THE CHANGING PATTERN OF INFECTIOUS DISEASE IN FAMILY PRACTICE*

G. I. WATSON, M.D., D.T.M. & H.
Peaslake

The battle of infection between man and his pathogenic enemies is fought on shifting ground. Man seeks the advantage by avoiding infection, while increasing his diagnostic and therapeutic skills; the germs of disease fluctuate in virulence for reasons we cannot tell.

What impact has this changing pattern made on infectious diseases in family practice over the last 25 years?

Exposure

Our exposure to water- and food-borne infection has greatly diminished; air-borne infections, however, such as measles, influenza and—in a sense—chronic bronchitis, are still menacing. " Clean " air (both public and personal) with freedom from smoking and smog must take its rightful place along with clean water and clean milk, as a prime objective for the profession and the community.

The value of quarantine and the duration of infectivity can now be studied with more understanding than 25 years ago. Hope-Simpson's concept of the serial interval has shown us how, if the true incubation period of a disease is known, the duration of infectivity can be measured. Measles and rubella, for example, are particularly infectious before the peak of illness is reached; while other diseases such as mumps, influenza and poliomyelitis, remain infectious well into convalescence. Figure 1 records how two partially immunised children, infected with poliovirus on holiday, transmitted the disease to their father at a serial interval of 32 days. One or

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both children must have remained infective for 18—25 days after their own brief illness began.

Infection

Looking back through one's notebooks, the most striking feature of general practice 20—25 years ago was the domination of pneumonia and streptococcal infection with long periods of daily or twice-daily visiting. In the first three months of 1940 I attended 20 cases of pneumonia (excluding acute bronchitis): of these, five

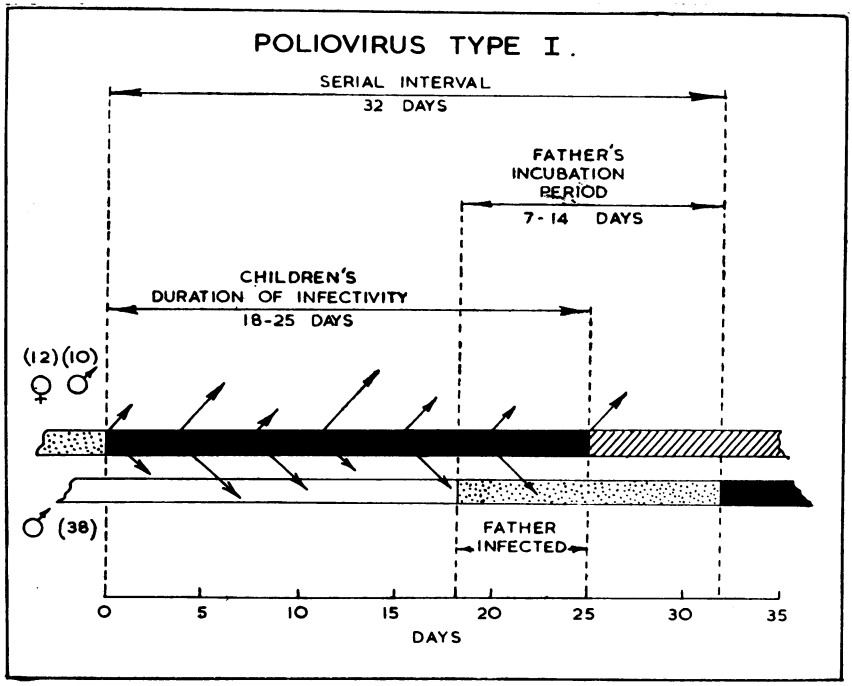

Figure 1
Duration of infectivity=serial interval—incubation period

were sent to hospital and one child died at home. Figure 2 shows how the pattern of this disease has changed in twenty years.

In 1936 a woman pricked her thumb with a thorn while gardening one Sunday. On the following Wednesday her arm was amputated for spreading cellulitis, and by the next weekend she was dead with streptococcal septicaemia. Scarlet fever, has waxed and waned in virulence over the centuries. Changes in the seasonal and regional distribution of specific types of *streptococcus pyogenes* are evident even within one practice from year to year. Puerperal sepsis,

