Davies and reminding him of all the great Welsh poets and singers who had died from tuberculosis. This apparently helped inspire Lloyd George to make this special provision.

The insurance scheme was funded on the basis of a penny contribution from the worker, two pence from the employer and three pence from the state. It was specifically aimed at reducing the risk to health of the male breadwinner and ensuring that he could obtain medical treatment and time off work to recuperate. It enabled working men to gain access to a qualified doctor, but did not provide health cover for dependants. It also provided sickness benefits at full rate for up to six months and then at half rate for a further six months. Women were not excluded from the scheme, but they had to be working full time and contributing to the scheme as insured workers. This system operated up until the Second World War, when the wartime medical services introduced a more comprehensive system.

The National Insurance Act of 1911 created a devolved system of administration, with separate insurance commissions for England, Scotland, and Wales. In 1919 a Ministry of Health was established and the insurance commissions were replaced. A Welsh Board of Health was created to administer the functions of the Ministry in Wales, although this exercised little autonomy. Meanwhile, the situation with regard to public health was increasingly complex, with statutory responsibilities being divided across a range of local government units, many of them so small that they could not effectively provide services. There was a need to review provision in Wales, and under the Ministry of Health Act of 1919 a Consultative Council was appointed to evaluate the situation.

Whereas in England four separate councils were appointed, tasked with reviewing National Health Insurance (Approved Societies' Work), Medical and Allied Services, Local Health Administration, and General Health questions, the Welsh council was asked to consider all aspects. This meant that it looked at the situation more holistically and in a more radical way. The work of the Dawson Committee, the English Council which considered the role of the Medical and Allied Services, is often referred to in historical studies, but the Welsh Council has been all but forgotten, despite its detailed review of existing services and the innovative solutions that it proposed.

The Council members' first task was to conduct a survey of existing health provision. In regard to public health, they found that numerous functions, both permissive and mandatory, were entrusted to local authorities and that the current position was 'indeterminate and haphazard' in the extreme. Wales, with a total population of about two and half million, had a total of nearly one thousand separate and distinct public authorities 'concerned to a greater or lesser extent with some branch or other of health work'. This included 13 county councils, 110 municipal boroughs or urban district councils, 73 rural

district councils, 17 insurance committees and 662 parish councils and various other bodies. The situation was complex and there were wide variations in provision across the country.

The movement of people away from rural areas and into the urban industrial districts and the particularly rapid expansion of employment and in-migration to industrial south Wales had created a very uneven demographic profile. Two thirds of the population now lived in two counties, Glamorgan and Monmouth, the remaining third living in the other eleven counties. At one extreme were the 'congested districts' of the south Wales valleys and at the other, were the sparsely populated rural areas. In the congested districts health provision was inadequate to the high density of population, but in the rural districts services were lacking owing to insufficient population. In many rural counties, for instance, there were no child welfare clinics. The cost of providing services was much higher in rural areas, so that whilst many local authorities were spending proportionately more on public health than urban areas, they were providing an inferior service. Cardiff had its own MOH, and so did the County of Glamorgan. However, in some rural areas the MOH was shared by a number of counties and boroughs, whilst in some local authorities the MOH fulfilled other functions as well. There was little consistency in the scope of provision or standard of services across Wales.

Some local authority provision seemed to be outmoded. The Council found that across Wales there were a large number of small isolation hospitals maintained for different disease outbreaks. There were 20 smallpox hospitals, most of which had no more than 12 beds and were hardly ever used. They were told of one hospital that had been in existence for 24 years and only the caretaker had ever been accommodated! There were 55 fever hospitals for scarlet fever, diphtheria and enteric fever with a total of 1,292 beds. Given the acute shortage of hospital accommodation in Wales at that time, the Council considered this wasteful and recommended a reappraisal of needs on a regional basis.

In order to create a unified and planned system of health provision the Welsh Consultative Council recommended the establishment of a Welsh National Council of Health, which would take responsibility for all health services in Wales, including both hospitals and public health services. It proposed that the Welsh National Council of Health would become the sole Local Health Authority for Wales and Monmouthshire. This would facilitate a properly co-ordinated organisation. It advocated the establishment of an Institute of Health, based on the university and teaching hospitals of Cardiff, linked to a system of regional and local health institutes serving the needs of the different regions of Wales.

The ambitious proposal included the education and training of general practitioners, nurses, midwives, public health specialists and Medical Officers of Health. It advocated three tiers of provision: some fifty Local Health Institutes spread across Wales; four Central Health Institutes based at Bangor, Wrexham, Swansea and Newport. A National Health Institute would also serve the area around Cardiff and would work in collaboration with a Welsh National School of Medicine. The scheme proposed giving a pivotal role to the general practitioner and a lead role to research. It was anticipated that general practitioners would be engaged in research work at local level and would work in collaboration with staff at regional and national level. A central public health laboratory would provide specialist support to a network of small laboratories based at the regional and local health institutes. Each institute would have a library.

Unfortunately, the financial crisis that followed the First World War led to the abandonment of the scheme, so the far-sighted and innovative proposals were never implemented. The third and fourth reports of the Consultative Council, which included the report on community health care and proposals for the training of health visitors and midwives and the funding of the schemes, were never published. Many of the proposals anticipated the recommendations of the Beveridge Report of 1944, and many of the organisational issues still seem relevant today.

## The Onset of the Great Depression

The complex and haphazard system described by the report of the Consultative Council thus continued throughout the inter-war period. The economic crisis and decline of the major extractive and heavy industries brought major challenges to public health in Wales. The price of coal fell during the years following the First World War and the coal owners responded by making cuts in wages. This caused extreme privation and the health of miners and their families suffered. In 1921, Dr Mary Scott reported that women attending the New Tredegar Infant Welfare Centre were unable to feed their babies because their breast milk was failing due to insufficient nourishment. Dr Elizabeth Cameron, attending to patients in Risca, wrote of the 'extreme distress' she witnessed:

*... only too many mothers could be noticed growing thinner and more pinched from week to week. A number sought advice for symptoms such as fainting, entirely due to lack of proper food.*

The slump in demand for coal was to continue to have serious effects on the lives and the health of the population. The General Strike of 1926 was followed by a protracted dispute in the south Wales coalfield. The health impact was felt not only by mothers and babies but by schoolchildren as well. School medical officers reported that children were losing weight and showing the effects of malnourishment. School attendance officers reported that children were not attending school due to lack of boots and warm clothing. Voluntary relief efforts provided some support in the most deprived districts.

