

# Selective suppression by the medical establishment of unwelcome research findings: the cholera treatment evaluation by the General Board of Health, London 1854

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## Introduction

Cholera haunted the 19th century. The origins of the painful and frightening new disease that could result in death within hours were unknown, and treatments were useless. History tells us that the bacterial cause was not understood until 1883, and the gold standard treatment of oral rehydration therapy was first used in 1960.<sup>1</sup>

Of the six 19th-century cholera pandemics, the third, in 1849–1860, resulted in the most fatalities. In Great Britain, there were 23,000 deaths, 10,000 in London alone. The government responded with an epidemiological survey and a comparative evaluation of rival treatments,<sup>2</sup> the subject of this article.

Under Sir Edwin Chadwick (1801–1890), the General Board of Health had been a non-governmental organisation. Chadwick's crusade for administrative reform as the necessary springboard to bring about improved public health, allied with a zealous lack of tact, had been enormously unpopular with the laissez-faire elements in mid-19th-century British society and led to his removal in August 1854.<sup>3</sup> The Board was reconstituted with greatly reduced powers as a government ministry on 12 August, on the lines of the Poor Law Board. In charge was Sir Benjamin Hall MP (1802–1867) – a bureaucrat of the class that had provoked Chadwick's scorn and previously known mainly for his support of mild ecclesiastical reform. Incongruously given his background, Hall's first act on 12 August was to initiate a coordinated scientific and medical response to the 1853–1854 cholera epidemic, then at its worst in London. By September, Hall had gone on to commission a major epidemiological survey of the epidemic. He was also anxious to know which treatments were most effective. His letter circulated at the beginning of September to all practitioners appearing in the Medical Register for 1854 states that he had

established a Medical Council<sup>4</sup> 'representing all branches of the medical profession' because of

the great want that is now felt of some systematic record of cases of choleraic disease, their treatment, and results, with a view to determine, in so far as may be possible, the best mode of meeting this formidable epidemic. (p. 67)

The Council consisted of 12 members nominated by Hall, the Royal Colleges and the Society of Apothecaries, under the chairmanship of John Ayrton Paris, President of the Royal College of Physicians. Three (sub)committees would facilitate the survey: Scientific Inquiries: to look into the nature, extent and probable causes of cholera; Treatment: to assess the relative advantages of rival methods; and Foreign Correspondence: to glean relevant information from scientists abroad.

## Scientific inquiries

The Medical Council devoted much of its report to the possible causes of cholera: meteorological factors were most prominent, in keeping with the prevalent miasmatic theory of noxious vapours. The state of the water supply was also examined, and recommendations made for improving its quality.<sup>5</sup>

The epidemic is best remembered now for the activity of John Snow (1813–1858), the epidemiologist and pioneer of anaesthesia who, after the 1848 epidemic, published his theory that cholera was waterborne.<sup>6</sup> In 1854, he visited the epicentre of the new outbreak, the Golden Square area of Soho, where 500 deaths had occurred in two weeks. His celebrated removal of the Broad Street pump handle was probably symbolic, but his correlation of the pattern of mortality with the water supply to each house was not. No one

could deny that the Southwark and Vauxhall Company supplied water full of untreated sewage, or that the mortality rate in the homes it supplied was eight or nine times that of the homes in the same area supplied by the Lambeth Company – which had begun to draw its water from higher up the Thames. Snow's empirically plausible explanation of a waterborne 'cholera poison' was rejected in 1855 by the Committee for Scientific Inquiries, even though William Farr (1807–1883) – one of Hall's appointees to the Medical Council – had written not long before in his official report on the 1848–1849 epidemic that Snow's was 'in many respects the most important theory that has been propounded'.<sup>7(p. lxxiv)</sup>

Remarkably, considering the priority usually given to Robert Koch's 1883 discovery, the Medical Council report presented evidence from the microbiologist and food safety expert Arthur Hill Hassall (1817–1894) of 'myriads of vibriones . . . in every drop of every sample of rice-water discharge', on the soiled clothing and bed linen of cholera victims, and in the water supply. One of Hassall's illustrations, Plate 26, *Rice water evacuation of cholera*, is an engraving of a composite slide showing shreds of muscle fibre, mucus and other fragments ( $\times 220$ ) surrounded by many vibrios singly and clumped together ( $\times 350$ ).<sup>5</sup> Other plates clearly distinguish the much smaller vibrio from countless different unicellular organisms found in the water supply. The Scientific Committee considered and rejected the vibrio as a causal factor: they believed that it was a product of enteric decomposition and it was also found in samples from those who had died from other diseases.<sup>4(p. 56f)</sup> They went on to dismiss the theory that infection occurred by swallowing water and other items contaminated with faeces of choleraic patients as having been disproved 'beyond the possibility of reasonable doubt'.

