

Medical History

Margaret Dunlevy (1909-2002) and the Conquest of Childhood Tuberculosis in Dublin

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Among the hereditary physicians, successors to the leeches caring for the Gaelic princes in olden times, the Dunlevys served the O'Donnells in Donegal. In the 20th century this old tradition was not lost. Two sons and two daughters of the five children born to Margaret and George Dunlevy (a grocer on Main Street, Mountcharles in county Donegal) entered the medical profession. In the saintly way that names were bestowed in profusion, the younger girl born on 13th August 1909 was burdened with Bridget Margaret Mary, softened to Pearl during her childhood (Figure 1).



Fig 1. Dr Margaret Dunlevy (1909-2002)

Pearl studied Medicine at the Royal College of Surgeons in Dublin, graduating with First Class Honours in 1932. Female graduates found it difficult, if not impossible, to get postgraduate training in Ireland, and Pearl became house surgeon in the Eye Hospital in Newcastle-upon-Tyne, house physician in the General Hospital in Nuneaton, resident house officer at the Children's Hospital at Birmingham and, later, at Sydenham in London and the Orthopaedic Hospital at Standon in Staffordshire.

In 1935 she returned to Ireland as Assistant County Medical Officer in her native county before appointment in 1937 as Assistant in the School Medical Service in Dublin. With the reorganisation of the health service in 1970 she became Deputy Chief Medical Officer of the Eastern Health Board, where she continued until her retirement in September/October 1976.

For all its fresh air and bright sunshine, Dublin was not a healthy city in 1937. Its death rate from tuberculosis was twice that of major cities in the neighbouring isle, still suffering from economic depression after the Great War of 1914-1918. In 1935 the Dublin tuberculosis death rate was 1.3 per thousand population, and in Ireland it had risen to 1.63 per thousand by 1945. Very young children suffered

disproportionately: of the 827 deaths in Dublin's population of 500,000, 123 were of children under 14 years of age, and two-thirds of this group were infants under 2 years suffering the invariably fatal tuberculous meningitis (Dunlevy, 1948).¹

After a spell as resident medical officer in Crooksling Sanatorium in rural county Dublin, Dr Dunlevy moved to the city to work in the Collier Tuberculosis Dispensary, Charles Street West, Dublin 1. Parents were loath to bring children into this building, crowded as it was with cases of open tuberculosis. Dr Morgan Crowe (1907-1993), acting City Medical Officer of Health, inaugurated a Primary Tuberculosis Clinic. To begin, one session a week was held, though unwelcome, at the Carnegie Trust Child Welfare Centre, Lord Edward Street, Dublin 2. Numbers soared and, with Dr Crowe's assistance, a new location was found in 1949 at 6 Clarendon Row, now part of the Conservatory of Music and Drama, Dublin 2 (Figure 2).



Fig 2. The building provided from 1949 for Dr Dunlevy's Primary Tuberculosis Clinic for children, at 6 Clarendon Row in Dublin

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From the Clinic's inception, Dr Dunlevy kept records in her patients' charts that would have done credit to Laennec, and her assistants were trained to do the same. The records over the first three years of operation enabled her to review the results from 1945 to 1947 in 1,264 children infected with primary tuberculosis (Table 2).¹

TABLE 1

Proportion (%) of 13-years-old Children found to be Tuberculin-Positive in 1959

Holland	3.5
London	7.5
Glasgow	16.9
Dublin	29.9

A tuberculin test, erythrocyte sedimentation rate, gastric lavage and chest radiograph were performed before supervision (or hospitalisation, if necessary and available) of the cases began. Nutritional supplementation was necessary in some cases: of the 1,264 children, 472 came from families with an income of less than 10 shillings per head per week. 182 of the children each came from a family existing in one room in a tenement house, the abode of 24% of the city's population at that time. The sources of infection were traced to 611 open cases, nearly all within the family, one in three being the mother.