Unemployment in Wales increased from 13.4 per cent in December 1925, to 23.3 per cent in December 1927, and to 27.2 per cent in July 1930. The figures were much higher in the worst affected areas. In Merthyr Tydfil, for instance, 70 per cent of the adult male population were unemployed. The poverty caused by these economic circumstances had a serious impact on the health of women and was linked to high levels of perinatal mortality and maternal mortality. Alerted to the low nutritional status of expectant mothers in the depressed areas of south Wales, the National Birthday Trust Fund (a charitable organisation formed in 1928 to address the problem of high maternal mortality), began in 1935 to distribute milk and food supplements to expectant and nursing mothers in the Rhondda valley. This was followed almost immediately by a fall in the rate of maternal mortality.<sup>19</sup>

Maternal mortality in Wales was higher than in England throughout the inter-war period and it was particularly high in the western rural counties. It reflected a lack of ante-natal care and hospital facilities, with nearly all births taking place in the home. For the period 1924-33 the puerperal mortality rate for Wales was 35 per cent in excess of the rate for

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<sup>19</sup> Williams, Susan A, (1997) 'Relief and research: the nutrition work of the National Birthday Trust Fund, 1935-9', in David F. Smith, *Nutrition in Britain: Science, Scientists, and Politics in the Twentieth Century* London: Routledge.

England, and the Welsh still-birth frequency was 38 per cent higher than the English figure during this period.<sup>20</sup>

Although poverty and privation affected a significant section of the Welsh population during the inter-war years, for those in work living standards were improving. New houses were built, electricity and gas supplies installed, and kitchens and bathrooms with hot and cold running water made life much easier. Death rates continued to decline and infant mortality overall showed a significant improvement. Whereas in 1911 135 infants died out of every 1000 births, by 1930 the figure had fallen to 67 in every 1,000. However, there were startling variations between districts. Steven Thompson has shown that the gap between the local rate of infant mortality for the most socially deprived areas in Wales and the national average for England and Wales, actually widened during the course of the inter-war period.<sup>21</sup> Within Wales there were significant disparities. In 1939, for instance, infant mortality rate was 45 per 1000 in the north Wales coastal resort of Colwyn Bay, but in Gwyrfai, a quarrying district of Caernarfonshire, it was 70, and in Rhosllanerchrugog, a coal mining district near Wrexham in northeast Wales, it was 128.<sup>22</sup>

## Public Health Education and Research in Wales

Wales entered the field of public health education very early and established one of the first chairs in preventive medicine. In Cardiff a Medical School was opened in 1893 as part of the University College of South Wales and Monmouthshire, which was a constituent college of the University of Wales. During the 1920s protracted discussions took place about the status of the medical school in Cardiff and the proposal to transform it into a Welsh National School of Medicine operating under a separate charter as an independent college within the federal structure of the University of Wales. The creation of the Welsh National School of Medicine was achieved in 1931.<sup>23</sup>

There had been close collaboration from the beginning between the Medical School and the municipal authorities. The School was allowed to use the public health laboratory of Cardiff Corporation for teaching purposes and when in 1900 it established a department of hygiene and public health, it appointed the MOH for Cardiff and the MOH for Glamorgan as part-time lecturers. Initially it provided training for students to prepare for diplomas offered in England, but in 1908 it began to run its own approved course.

In 1914, coal owner Sir W.J. Thomas donated £60,000 (equivalent to £3.2 million today) to the college to create a school of public health and to build an Institute of Public Health Medicine. The outbreak of war delayed this project, but the building was finally completed in 1927. Meanwhile, in 1917 Emily Talbot, of Margam Park, endowed a Chair in Preventative Medicine in memory of her father, who had served as Member of Parliament for Glamorgan for sixty years. Edgar Leigh Collis (1870-1957), who received the appointment, had worked as a medical inspector of factories and had become an authority on pneumoconiosis. He went on to conduct research into miners' lung diseases in south Wales and to campaign to improve the working conditions of miners, and was editor for many years of the journal *Industrial Hygiene*.

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<sup>20</sup> Ministry of Health, *Report on Maternal Mortality in Wales 1937*, Cmd. 5423.

<sup>21</sup> Thompson, Steven (2006) *Unemployment, poverty and health in interwar South Wales*, Cardiff: University of Wales Press.

<sup>22</sup> Williams, David Lee 'A healthy place to be? The Wrexham coalfield in the interwar period', *Llafir*, Vol. 7, no. 1 (1996), 87-95.

<sup>23</sup> Roberts, Alun (2008) *The Welsh National School of Medicine, 1893-1931: The Cardiff Years*, Cardiff: University of Wales Press.



In 1920 Collis and his team re-introduced and up-dated the Postgraduate Diploma in Public Health. Although the numbers who attended this class were small, many went on to fill important posts in public health in Wales. Besides classes and laboratory studies, the students visited clinics for maternity and child welfare, school medical work and other activities. Close collaboration between the School and the Welsh National Memorial Association (see below) provided wide scope for studying the public health aspects of tuberculosis. The docks of Cardiff helped them to appreciate some of the public health issues associated with ports, and also gave a unique opportunity to learn about the treatment and control of tropical diseases.

In terms of research the college's staff focused upon public health matters relevant to the surrounding districts, especially the health issues of the mining communities. Professor Collis produced an early MRC report on miners' 'beat knee', 'beat hand', and 'beat elbow'. Through his programme of research Collis established a close working relationship with the coal industry in south Wales. He was also highly respected by the MRC and this laid an important foundation for the future.

## **The Welsh National Memorial Association**

Tuberculosis was a major health problem in Wales, so much so that it was often associated during the early twentieth century with the genetic profile and social characteristics and fatalistic attitudes of the Welsh people.<sup>24</sup> In 1910, statistics were published showing that seven of the 15 worst affected counties in England and Wales were in Wales, and that the five counties suffering the highest death rates were all Welsh.

Coal-owner and philanthropist David Davies (1880-1944) decided to tackle the issue and launch 'a crusade against consumption'.<sup>25</sup> In 1898, Davies had inherited a vast industrial empire created by his grandfather in railway construction, coal mining in the Rhondda valleys, and in building the docks at Barry. Davies was enormously wealthy, and followed a family tradition of public benefaction. (His two sisters, Gwendoline and Margaret, gave a fine collection of Impressionist paintings to the National Museum in Cardiff.) In 1911, Davies donated £150,000 to establish the Welsh National Memorial Association (WNMA), in memory of King Edward VII, to combat the scourge of tuberculosis in Wales.<sup>26</sup>

Only employed workers were covered under the sanatorium clauses of the National Insurance Act of 1911. It was recognised that any scheme, to be effective, must cover the whole of the population and not just the insured. In 1912 the government voted a sum of money to give to local authorities to defray half the cost of treating non-insured persons. In 1913 the notification of tuberculosis was made compulsory throughout England and Wales. The local authorities in Wales voted to transfer all their responsibilities and their grant monies to the WNMA to administer the scheme on their behalf. In Wales, therefore, there was one voluntary national body with sole responsibility for the treatment and control of tuberculosis.

Over the next twenty years the Association developed a network of dispensaries, visiting stations, hospitals and sanatoria across Wales. By the early 1930s their staff were seeing

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<sup>24</sup> Bryder, L. 'The King Edward VII Welsh National Memorial Association and its policy towards tuberculosis', *Welsh History Review* 13 (1986) 194-216 Bowen, E.G. 'The incidence of phthisis in relation to racial types and social environment in Wales', *British Journal of Tuberculosis*, No. 189 (1929) 1-6.

<sup>25</sup> Welsh National Memorial Association *The Crusade Against Consumption*, 1910.