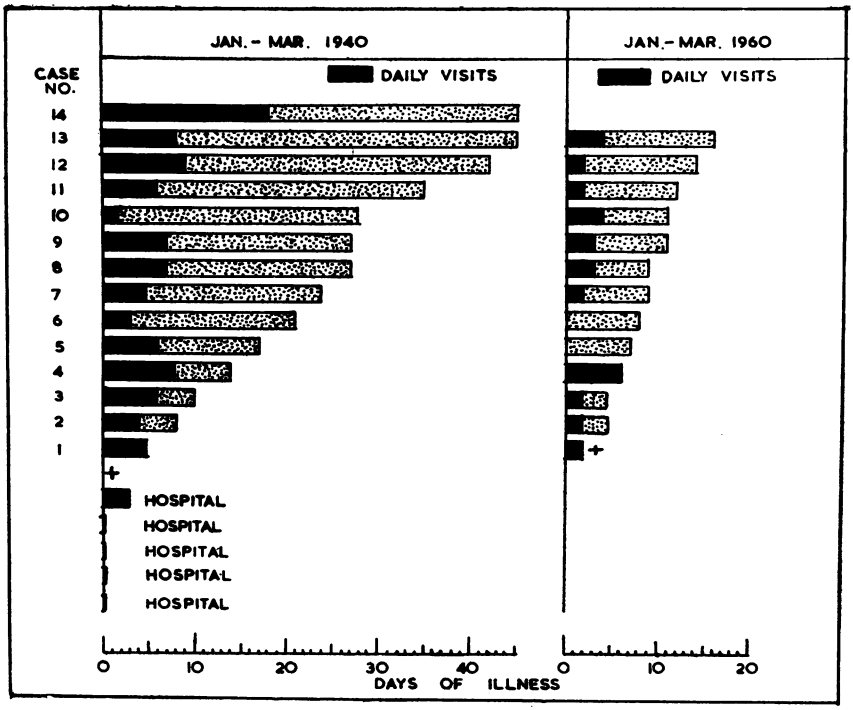

Figure 2
Pneumonia: length of illness and daily visits

peritonitis, meningitis, and septicaemia were not uncommon diagnoses before the war; yet recently a youth with lymphangitis said he had never heard of blood poisoning.

All over the world, preventive measures against tuberculosis have reaped a rich reward. About 1890, when my father started medicine, one in every four Glasgow students died of consumption before entering practice. 40 years later, in London, only one of us did so out of 28. In 1952, I saw what may have been the last epidemic of bovine tuberculosis in Surrey. Because a child of two did not recover as expected from acute tonsillar adenitis, a tuberculin patch test was applied which proved positive. Fifteen other affected children soon came to my notice, all drinkers of the same untreated milk supply.

Therapy

Since the introduction of sulphonamides in 1935 and mass immunisation against diphtheria in 1940, the fortunes of this war between man and his parasitic enemies have swung strongly in his favour. Well versed in the use of leeches, linseed poultices, and

Dover's powder, I still vividly remember the impact of " M & B 693 " upon general practice in the winter of 1939/40. I recall particularly the miracle of seeing a small boy with pneumonia bouncing about at the end of his bed on the fifth day of his illness.

In the years that followed, we had to learn what these new drugs could do, the timing and duration of dosage, and of course their toxicity. One young woman in 1939 developed aplastic anaemia after taking only six tablets of sulphapyridine; cases of haematuria were not uncommon. After the war came the new wonder of penicillin and we had to learn all over again what it could achieve when our old magic failed. Streptomycin a few years later brought the promise that medical students might complete their training without facing the tuberculous hazards of past generations.

It was natural to hope that drugs would also be developed against viruses. Before these hopes began to fade, vaccination against yellow fever during the war had opened up new horizons. Vaccines have since been developed against influenza, poliomyelitis and—now more recently—measles. The prospect of summers without the anxiety of " polio ", and winters without the dislocation of measles or influenza turned my thoughts back to other diseases now virtually extinct from general practice.

Before the war my partner saw anthrax spread from a tanner to his child. The last outbreak of paratyphoid I dealt with was in 1938. In the summer of 1939, I attended over 50 cases of acute enteritis spread by the man who capped our local milk supply by hand. Our last case of diphtheria was in February 1940 and it is 9 years since I sent a child with scarlet fever to a fever hospital. The last new case of pulmonary tuberculosis I diagnosed in my surgery was in 1953; in a country practice like ours, this condition is now more likely to be first revealed by mass radiography. Our last epidemic of whooping cough was in 1954, and the last child with bacterial meningitis, whom I attended, was in 1955, caused by *haemophilus influenzae*, not the meningococcus.

Yet constant vigilance is still needed. In February 1940, a child of two died of pneumococcal septicaemia in eight daylight hours, untreated by sulphonamides; and in July 1956 a child of nearly three died overnight with a pneumococcal epiglottitis without receiving penicillin. General practitioners are often advised to establish a bacteriological diagnosis before starting specific treatment. Children under two, however, seem so vulnerable to pneumococcal infection, that I now prefer to give antibiotics at once, rather than be sorry afterwards.

