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The 'Russian' influenza in the UK: Lessons learned, opportunities missed

Mark Honigsbaum*

Queen Mary, University of London, Mile End Road, London E1 4NS, United Kingdom

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ABSTRACT

This paper describes British efforts to map the Russian influenza outbreaks of the early 1890s and describe the timing and course of the epidemic waves. Drawing on two surveys conducted by Britain's Local Government Board (LGB), the paper shows how, in a pre-virological era, the board was able to establish that influenza was an intensely infectious disease. Its key observation, however, was that Russian influenza had taken the form of three, and possibly four, distinct waves of infection, with the second wave in the spring of 1891 proving more lethal than the first wave, and the third wave in the winter of 1892 proving almost as lethal again. Most of this mortality was due to excess deaths from respiratory disease, particularly in the middle age ranges, but while these insights could and, arguably, should have aided the public health response, British health authorities preferred to advocate cautious preventive measures that did little to alleviate the pandemic's impact. The policy would prove especially costly in 1918–1919 when the LGB missed the opportunity to provide extra nursing cover for influenza convalescents following the initial summer wave of the 1918 Spanish influenza pandemic.

On January 11, 1890, a letter appeared in the correspondence column of the *British Medical Journal* titled 'The Influenza Epidemic: Requests for Information'. The epidemic in question was the 'Russian' influenza – so-called because the first mass outbreak had occurred in St Petersburg the previous autumn. The disease had already sickened the British Prime Minister, Lord Salisbury, and sparked mass absenteeism in the General Post Office's Telegraphic Department, the center of communications for the British Empire. Now, as the influenza spread from London to Birmingham and Liverpool, threatening the heart of British manufacturing, the Medical Department of the Local Government Board (LGB) decided to invite readers of the *BMJ* to help it map the epidemic. The letter asked when readers first noticed cases of influenza 'presenting distinctive characters' in their district, whether they thought that the disease had been imported from 'abroad. . .or in the case of institutions, from outside', and whether they had been able to ascertain the incubation period [1].

Although the Medical Department had previously conducted investigations into typhoid, smallpox and diphtheria, these investigations had been localized and limited in scope. The LGB's report on the Russian influenza, however, mobilized the entire public health system, taking advantage of London's position at the center of the telegraphic and railroad networks to ensure that the department's epidemiological gaze moved with the epidemic [2]. It was the first time the LGB had attempted to track influenza in real time, and within a week, the LGB had circulated detailed questionnaires about the etiology of influenza, its route of transmission, and its incubation period to Medical Officers of Health (MOsH) in each of England & Wales's 1777 sanitary districts [3] (Table 1).

Supplemented by investigations by the board's own epidemiologists and bacteriologists, these questionnaires would form the backbone of one of the most comprehensive surveys ever conducted into an influenza pandemic [5]. Overseen by H. Franklin Parsons, the chief investigator of the LGB's Medical Department, the report, together with an equally detailed survey of the 1891–1892 pandemic waves, would have huge implications for the management of future influenza outbreaks [6].

Parsons' first and perhaps most significant finding was that influenza was almost certainly infectious and spread no faster than the most rapid form of human communication [7]. Second, Parsons demonstrated that while the onset of the first wave had been sudden, with deaths from influenza peaking on January 18, 1890, just three weeks into the six-week epidemic, thereafter mortality had rapidly declined. By contrast, the onset of the second wave, in May–June 1891, had been more gradual and protracted, with an eight-week average duration in London, but in the end had proved more lethal. This pattern of gradual onset coupled with mortality in excess of the first wave was also a feature of the third wave in January–February 1892 (in total, 624 deaths were ascribed to influenza in London in 1890, 2336 in 1891, and 2264 in 1892) [8]. Thirdly, the LGB's investigations showed that the pandemic had been particularly fatal to patients with underlying lung conditions,

* Corresponding author. Tel.: +44 208 743 0733.
E-mail address: honigsbaum@yahoo.com

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Table 1
Questionnaire circulated by George Buchanan, Medical Officer of Health of Local Government Board [4].

On Epidemic Influenza in 1889-90: by Dr. Parsons.

CHAP. VII.

Collective inquiry through Medical Officers of Health.

VII.—SUMMARY OF INFORMATION DERIVED FROM MEDICAL OFFICERS OF HEALTH AS TO THE DISTRIBUTION OF THE INFLUENZA EPIDEMIC IN ENGLAND AND WALES.

With a view to collecting information on a uniform plan as to the origin and mode of distribution of the Influenza epidemic in England and Wales, a circular form of queries, of which a copy is annexed, was drawn up by the Medical Officer of the Local Government Board, and sent to the Medical Officer of Health of every sanitary district in England and Wales. (There are 1,777 sanitary districts in England and Wales, viz., 41 metropolitan, 1,003 urban, 675 rural, and 58 port districts, and they are all supervised by Medical Officers of Health; in some instances several districts being combined for the appointment of a single Medical Officer of Health; in other instances one rural district having several Medical Officers of Health, each acting for a different division.)

Medical Department,
Local Government Board,
Whitehall, S.W., January 17th, 1890.

DEAR SIR,

THE Medical Department is endeavouring to gather information respecting the origin and mode of distribution of the Influenza prevailing in England and Wales, and I rely on your assisting me by your experience. I am desirous of collecting such information on a somewhat uniform plan, and would ask you to reply on the enclosed sheets so far as you may be able; filling up one sheet at once, and others at weekly intervals while the epidemic continues in England and Wales. Please post them to me (unpaid), addressed to the Medical Officer of the Board.

I am, dear Sir,
Yours faithfully,
GEORGE BUCHANAN.