<sup>26</sup> Davies, John (1998) 'The communal conscience of Wales in the inter-war years', *Transactions of the Honourable Society of Cymmrodorion*, 145-60.

on average 11,000 new cases a year, and dealing with over 50,000 attendances at dispensaries and visiting stations annually; carrying out over 9,000 X-ray examinations and by 1934 conducting nearly 20,000 sputum examinations. Their nurses and health visitors were carrying out about 40,000 visits to homes each year. The WNMA had developed one of the most complete schemes in the world for dealing with tuberculosis. It had provided five sanatoria and 12 hospitals (totalling approximately 1,600 beds), 14 dispensaries and 85 visiting stations and 22 X-ray plants.

In some counties in Wales the death rates from tuberculosis fell steadily. For example, Cardigan registered a decrease of 59 per cent between 1911 and 1930-33, Radnor had a decline of 55 per cent over the same period and Carmarthen, 46 per cent. However, some counties fell behind the national average for Wales; in Cardiff the decrease for the same period was only 32 per cent, for Merthyr Tydfil 25 per cent and for Brecon it was only 8 per cent.<sup>27</sup>

In his annual report for 1933 Sir George Newman, the Chief Medical Officer for England and Wales, drew attention to the fact that the mortality rate from pulmonary tuberculosis had actually risen in Merthyr Tydfil County Borough amongst the young adult population.<sup>28</sup> The reasons for this increase were contested, but the impact of the economic depression and the poor diet and overcrowding seemed to many to offer the most plausible explanation. Investigations were also conducted in Caernarfonshire in 1933 into the excessively high rates of mortality from tuberculosis. This inquiry found the population poor and ill-housed, and not only the quarrymen but their families too were afflicted with respiratory problems.<sup>29</sup>

Besides his long-standing commitment to the WNMA, David Davies was a committed pacifist and an enthusiastic supporter of the League of Nations Union. In 1934 he funded the building in Cardiff of the Welsh National Temple of Peace and Health to provide offices for the WNMA and the Welsh National Council of the League of Nations Union. This building, opened in 1938, was regarded as 'symbolic of the nation's efforts to destroy disease and to promote health', and in particular it commemorated the success of the WNMA in reducing the death rate from T.B. in Wales by 42 per cent.

The publication of a parliamentary report in 1939 brought criticism of the WNMA.<sup>30</sup> Although the death rate from tuberculosis in Wales had fallen significantly, it still compared unfavourably to England (rates of tuberculosis in England had fallen by 70 per cent, whereas in Wales they had only fallen by about 40 per cent). The WNMA was criticised for paying too much attention to care and treatment and insufficient attention to the cause and prevention of the disease. The report identified social conditions, in particular poor housing and diet, as being the root cause of the higher rates of tuberculosis mortality in Wales.

It could be argued that the economic and social conditions that gave rise to such high rates of tuberculosis were beyond the control of the WNMA. The organisation worked closely with the medical school in Cardiff (see following section), was closely involved in

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<sup>27</sup> Tomley, J.E. 'An Analysis of Tuberculosis Mortality in Wales, 1930-1933', *The Annual Report of the Welsh National Memorial Association for the year 1934*, 189-207:191.

<sup>28</sup> Bryder, Linda *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth-Century Britain*, Oxford, Clarendon Press, 1988, 115.

<sup>29</sup> Chalke, Herbert (1933) *An investigation into the causes of the continued high death-rate from tuberculosis in certain parts of North Wales*, Cardiff, for the King Edward VII Welsh National Memorial Association, 1933.

<sup>30</sup> Great Britain, Ministry of Health, Committee of Inquiry into the Anti-tuberculosis Service in Wales and Monmouthshire, *Report of the Committee of Inquiry into the Anti-Tuberculosis service in Wales and Monmouthshire*, London, HMSO, 1939.

educational work and sponsored a good deal of important research work. The high levels of tuberculosis in the coal mining districts (and in the slate quarrying districts) were found alongside occupational illnesses associated with dust, posing difficult problems in terms of diagnosis and aetiology.

## Further Research into Lung Diseases

Almost a decade after the founding of the WNMA, the decision was taken to begin to undertake serious research into the causes and treatment of tuberculosis. Under the terms of the National Insurance Act a certain sum of money had been set aside for research work. The Medical Research Committee (later the Medical Research Council) was established in 1913 to administer this fund, and David Davies was a member of the advisory council to the committee. The WNMA then set up its own advisory committee, including Sir Walter Fletcher, the secretary of the Medical Research Committee, and Professor Collis.

In 1920 S. Lyle Cummins, previously professor of pathology at the Royal Army Medical College, Millbank, was appointed both as medical officer and director of the association's research programme, and was also appointed to the new position of Chair of Tuberculosis in the school of medicine in Cardiff, funded by the Davies family. Under the leadership of the new appointee the Medical School built up a solid educational and research profile. The main focus of teaching was on the postgraduate Diploma in Tuberculosis. The close relationship between the college and the WNMA meant that students had unrivalled opportunities for the study and investigation of the disease throughout Wales. The course built up an international reputation and attracted many applicants from overseas, including a regular flow of students from India. These students took back to their own countries the knowledge and expertise they had acquired in Wales.

In addition to establishing the postgraduate diploma, Cummins also developed a research profile, focusing on experimental laboratory work, monitoring reactions of different types of cases to tuberculin given by the intradermal method. He had also begun to work on a study of coal miners' chest diseases, using radiological methods of investigation, in collaboration with Professor E.L.Collis and Dr. D.A. Powell of the WNMA. This was a critical development. Cummins explained the core of the problem:

*It has recently been established that certain coal-miners develop silicosis, this being confined to the men who work in hard headings where they are exposed to silicon dust. .... It appears, however, that many coal-miners who have never worked in silica dust develop radiological appearances which are difficult to distinguish from those of silicosis and this effect of coal-dust may in the future lead to a great abuse of the compensation scheme. It is, therefore, exceedingly important to learn how to differentiate the radiological appearances produced by pure coal-dust from those produced by silica.<sup>31</sup>*

Respiratory problems had long been associated with the coal industry and the term 'miners' phthisis' had referred broadly to chest diseases amongst miners. The term itself implied a link to tuberculosis and in many cases miners were suffering from both dust disease and tuberculosis. Identifying whether or not they were linked, or whether there was a causal connection, became an important area of research. High rates of

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<sup>31</sup> Report by the David Davies professor of tuberculosis to the WNMA subcommittee, summer term 1928', Cardiff University Archives, R/File/M/31.

tuberculosis and chest disease amongst miners in the south Wales coalfield made this region an important site of scientific investigation.