TABLE 2

Ages of Children attending Clinic and Deaths in Dublin in the period 1945-1947

Age (years)	Number	Deaths Attending
< 2	129	18
2-5	340	4
5-10	526	9
10-14	269	5
TOTAL	1,264	36

Particular attention was paid to alerting signs. *Erythema nodosum* was seen in only 32 of the 1,264 children: in every case the patient or the parent was carefully questioned. This low frequency of 2.5% in children up to 14 years of age was consistent with the general experience that this allergic manifestation occurred more frequently in older age groups (e.g. in Scandinavia, contemporary records showed a sharp maximum at 20-25 years).² The 32 cases (only one of them was under 5 years of age) comprised 20 girls and 12 boys, an unusually high male ratio. On average, the nodes were seen one to three months before radiological evidence.

Phlyctenular conjunctivitis was observed in 64 children, 38 girls and 26 boys, all of them tuberculin positive. In the vast majority (57 of the 64 cases) radiological signs indicated healing. The phlycten was present in only 5 cases before radiological evidence of disease, suggesting that phlyctens

might be indicators of healing. Social conditions of the families were definitely poor, with substandard income or unemployment and dire living conditions – in 16 instances the family lived in one room. Yet, in spite of the penury, no deaths occurred in the 64 cases with phlyctens.

Over three years the number of progressions to adult phthisis was 29, but many of these were tertiary cases when they came under initial observation: tubercle bacilli were found in the sputum of 15, and after gastric lavage in another 8 children. Six of the sputum-positive cases died. One case became sputum-negative and calcification was noted in the primary focus.

TABLE 3

Deaths from Childhood (0-15 years) Tuberculosis in Dublin City

Year	Pulmonary Tuberculosis	Tuberculous Meningitis	Tuberculosis in other sites
1947	27	81	30
1952	6	17	2
1957	1	4	1
1962	-	2	-
1963	-	1	-
1964	-	-	2
1965	1	-	-
1966	-	-	1

The value of radiological examination of the lungs in primary infection lies in serial observation, even though early lesions may not be detectable: a lateral as well as an anteroposterior view is imperative. Of itself, primary infection is not the cause of death: miliary tuberculosis and meningitis (indicative of blood-borne infection) are the death-dealers. Progression and spread of disease can be monitored by the erythrocyte sedimentation rate (ESR), but caution is advisable for an increased ESR may indicate the presence of a septic focus or a tuberculous lesion elsewhere (in bone, a joint, or abdominal or cervical lymph nodes). Rest, for a year at least, was the keynote of treatment, at home or in hospital. Theo Dillon (1898-1946) calculated that one hospital bed should be provided for every four cases of primary disease.³

In 1947 Dorothy Price (1890-1954), author of 'Tuberculosis in Childhood'⁴, advised Dunlevy to visit Scandinavia. There she came under the spell of Johannes Holm (1902-1990), Chief of the Tuberculosis Division of the State Institute in Copenhagen. Holm had advised the United Nations International Children's Emergency Fund (UNICEF), and Pearl accepted that an ounce of prevention was better than a ton of therapy. And so Dublin became the first city in these islands to have a BCG service. That was a programme of immunisation using the Bacille Calmette-Guérin, supplied weekly (by air) from Copenhagen. Schools were visited for tuberculin testing of 10-14-year-olds (Table 1), and 72 hours later BCG was administered to tuberculin-negative children. On account of the prevalence of tuberculosis in the city, the

Masters of the Coombe and Rotunda Hospitals permitted immunisation of neonates. Younger children were more vulnerable than older (Table 2), but over the first ten years (1947-1957) the death rate from tuberculosis fell rapidly (Table 3).

When tuberculosis faded as a major problem, Dr Dunlevy broadened the scope of her preventive programme. She promoted diphtheria immunisation and again led the way when a vaccine was found for acute anterior poliomyelitis. When some birth defects were recognised to be consequences of infection by rubella during pregnancy she turned her attention to the epidemiology and control of that fever. Her ability to understand infectious diseases and to organise suitable programmes of intervention was outstanding, but she was not above learning – she set off on a postgraduate

course on tuberculosis in the International Children's Centre in Paris in 1954.

She died on the 3rd of June in 2002. Donegal's loss was Dublin's gain.

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