### Evaluation of treatments

The historic importance of the treatment evaluation was not lost on the Medical Council:<sup>8</sup>

The duties of the Treatment Committee consisted . . . in the invention of a mode by which the individual experience of practitioners might be brought under one comprehensive view, and thus has the science of statistics, for the first time, been applied on a large scale to medical treatment.

But it was Hall, not the profession, who commissioned the form used to collect the data for a comparative clinical evaluation, first read out at a meeting of the Medical Council on 6 September 1854 and later circulated to all practitioners listed in the 1854

Medical Register.<sup>9</sup> All probable cases seen in London hospitals were diagnosed and entered into newly printed record sheets based on five clinical stages: Form A was reserved for stages 1 and 2 ('mild' and 'choleraic' diarrhoea), while cases classed as cholera proper were entered into Form B – stages 3 and 4 were for those admitted without or with 'collapse', respectively, and stage 5 for cholera terminating in 'consecutive fever'. Biographical data and dates of admission were noted with details of previous treatments. Patients could move from one form to the other, to allow analysis of the progression of the disease and assessment of response to prescriptions made in hospital.<sup>4(p. 80ff)</sup> The Medical Inspectorate set up in August was required to visit each hospital regularly during the epidemic to ensure that accurate and truthful records were maintained and to verify the diagnoses.

The tables presented in the report showed that 46% of those treated as inpatients or outpatients in London hospitals had died in the epidemic, and that treatment of whatever kind had been deemed largely useless: the expectation of mortality in untreated cholera was approximately 50%, then as now.<sup>4(p. 87ff)</sup> The treatments assessed included calomel (mercury chloride), opium, chalk, castor oil and sulphuric acid. Although none of these treatments could be confidently recommended, the report identified a few treatments – calomel, castor oil and sulphuric acid – which were associated with higher than expected mortality, and others – such as opium and chalk – which were associated with lower than expected rates of death. It is worth noting that *Mist. Kaolin and Morph* remains in use as an anti-diarrhoeal treatment.

### Attempted suppression of data from the London Homoeopathic Hospital

One category of hospital-based treatment used in the epidemic was left out of the report. The London Homoeopathic Hospital had been set up as a charitable foundation in 1849 by the many well-connected and aristocratic patrons of homeopathy, and opened its doors in 1850, in Golden Square. During the 1854 epidemic, it was decided to waive the usual requirement of letters of referral and to turn the tiny 30-bed hospital over to the treatment of the 'indigent poor' of the district. The hospital asked several times to be sent the forms to make the official returns, but even after receiving the completed returns, the Medical Council<sup>2</sup> omitted their results. The report listed those who had contributed returns and pointed out that:

Among the names occur some of homoeopathic practitioners, from whom returns were received; but the

Committee for Scientific Inquiries desire it to be understood that none of these communications have been used in the construction of the report.

This omission was raised in a parliamentary question from Lord Robert Grosvenor and laid bare in the extensive correspondence that ensued.<sup>10</sup> Asked by Hall to explain its suppression of the homeopathic results, the Council's chairman reported the unanimous resolution of the gentlemen of the Medical Council:<sup>2</sup>

That by introducing the returns of homoeopathic practitioners, they would not only compromise the value and utility of their averages of cure, as deduced from the operation of known remedies, but they would give an unjustifiable sanction to an empirical practice alike opposed to the maintenance of truth and to the progress of science. (p. 194)

In the mid-19th century, the term 'empirical' still had a pejorative connotation. At the same time, the 'known remedies' used in the orthodox hospitals that filled the report were sanctioned by virtue of the theoretical categories they belonged to: calomel, chalk, ether and castor oil acquired therapeutic dignity, if not efficacy, when classed respectively as 'alterative', 'astringent', 'stimulant' or 'eliminant'.<sup>2</sup>

The returns from the homeopathic hospital in Golden Square were clearly an embarrassment to the Medical Council. Mortality rates in both Forms A and B were well below those reported in the regular London hospitals and were in line with homeopathic results reported from the early 1830s onwards after the pandemic reached Europe (Table 1).