Following the introduction of compensation in February 1929 for sufferers of silicosis, there were a large number of claims for compensation, many of which were rejected. As a result there was a great deal of discontent, and at the request of the Home Office and the Mines Department, in 1937 the MRC sponsored a study by Philip D'Arcy Hart and E.A. Aslett into miners' chest diseases. They conducted an X-ray survey in miners in the anthracite coalfield of Ammanford, and looked at pits elsewhere in south Wales. The study demonstrated clearly that miners who had never worked in rock could be similarly affected to those who had been exposed to silicon. It gained recognition for, and furthered the understanding of pneumoconiosis. The survey succeeded in identifying an earlier stage of the disease, and so was able to come up with a practical recommendation that miners should be removed from the mines at this early stage and awarded compensation. It suggested that the incidence of pneumoconiosis was related to the rank of coal, with anthracite being more dangerous than steam coal, which in turn was more dangerous than bituminous coal. This study led to a compensation scheme designed to cater for men suffering from pneumoconiosis.

During the Second World War coal mining was a reserved occupation, so that miners remained working in the pits rather than joining the armed forces. After the war in 1946 there were 800,000 miners working in the U.K., of whom 120,000 were employed in south Wales. At this time 20,000 miners were certified as suffering from pneumoconiosis, most of whom were in the south Wales coalfield.

## **Aneurin Bevan and the Creation of the National Health Service**

When Lloyd George's National Insurance Scheme faced opposition from some of the large insurance companies, he had compromised by allowing them to be involved in administering the system. He also included a clause whereby any friendly society scheme that was already offering benefits that were more generous than those available under the Act could opt out and retain its independent status. Thus it was that some of the miners' welfare societies continued to operate autonomously, becoming important providers of medical care in south Wales, running hospitals and convalescent homes for miners as well as employing family doctors. They even extended benefits to the dependants of their members.

The Tredegar Medical Aid Society was one such friendly society. Aneurin Bevan, a young south Wales coal miner, after attending the marxist Central Labour College in London, returned home and served on the hospital committee of the Tredegar Medical Aid Society. He learned to appreciate the value of collective action and comprehensive protection in case of ill health. He also knew the true cost of occupational disease, as his own father died from pneumoconiosis. In 1929 he was elected Labour Member of Parliament for Ebbw Vale.

At the end of the Second World War Aneurin Bevan was appointed Minister of Health and Housing in the Labour Government. In 1946, he introduced legislation that led to the founding of the National Health Service in 1948. He was adamant that this had to be a universal service based on rights of citizenship. Bevan was insistent that the service should be funded through central government taxation, ensuring that there was a *national* health care system in the U.K. His knowledge of the dire financial straits faced by some

local authorities in south Wales convinced him that leaving health provision to local authorities funded through rates, would lead to uneven provision.

The passage of the bill through Parliament was not easy and there was much opposition from the leadership of the medical profession, but Bevan's skill at negotiating and political acumen ensured that the scheme was successfully brought into being. For Bevan and for a majority of the people of Wales, the National Health Service was one of the corner stones of the welfare state. It established a comprehensive health service to 'secure improvement in the physical and mental health of the people of England and Wales and the prevention, diagnosis and treatment of illness' by providing services free of charge.

Bevan's roots in the south Wales coalfields had done much to inform his knowledge and understanding of the fundamental issues facing British society in the mid-twentieth century. As Kenneth Morgan observes: '...Bevan's concern with the range of socioeconomic issues during the 1930s provided him with a broad synoptic diagnosis of the inter-related character of employment, welfare, health, education and other components of a civilized society.'<sup>32</sup> The people of Wales continue to see Aneurin Bevan as one of their greatest heroes, and to feel a special pride in the National Health Service and its principles of universal provision.

The scheme devised by Bevan involved a radical re-organisation of existing health services in the United Kingdom. All hospitals were nationalised, including all former local authority and voluntary hospitals, and placed under the management of a regional hospital board, of which one designated board was created for Wales. Other community based services remained under the control of local authorities. The office of Medical Officer of Health was retained. These officers continued to be employed by local authorities and to be responsible for maternity and child welfare, for midwives dealing with home deliveries, for health visitors, home helps and aftercare services, as well as for vaccinations. As part of a compromise with the medical profession, family doctors remained independent contractors and together with dentists, opticians and pharmacists, they were administered separately by Executive Councils.

In his ministerial role Aneurin Bevan held joint responsibility for health and housing and he regarded new house-building and upgrading of existing housing stock as a vital preventive measure in securing improvements in the health of the people. Between 1945 and 1951 the government was responsible for building over a million new homes in the U.K. This was extremely important for Wales. House-building had been at a virtual stand-still during the inter-war years, and the housing stock was ageing, with much of it devoid of amenities such as bathrooms and indoor toilets. The links between poor, damp housing and tuberculosis have already been noted.

The Beveridge Report of 1944 set out the principles of the post-war welfare state in Britain. Besides providing for a comprehensive, universal health service, free at the point of need, it also proposed major investment in education, full employment and a system of benefits for people unable to work. Each of these fundamentals of the Beveridge welfare state promoted the well-being of the people of Wales. They had voted overwhelmingly for the Labour government at the end of the Second World War and were deeply opposed to any return to high levels of unemployment such as were experienced during the 1930s. Improvements in housing, income and diet did bring about a significant improvement in

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<sup>32</sup> K.O.Morgan, (1995) 'Aneurin Bevan and the welfare state' in *Modern Wales: Politics, Places and People*, Cardiff, University of Wales Press, 454-462: 456.

health during the post-war years and life expectancy and the quality of life improved accordingly.

However, there were still some occupational groups with high mortality and high levels of sickness, notably miners and quarrymen. During the war, miners had fulfilled a vital service in maintaining output and meeting the fuel needs of the nation, and coal was still a crucial energy resource. Further research into the occupational diseases of miners was therefore an official priority. After the war Charles Fletcher was asked to set up an MRC research unit in south Wales, to investigate the problem of pneumoconiosis. It was to this research programme that Archie Cochrane brought his expertise in 1948.

## **Archie Cochrane and Randomised Control Trials**

Born in Kirklands, Galashiels in Scotland in 1909, Archie Cochrane was a Cambridge science scholar and studied psychoanalysis with Theodor Reik. He spoke fluent German, Spanish and French. On his return to the U.K. he read medicine at University College Hospital, London. He temporarily withdrew from his studies to join the Spanish Medical Aid Committee's Field Ambulance Unit on the Republican side in the Spanish Civil War, where he was given the task of assessing casualties for prioritising treatment. As he later wrote, this was a very hard lesson in the practice of 'efficiency'. In Spain he worked alongside a number of medical personnel who had connections with south Wales, including Alexander Tudor-Hart.

Cochrane returned to London to complete his medical studies and qualified as a doctor in 1938. With the outbreak of the Second World War, he joined the Royal Army Medical Corps. He was captured in Crete, and served as Medical Officer in a series of Prisoner of War camps. This gave him experience of monitoring the health of 'whole populations' living in confinement and under conditions of severe privation.

After the war, he studied at the London School of Hygiene and Tropical Medicine with Drs. Austin Bradford Hill and Donald Reid. He then spent a year in the United States and studied the interpretation of chest films and developed an interest in BCG immunisation. He became interested in medical error, and was fascinated, too, by the 'reading' of X-ray images and began to explore the value of X-ray prognosis in the investigation of tuberculosis.