Where to get better

" Getting over it at home " is somewhat out of fashion these

days. Patients now, when first seen, are seldom so severely ill as they were before the war; but, with their expectation of curative treatment and a quick recovery, if one mentions that the illness may last for a few days, a request will soon be heard for the patient's removal to hospital. The standard of home nursing has probably fallen over the last 21 years. Figure 3 records the course of the illness of a man with pneumonia and diabetes who was nursed back from coma to recovery, singlehanded, by his wife. All that you see in the figure was dutifully recorded by her, as she tested urine, gave insulin and prepared his diet.

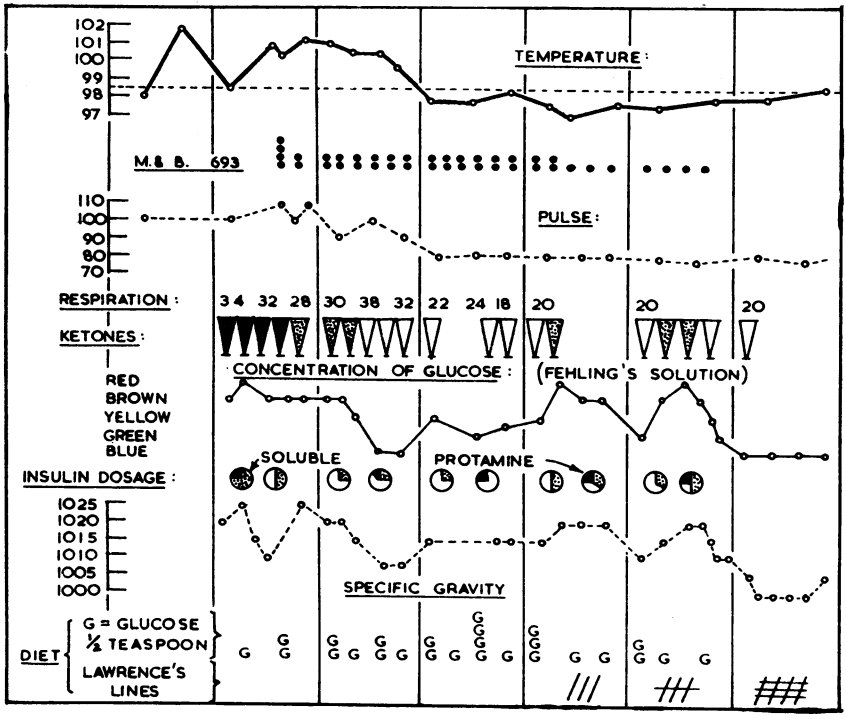

Figure 3
Lobar pneumonia and diabetic coma in a man of 59 nursed at home in cottage by wife in 1940

Book learning and lectures have taken the place of hard practical experience. My father, as a young "locum", performed rib resections for empyema on two children in their own homes. "Start on the girl" he was told by paterfamilias, "and if you make a good job of her, you may do the boy." The best I have achieved was to assist at the removal of tonsils and adenoids in the bathroom of a private house. If one of my boys takes up medicine, he may well be

discouraged from conducting even a normal confinement at home, unless the pattern of things changes again.

In my life-time the hypodermic needle has gained pride of place over the lancet. My father had to release pus; I try to prevent it forming. I have not seen an empyema since the war. The last two mastoid infections sent into hospital were in 1950, but neither was operated on. I only see quinsies in patients with sore throats, who have tried to " keep going " on aspirin or similar tablets. Osteomyelitis is a rarity, and almost the only breast abscesses we get now are in mothers whose confinements took place in hospital.

New diseases for old

The " therapeutic filter " of sulphonamides and antibiotics has allowed family doctors to study virus diseases free from bacterial complications. New laboratory techniques, are gradually bringing diagnostic order our of pyrexial chaos. Figure 4 records the viruses isolated from patients in Tillingbourne for 1953-1961. We should

YEAR	TYPE	SERUM POSITIVE	VIRUS ISOLATED
1953	COXSACKIE A.	+	+
1955	ADENOVIRUS	+	o
1957	COXSACKIE B.I	+	+
1957	INFLUENZA A2 'ASIAN'	+	+
1959	POLIOVIRUS I	o	+
1959	ADENOVIRUS III	o	+
1959	COXSACKIE B.3	o	+
1959	COXSACKIE B.4	o	+
1960	ADENOVIRUS I	o	+
1960	ADENOVIRUS VII	o	+
1960	COXSACKIE B.2	o	+
1961	TOXOPLASMA	+	o

Figure 4
Giving the dates of first recognition of "New" virus infections in Tillingbourne Valley

remember that the Public Health Laboratory Service has not created these new diseases, some of which they can now name, but which

we still cannot cure. As I collect blood and other sp cimens for the laboratory, I am often asked the question: " What did you call this disease, doctor, before you could make these tests? " I answer, quite truthfully: " Your grandmother would have called it a chill, and you would have got better just as quickly." What I used to call myalgia, diaphragmitis or dry pleurisy, since November 1957 I have called Bornholm disease, but the physical signs are unaltered.