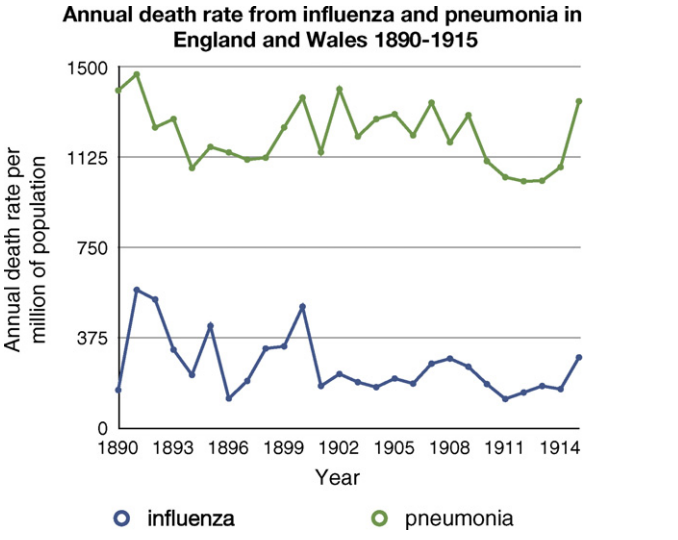
The Medical Officer of Health.

Period ended_____. Name of District_____.
(Urban or Rural?)

1. Has any "Influenza," particularly if characterized by much nervous depression, severe frontal headache, or various muscular pains, shown itself in your district?
2. The date of the first occurrence (as far as you know) of such an Influenza.
3. The date of commencement of any extensive prevalence of such Influenza.
4. Any opinion you have formed (or that you wish to modify) as to the mode of origin of introduction of the disease, and as to its method of spread.
5. Have you observed among domestic animals any unusual complaint; and in what animals, and with what symptoms?
6. Illustrations or observations as to the behaviour of any observed Influenza, especially as to the intervals of attack in members of households, its dissemination among particular communities, and its incidence on particular localities.

Signed_____

Table 2
Annual death rate from influenza and pneumonia in England and Wales, 1890–1915 [9].



escalating the death rate from respiratory diseases such as pneumonia – a pattern that would be repeated in the 1899–1900 epidemic [9]. (Table 2.)

The result was that while the official returns for England and Wales recorded 4573 influenza deaths in 1890, 16,686 in 1891, and 15,737 in 1892, once excess deaths from respiratory diseases were included in the total, the Registrar General calculated the true death toll in 1890, 1891, and 1892 as, respectively, 27,074, 57,980, and 25,000 [10]. Taking into the account the fourth wave of influenza in 1893, the Registrar General calculated the aggregate losses due to the Russian influenza pandemic in 1890–1893 as 'not fewer than 125,000 lives' [11]. Finally, Parsons concluded that many patients exhibited mild symptoms such that rather than being too sick to leave their beds they continued to be 'capable of conveying infection' [12]. The finding was to have important implications for the future management of influenza pandemics, particularly the question of isolating patients in mild or asymptomatic cases.

The LGB was not alone in documenting the impact of the Russian influenza pandemic in the United Kingdom. Unlike the previous 1847–1848 pandemic, the Russian outbreak coincided with a 'golden age' for Victorian newspapers, meaning that it was one of the best-reported pandemics in history [13]. Taking advantage of London's position at the center of the worldwide telegraphic network, Reuters correspondents aimed to file reports from affected European capitals within 24 h of an outbreak's occurrence, while papers such as *The Times* employed correspondents to compete with the Reuters dispatches [14]. The fact that the earliest casualties included aristocrats like Lord Salisbury was unsettling to Victorians convinced of the superiority of British sanitary reforms. Since the mid-1860s, such reforms had protected London from cholera outbreaks that had decimated other European cities, but as the Russian influenza spread from St Petersburg, a city sneeringly referred to by *The Times* as 'the most insalubrious of European capitals', to Paris with a rapidity that seemed to outstrip more prosaic contagions, the superiority of a country's sanitary arrangements appeared to make little difference [15]. Despite appeals in the medical press for newspapers to keep the threat in perspective and not to foster 'dread' of the epidemic through 'sensational telegrams', the pandemic appears to have sparked hysteria in London, particularly among male patients [16]. At St. Bartholomew's Hospital in Smithfield and the Royal Free Hospital in the Grays Inn Road, for instance, Samuel West, a specialist in respiratory disease, described how he had been astonished to arrive at morning surgery to find more than 1000 patients – the majority of them men – 'clamouring for treatment' [17].

Although influenza was not a notifiable disease in 1890, based on staff absentee levels at the Post Office (32%) and the Bank of England (20.8%), Parsons estimated that about a quarter of London's population had been affected. This was low compared to St Petersburg where it was estimated half the population were affected, and Vienna where the figure was 30–40% [18]. London also suffered significantly lower mortality than other European capitals, with the death rate, expressed as fatalities per 1000 of population, peaking at 33 per 1000 during the first week of January 1890, compared to 62 per 1000 in Paris [19]. Employees at public institutions and large private establishments were the most heavily impacted, with the Telegraphic Department in St Martin's Le Grand suffering absentee rates as high as 38% [20]. Railway services were also disrupted, with three times as many engine drivers absent due to illness as in previous years [21].

In an era when epidemiological thinking was dominated by miasmatic theories, the rapid progress of the influenza across Europe suggested that the epidemic might be due to supra-terrestrial influences linked to meteorological factors or fluctuations in the upper atmosphere. However, such theories could not explain why isolated communities such as lighthouses, jails, and