On his return to the U.K., Cochrane was keen to apply these new skills, particularly in the service of mining communities. He approached Dr Philip D'Arcy Hart, one of his former teachers at medical school and who he had met again in Spain during the civil war. In 1946, D'Arcy Hart had been invited by the MRC to form a new tuberculosis research unit and to assess the value and risks of streptomycin in the treatment of pulmonary tuberculosis. Hart organised and conducted a controlled trial, the results of which were published in 1948 and gave a powerful endorsement to the use of streptomycin, showing it to be more effective than any previous therapeutic agent in the treatment of tuberculosis. Cochrane was asked to join the new MRC unit which Charles Fletcher was establishing in south Wales.

Cochrane investigated whether or not there was a causative relationship between tuberculosis and the development of simple pneumoconiosis into the much more serious condition of progressive massive fibrosis (PMF). Cochrane conducted a series of surveys, culminating in the major long-term study of two mining valleys, the Rhondda Fach and the Aberdare valley. They would screen the health of these communities, and X-ray the entire

adult population of over 15 years. In one valley they would work systematically to reduce the incidence of tuberculosis, and monitor the impact this had on the incidence of PMF amongst the miners.

This was a long-term project and the outcome in terms of research results was never really clear. Tuberculosis rates fell rapidly in both communities, due probably to improved conditions as well as to the impact of streptomycin as an effective treatment. However, at the commencement of the study the prospects for improvement were not clear, and both tuberculosis and PMF were terrible diseases that haunted mining communities.

Cochrane was adamant that to be effective the surveys had to achieve a very high response rate. Enormous energy was put into organising the surveys and involving entire communities in the screening procedures, helped by the influence of the South Wales Miners' Federation and the strength of the labour movement which meant that there was already a strong basis for community action and support.

During the course of the survey the team worked long, exhausting, unsociable hours to achieve an astonishing 95 per cent response rate. In pre-computer days the record keeping was a daunting task and Cochrane's zeal for efficiency was matched by that of his staff. He devised a system of cross-checking each reading and monitoring the quality of radiographic observations and developed an internationally recognised classificatory system for the diagnosis of chest diseases. These were pioneering days and the outcomes went far beyond the original research objective. Data was collected that facilitated the study of a whole range of conditions, from ischaemic heart disease and hypertension to thyroid problems.

Although the original hypothesis being tested in the Rhondda Fach survey concerned the implication of tuberculosis in the aetiology of PMF, there was growing evidence to suggest that length of exposure to dust was a primary determinant in the progress of the condition. It may have been no coincidence that the disease was so dominant in south Wales. Compared to other coalfield areas there was little alternative employment and men stayed for many years working underground.

Pollution levels increased enormously with the introduction of coal-cutting machinery, which generated large quantities of fine dust. Cochrane was keen to investigate the impact of dust in these conditions, but this could only be done underground. Space was cramped, mining could not be halted and the technicalities of measuring the amount of dust that a miner inhaled at the workplace were only gradually solved. Cochrane was always keen to adopt methods of research that could lead to practical results.

Cochrane and his team conducted a classic community study in south Wales. The clinical and environmental studies formed what was fundamentally an epidemiological project. It not only provided a total picture of the health of a community at that point in time, but also generated a longitudinal data set, with a number of follow-up studies being conducted. As the incidence of tuberculosis declined, and the coal mining industry introduced new measures to control dust and a regular screening programme for miners, the need for further research on dust disease of miners declined. The community surveys had yielded much wider information about the health status of their populations and the growing interest in community medicine made it a natural time for Cochrane to move on and to seek another position.

In 1960 he was appointed David Davies Professor of Tuberculosis and Chest Diseases at the Welsh National School of Medicine, Cardiff, and at the same time became Honorary Director of a new Epidemiology Unit, sponsored by the Medical Research Council and based at Cardiff. He modernised and reorganised the degree programme in Tuberculosis and Chest Diseases. At the Epidemiology Unit he initiated a series of new studies, including follow up studies in the Rhondda Fach and Vale of Glamorgan; a study of the early detection and treatment of iron-deficiency anaemia; a survey of glaucoma; and cervical cytology, evaluating the effectiveness of programmes of cervical screening. His team also carried out a randomised trial comparing in-patient and outpatient treatments for injecting varicose veins, and conducted a comparison of coronary care units.

Cochrane's years in south Wales informed his classic 1972 text, *Effectiveness and Efficiency* and the Rock Carling lecture. The book and the lecture made a huge impact and shortly afterwards he was invited to become the first president of the Faculty of Community Medicine of the Royal College of Physicians of the U.K. His thoughts and observations, and his passionate belief in the value of randomised control trials met with international acclaim. At that time, he wrote:

*Too much that was being done in the name of health care lacked scientific validation. I had always been a supporter of the NHS, passionately believing that "all effective treatment must be free", but there seemed far too little interest in proving and promoting what was effective. In the course of our surveys I had sufficient contact with the working of hospitals and clinics and the delivery of health care generally to be dismayed by what passed for service. I was troubled by the variable and curious prescribing of general practitioners, and the all too varied reasons for referring patients to hospital, the attitudes and behaviour of the consultants they encountered there, and the variable ways in which death certificates were completed. I sometimes thought of all this as my Rhondda Fach worm's eye view of the working of the NHS.<sup>33</sup>*

Of the streptomycin trial and the tremendous change brought about by that one effective therapy, he wrote:

*Looking back, this is undoubtedly the point at which the immense potential of the randomised controlled trial began to dawn on me. It offered clinical medicine, and health services generally, an experimental approach to questions of effectiveness and efficiency, and a massive step forward from "validation" by clinical opinion and essentially subjective observations.<sup>34</sup>*

When Cochrane retired from the Epidemiology Unit in 1974, Dr Peter Elwood succeeded him as Director. Backed by Cochrane, Elwood conducted one of the first trials of the effect of aspirin on myocardial infarction, and their findings, subsequently confirmed by other much larger studies, demonstrated how efficacious such a simple treatment could be, with the potential to reduce the number of deaths and non-fatal infarctions by 20-30 per cent.

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<sup>33</sup> Cochrane, Archie with Max Blythe, (1989) *One Man's Medicine*, London, BMJ, The Memoir Club; 157-158.

<sup>34</sup> *ibid.*, pp. 158. Also see Ness, A.R., Reynolds, L.A., Tansey, E.M. (2002) *Wellcome Witnesses to Twentieth Century Medicine*, Vol 13, Population-based Research in South Wales: The Pneumoconiosis Research Unit and the MRC Epidemiology Unit, London, Wellcome Trust.



## Changes in Public Health Practice

Whilst Cochrane had been working on his epidemiological surveys of south Wales, changes in both the health services and in the welfare state meant that the field of public health medicine needed to be adapted, or re-invented. Occasions did arise when classic public health could still usefully be practised. A smallpox outbreak in Glamorgan in 1960-61 was quickly brought under control through isolation of suspected cases, contact tracing and vaccination of the population within proximity of the outbreak.