New names and new diseases take the place of old. The winter vomiting disease, Bornholm disease, ECHO 9 meningitis, Coxsackie and adenovirus infection and toxoplasmosis may not yet be as familiar to some as chickenpox and mumps; but I believe they are just as common, if appropriately looked for with the help of the laboratory.

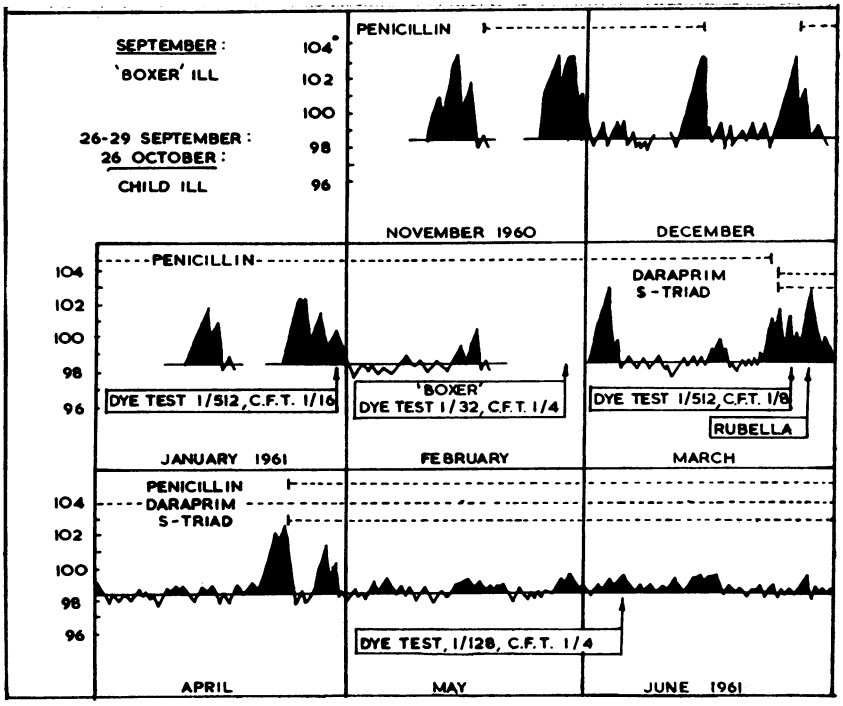

Figure 5
Record of a child of five with acute primary toxoplasmosis

One bugbear of the family doctor remains unchanged, if not increased: namely, the " catarrhal child." According to one hypothesis it is quite normal for children to be catarrhal up to the age of seven or eight. This view, however, does not explain why

some children react in this manner, while the majority do not. I look on " catarrh " as a reaction to repeated or hyperinfection. As with tuberculous meningitis in times past, a young child with recurrent catarrhal illness is a challenge to search for a source of infection close within the family. Figure 5 shows an unusual pattern of recurrent fever and tonsillar adenitis in a child with acute primary toxoplasma infection, which I believe she caught from her boxer puppy last September. In another family, when mother's sinusitis was cleared up, all the children, whatever their ages, ceased to be " catarrhal."

Conclusion

Let anyone who cannot yet visualize how the scene of battle has changed, since we took over our fathers' practices, read Osler's description of erysipelas in the eighth edition, dated 1918. I quote: " Erysipelas is a simple inflammation. In its uncomplicated forms there is seen, post mortem, little else than inflammatory oedema." His last sentence in a long paragraph on treatment is as follows: " Perhaps as good an application as any is cold water which was highly commended by Hippocrates." That indeed would still be " prescribable on E.C.10." and may explain why even uncomplicated cases of erysipelas sometimes died before the advent of sulphonamides. The prospect of further changes in the incidence and management of infectious diseases in family practice over the next 25 years remains equally exciting.

Student Attachment

The North-east England Faculty of the College has been dissatisfied with its student attachment scheme, now in its third year, because it has been working badly apparently due to poor contact with the Medical School and student officials. A special effort was made this year, as reported in the faculty newsletter, and a cocktail party was held for first year students. Over forty attended, all said they wished to take part, and have been attached to doctors. In addition to this, a student from each clinical year has been appointed to the faculty's undergraduate education committee.

—*North-east England Faculty Newsletter, October, 1961*