In 1968, the Todd Report led to the establishment of a new speciality of Community Medicine, defined as one practised by epidemiologists and administrators of medical services; and following the 1972 Hunter Report, community physicians were integrated into the NHS.<sup>35</sup> New ideas concerning health promotion and the new public health began to be advocated.

In Wales political governance was undergoing considerable change. The creation of the Welsh Office in 1964 together with the appointment of a Secretary of State for Wales was an important step in devolution. In 1969 the government transferred responsibility for health and welfare services to the Welsh Office.<sup>36</sup> This brought to an end the Welsh Board of Health, which had administered health on behalf of Whitehall for the previous fifty years. A new post of Chief Medical Officer for Wales was created, a role that included overall responsibility for the hospital services, as well as a public health function.

In 1984 a new post of Director of NHS Wales was created, in response to the NHS Management Inquiry of 1983, led by Sir Roy Griffiths, which recommended a system of general management at all levels throughout the health service. John Wyn Owen was the first incumbent, holding the post until 1994. In addition to some reconfiguration of the acute sector and the building of five district general hospitals, a strategic role was given to health promotion and community involvement in health improvement. The strategy of incorporating both health services and public health was clearly linked to the 'Health for All' principles of the World Health Organisation. This was a period when there was substantial investment in the Welsh economy, and the ambition was to 'take the people of Wales into the twenty-first century with a level of health on course to compare with the best in Europe'. By linking Wales to Europe it was possible to set targets and establish European benchmarks as a framework for strategy. The strategic direction was 'health gain, adding years to life and quality life to years', to be people-centred, to make effective use of resources and to strike a balance between prevention and treatment; care and rehabilitation; and primary and secondary care.

This was a time of considerable innovation in Wales. The first regional health promotion project to be adopted in the U.K. was launched, *Heartbeat Wales*. This made effective use of media coverage, had a lively programme of community involvement and successfully appealed to all age groups. Dame Deirdre Hine, later to become Chief Medical Officer for Wales, was instrumental in launching a breast cancer screening organisation, Breast Test Wales. An innovative perinatal initiative was also launched. A new priority was an all-Wales information technology network, which facilitated the development of community and child health information systems, as well as telemedicine and health informatics. Technological innovation was revolutionising techniques for hernia, varicose vein, and hip

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<sup>35</sup> Lewis, J. (1986) *What Price Community Medicine?* Brighton: Wheatsheaf.

<sup>36</sup> Webster, C. (2006) 'Devolution and the Health Service in Wales, 1919-1969', in Michael, P. and Webster, C. *Health and Society in Twentieth Century Wales*, Cardiff, University of Wales Press, 240-269.

and knee surgery, which in turn brought about critical changes in the role of acute care, length of hospital stay and the relationship with community care.

In 1992 Wyn Owen and his team, of which Professor John Catford was a member, published *Caring for the Future*, a strategy to take Wales beyond the turn of the century. It set a number of 'Health of the Nation' targets, and included local strategies for health and health gain. The successful way in which Wales engaged with the WHO agenda led it to having influence way beyond its borders. The Welsh model developed during the decade 1984-1994 proved of interest to countries in Eastern Europe. Wales became host to WHO Collaborating Centres in health promotion and in regional strategies. Best practice in Wales even informed the 1996 WHO Ljubljana Charter on reforming healthcare, which reflects aspects of Wales's Strategic Intent and Direction in advocating that health care systems should be:

- *Driven by values of human dignity, equity, solidarity and professional ethics*
- *Targeted at protecting and promoting health*
- *Centred on people, allowing citizens to influence health services and take responsibility for their own health*
- *Focused on quality, including cost effectiveness*
- *Based on sustainable finance to allow universal coverage and equitable access*
- *Oriented towards primary care*

During this period, NHS Wales pioneered an integrated all-Wales strategy emphasising health improvement, and introduced the principle of measurable outcomes to health policies and management. John Wyn Owen has spoken of the importance of size for effective health care management:

*... it is the scale of the English NHS Chief Executive's task that is impossible but the same is not true of the situation in Wales which is an ideal size, not least because it is possible to get key opinionleaders into one room to secure ownership of principles and strategies, and create partnerships to enable innovation to take place right across the board, even in health and health care.<sup>37</sup>*

## **Julian Tudor Hart: Epidemiology and Primary Care**

Dr Julian Tudor Hart is a pioneer of community medicine who practised in south Wales. Tudor Hart trained at St George's Hospital Medical School and spent a few years in general practice in London. In 1960, Tudor Hart took a post with the MRC's Pneumoconiosis Research Unit as an epidemiologist and joined the Rhondda Fach Survey. Cochrane regarded Tudor Hart as one of a 'remarkable series' of talented young men who joined the team. After completing one survey 'meticulously', Tudor Hart announced his intention of moving back into primary care, where he felt that he could have a direct impact and bring about improvements in the lives of working people more immediately than by merely conducting research. Cochrane ruefully admitted that Tudor Hart was probably right.<sup>38</sup>

So, in 1961 Tudor Hart took up a post as general practitioner in Glyncorrwg, a small mining community at the upper end of the Afan Valley in south Wales, where he served for

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<sup>37</sup> Wyn Owen, J (2006) 'Change the Welsh Way' in Michael, P and Webster, C *Health and Society in Twentieth Century Wales*, 270-286; 278.

<sup>38</sup> Cochrane, A.L. and Blythe, Max (1989) *One Man's Medicine*, 162.

thirty years. During that time he not only provided medical care for his patients, but also conducted extensive research and published prolifically in medical journals. He developed definite ideas about the role of the medical practitioner in primary care and wrote *A New Kind of Doctor*, which became extremely popular, influencing a new generation of doctors.<sup>39</sup>

Tudor Hart has advocated the importance of the family practitioner and community health team in carrying out screening and predictive work, in order to identify problems at an early stage. By intervening in a timely way, effective treatments can be carried out and health behaviours modified to good effect. He sees the family doctor as having a crucial role to play in preventive medicine, using mutual trust and respect with their patients to influence health behaviours on an individual and community level.

Tudor Hart has a keen sense of commitment to an economically and socially deprived community. Working in a disadvantaged area meant carrying a heavy work-load. Consultation rates were probably 80 per cent higher than in the average practice,<sup>40</sup> reflecting real differences in health status. In the south Wales valleys in 1970 mortality from ischaemic heart disease in men aged 35-44 was 75 per cent above the England and Wales rate, and mortality from stroke in men aged 35-64 was 50 per cent above the England and Wales rate. Tudor Hart built up a valuable epidemiological profile of this ex-mining community.<sup>41</sup> He demonstrated the value of regularly screening for hypertension and the importance of attention to signs of rectal bleeding.

He is known most widely for advancing the 'inverse care law', a model drawing partly from his own knowledge of circumstances in south Wales, whereby the best and most comprehensive health services are concentrated in areas of relative affluence, and the poorest health services are those in areas of greatest need, where people also experience the greatest difficulty in accessing healthcare. Tudor Hart has always championed the cause of the neediest in society, and working with people in an increasingly disadvantaged and marginalised area of the coalfield, sharpened his critical awareness. Tudor Hart was a long-standing member of the Socialist Health Association and one of an important band of socialist doctors practising in south Wales. Others included Arthur Jarman, tuberculosis officer for Neath, Dr Thomas in Seven Sisters, and Dr Alastair Wilson in Aberdare and one of Tudor Hart's practice partners, Dr Brian Gibbons, became a health minister in the Welsh Assembly Labour Government.

Tudor Hart is a strident critic of the 'commodity approach' to NHS healthcare, and his recent book *The Political Economy of Health Care* (2006)<sup>42</sup> challenges us to think critically about the values of our society and the future of our health care service. He sees patients

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<sup>39</sup> Hart, J. Tudor (1988) *A New Kind of Doctor: The General Practitioner's Part in the Health of the Community*, London: Merlin Press.

<sup>40</sup> Tudor Hart, J. 'General-practice workload, needs, and resources in the National Health Service', *Journal of the Royal College of General Practitioners*, 1976, 26, 885-892.

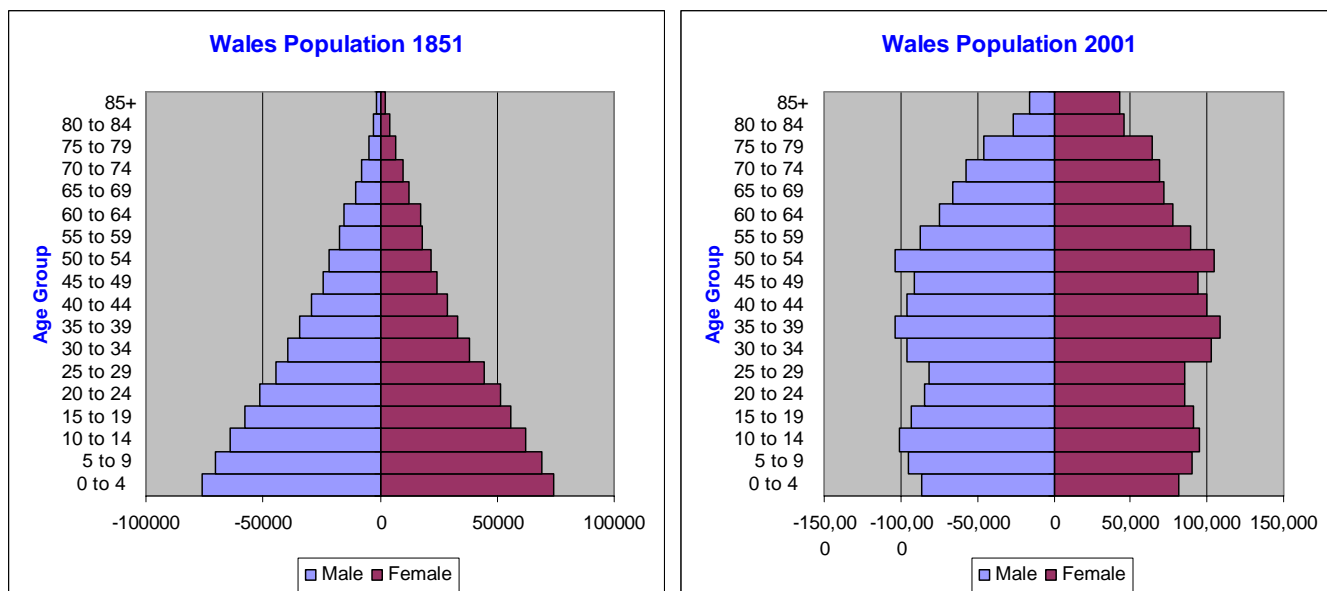
<sup>41</sup> Tudor Hart, J. (1974) 'The marriage of primary care and epidemiology: continuous anticipatory care of whole populations in a state medical service', Milroy Lecture, *Journal of the Royal College of Physicians of London*, Vol. 8, 299-314.

<sup>42</sup> Tudor Hart, J. (2006) *The Political Economy of Health Care: A Clinical Perspective*, Bristol, Policy Press.

as potential producers of health gain, rather than as consumers, and urges us to think radically not only about the role of patient as subject, or the role of the researcher, but also about the fundamental nature of our economic system.<sup>43</sup>

## Economic and Social Change, 1951-2001

Figure 5: Welsh population structures<sup>44</sup>



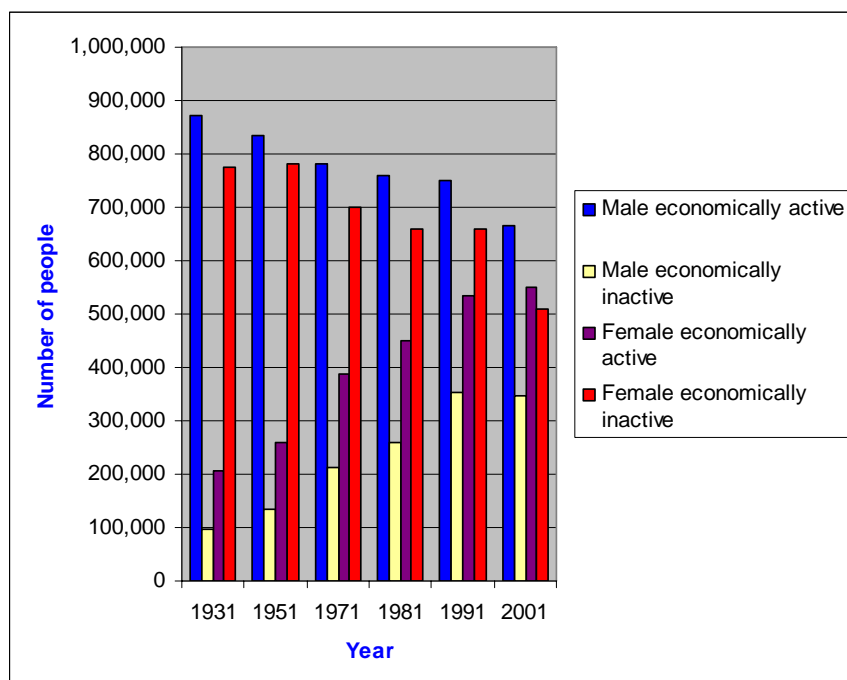
At the beginning of the twenty-first century Wales has a very different population structure to that of the mid-nineteenth century, when the birth rate was high and only a small proportion of the population lived beyond the age of seventy. (See figure 5). Now we have an ageing population. Indeed, Wales has a slightly higher proportion of the population aged 65 years and over than England, and there are also less young adults.

During the industrial era the opportunities for female employment were limited. Women in Wales had lower rates of economic activity than in England during the inter-war period. Women were expected to be full time housewives in Wales until at least the 1950s, a pattern broken only by war-time demands on labour. For the wives of working men the pattern of housework, washing, cleaning and cooking was arduous, and child-care had little support from outside the home. The change over recent decades is notable, and can be seen from the graph below.

<sup>43</sup> For further details on his contribution in south Wales, see Michael, P. 'Dr Julian Tudor Hart: A Profile' in Michael, P and Webster, C (2006) *Health and Society in Twentieth Century Wales*, 201-207; and for some of his thoughts and recollections, and a critique of 'The Citadel' representation of general practice and public health in south Wales, see his chapter 'Storming the Citadel: From Romantic Fiction to Effective Reality' in the same volume, 208-215.

<sup>44</sup> [www.visionofbritain.org.uk](http://www.visionofbritain.org.uk)

**Figure 6: Wales economically active men and women 1931 – 2001**<sup>45</sup>



Another important change that has occurred is in the pattern of employment. Whereas Wales was dominated by heavy industrial employment, agriculture and unskilled and semi-skilled jobs, the twentieth century has seen a steady rise in the number of professional and managerial jobs, a shift that has accelerated over recent decades. Changing patterns of living have brought about significant changes in Wales in the late twentieth century, raising new challenges for the management of the nation's health.

The health implications of living in declining industrial areas give rise to major challenges for public health in Wales. These areas are suffering from what are termed indices of 'multiple deprivation'. They include some familiar names: Merthyr Tydfil, Blaenau Gwent and in north Wales, Rhyl West, a declining coastal resort, and parts of Wrexham in north-east Wales. They record problems of high unemployment, poor housing, low income, high rates of sickness, high rates of teenage pregnancy, high proportions of lone parents, high rates of obesity, and problems of drug and alcohol abuse.

Tackling these problems has so far been approached on a neighbourhood basis, with various healthy living projects and community initiatives. The underlying problems are economic and social and may require more ambitious approaches in the long term. Meanwhile, public health has embraced the notion of 'cross-cutting' strategies, of linking to other policy areas, such as transport and planning, and also of conducting health impact assessments of local and regional strategies and major redevelopments.

During the 1970s and 1980s a good deal of emphasis was placed on health promotion and on educating the public about the health hazards of smoking, eating unsaturated fats and taking insufficient exercise. The success of campaigns like Heartbeat Wales was in getting people to engage in these issues and to join in activities and alter their patterns of diet and exercise. However, the growing rates of obesity in Wales, and the alarming increase in Type II diabetes suggest that much still needs to be done.

<sup>45</sup> [www.visionofbritain.org.uk](http://www.visionofbritain.org.uk)

New public health challenges were emerging at the end of the twentieth century that clearly had their roots in health behaviours, but which also reflected patterns of economic and social disadvantage. The death rate for men from all causes is 938 per 100,000 compared to 891 in England. There are higher rates of death for both men and women from circulatory and respiratory diseases in Wales as opposed to England, and higher rates of death for women from cancer. People in Wales suffer considerably more from hypertension, asthma and diabetes.

Moreover, mortality rates vary considerably across Wales. For example, the mortality rate from coronary heart disease in 1996, the average rate for Bro Taf was 61 per 100,000, but this obscures significant differences between areas within this district, ranging from 47 in the Vale of Glamorgan to 72 in Rhondda Cynon Taff. Only Blaenau Gwent had a higher rate at 78 per 100,000. Similarly rates of long-term limiting illness show marked geographical variations, with 15.5 per cent of the adult population in Gwynedd and 26.7 per cent in Merthyr Tydfil being registered as sufferers.

An important development in the organisation of Welsh Public Health has been the creation of the post of the Chief Medical Officer for Wales, first within the Welsh Office and latterly, in the Welsh Assembly Government. Richard Bevan (1965-1977), Gareth Crompton (1978-1989), Dame Deirdre Hine (1990-1997) and Ruth Hall (1997-2005) have successively occupied the peak position of leadership for public health, improving and protecting the health of the people of Wales.

## **The Creation of the Welsh Assembly**

Following the 1998 referendum on devolution, the nation now elects the members of the Welsh Assembly, which has direct responsibility for education, health, social services and transport. This means that Wales now has a greater opportunity to shape health policies designed specifically to meet the needs of the Welsh people. The key policy document adopted by the Assembly government was entitled *Better Wales*. The consultative document for health policies, *Better Health - Better Wales*, laid out the need to improve the health of the Welsh people as a primary objective of the newly elected government.

Wales was seen to be disadvantaged in relation to England on a whole range of health indicators. This was underlined by a policy discussion paper prepared for the Nuffield Trust, entitled *Freeing the Dragon: New Opportunities to Improve the Health of the Welsh People*. *Better Health - Better Wales* stated that 'The Government wishes to tackle the underlying causes of ill-health through a new approach which recognises and addresses the factors which impact on health.' It proposed promoting sustainable health and well-being through securing healthy workplaces, community safety and tackling social exclusion, promoting healthy lifestyles, healthy schools, improved housing and reduction of hazards. It promised to establish partnerships for health, involving individuals, community and voluntary organisations, as well as local authorities and the NHS.

In January 2001 the then Assembly Government Minister for Health and Social Services, Jane Hutt, launched a plan for the NHS with its partners for the next ten years, *Improving Health in Wales*. The plan set out to improve the health service in Wales, to prevent disease and ill health, to promote and strengthen primary care and tackle health inequalities. It promised to modernise hospital services and promote patient involvement. An additional £1 billion was to be spent on the NHS over the next three years. A programme of re-organisation was introduced, designed to enhance local involvement and

planning, promote primary care and ensure greater co-ordination with social care. The five health authorities were abolished and 22 local health boards created.

Recognising the considerable inequalities in health that exist within Wales, a Resource Allocation Working Party was appointed under the chairmanship of poverty expert Peter Townsend. Its final report, *Inequalities in Health, the Welsh Dimension 2002-05*, indicated the magnitude of the problems. Mortality rates in Wales are amongst the worst in western Europe, with heart disease and cancer rates being a major concern. Rates of long-term limiting illness are much higher in Wales than England and are particularly concentrated in the south Wales valleys, in the old coal mining and industrial areas. This inequalities agenda still challenges contemporary political, professional and managerial leaders in today's Wales.

In 2003 Jane Hutt announced a cash boost of more than £11 million to help reduce health inequalities in Wales and target funding to improve access to health services for those most in need. Neath Port Talbot, Rhondda Cynon Taf and Torfaen were amongst the local health boards that benefited. Projects supported included initiatives for the elderly, children, and schemes targeted at mental health and coronary disease. These areas were also addressed in the setting of new health outcomes targets in 2004.

Before leaving the post of Chief Medical Officer for Wales Dr Ruth Hall warned of the huge challenge ahead for public health, stating that hitherto the 'sheer scale of the task to improve the health of the nation has been underestimated in Wales'.<sup>46</sup> Dr Tony Jewell, who took up the post of Chief Medical Officer for Wales in 2006, has recognised the need to address the determinants of health, including economic, social and environmental factors. His office works in close collaboration with other departments, such as Social Justice and Regeneration; Environment, Planning and Countryside; Transport; and Education. In Wales there is a clear recognition of the important role of the primary health care delivery system for achieving equity, effectiveness and efficiency, and a strong commitment to improve the health of the Welsh people.

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<sup>46</sup> *Western Mail*, 3 February 2005.

CURIAD CALON CYMRU  
HEARTBEAT WALES