The suppression of the homeopathic results ironically undermined the intended outcome: the homeopathic returns were then made publicly available in far greater detail than the allopathic statistics, in a Parliamentary Return of May 1855 which ensured their survival long into the future.<sup>10</sup> Complete data are given for 568 individuals identified by age, gender and occupation who received homeopathic treatment

during the general evaluation period, including prescriptions with appended comments. The homeopathic hospital used a wide range of medicines, such as *Veratrum album*, *Arsenicum album*, *Cuprum* and *Secale*, based on the individual patient's signs and symptoms, and given singly. They were prepared according to the first British homeopathic pharmacopeia<sup>11</sup> and administered as drops of the first three decimal potencies repeated every 10, 15 or 30 min, or every 1, 2 or 4 h. Tincture of camphor (1 part to 6 of pure spirit) was also prescribed in many cases at the beginning of treatment, a few drops every few minutes.

### Comparability of cases

Given the disparity between the results of the rival systems, it is natural to question the validity of the homeopathic returns. Did the London Homoeopathic Hospital treat genuine cholera cases? Although the inspector appointed for the district refused to visit, another commissioned inspector, David Macloughlin, agreed – reluctantly, according to his unsolicited letter of 22 February 1855 to the Homoeopathic Hospital, printed in the Parliamentary Return:

You are aware that I went to your hospital prepossessed against the homoeopathic system; that you had in me, in your camp, an enemy rather than a friend, and that I must therefore have seen some cogent reason there, the first day I went, to come away so favourably disposed as to advise a friend to send a subscription to your charitable fund.

As important as his prior hostility towards homeopathy was the fact that he had spent 20 years in India:

I need not tell you that I have taken some pains to make myself acquainted with the rise, progress, and medical treatment of cholera, and . . . claim for myself some rights to be able to recognise the disease, and to know something of what the medical treatment

**Table 1.** Cholera cases and deaths in London 1854 from completed returns.

	Homeopathic hospital			Allopathic hospitals		
	N	deaths	%	N	deaths	%
Form A – diarrhoea Stages 1–2	481	1	0.2	17 460	109	0.6
Form B – cholera Stages 3–5	87	16	18.4	3188	1467	46.0

Sources: Medical Council<sup>4(p. 87ff)</sup> and House of Commons.<sup>10</sup>

ought to be; ... That there may be no misapprehension about the cases I saw in your hospital, I will add, that all I saw were true cases of cholera, in the various stages of the disease; and that I saw several cases which did well under your treatment, which I have no hesitation in saying would have sunk under any other.

Macloughlin insisted that the homeopathic results should be placed 'for accurate observation of the disease by the side of St Thomas's, St Bartholomew's, St Mary's, the Westminster and the University College hospitals'. He concluded with what he had already told the homeopaths,

and what I have told everyone with whom I have conversed, that although an allopath by principle, education and practice, yet was it the will of Providence to afflict me with cholera, and to deprive me of the power of prescribing for myself, I would rather be in the hands of a homoeopathic than an allopathic adviser.

Another possible objection to the homeopathic results was that the orthodox hospitals only recorded more serious cases. At a meeting of the British Homoeopathic Society at the time, the homeopath Joseph Kidd wondered whether this had happened.<sup>12</sup> However, the proportion of Form B cases was 18% under both systems (Table 1). The homeopaths even observed the intention-to-treat principle in their returns: they included a patient who arrived at the hospital but died in the street before admission as if he were a homeopathic failure. This was not the policy of all London hospitals, some of which were known to discharge hopeless cases to improve their own mortality rates, as Florence Nightingale objected a decade later in *Notes on Hospitals*.<sup>13</sup>

All other things being equal, can the apparent superiority of the homeopathic results be attributed to the mere absence of those orthodox treatments that the Council had deemed to be harmful (see above)? This possibility cannot be rigorously tested with the data available. What remains clear is that case fatality rate in untreated cholera today remains about 50%, the same rate as those as in the earliest epidemics in the 19th century,<sup>14</sup> and very close to the aggregated mortality rate of 46% in London hospitals in 1854 despite various forms of 'orthodox' treatment.

### Maintaining hygiene and hydration

Evaluation of the competing claims of the homeopathic and orthodox hospitals is made more

complicated because some advanced ideas about hygiene and oral rehydration were circulating among homeopaths.

In a pamphlet of 1831 entitled 'The mode of propagation of the Asiatic cholera' by Samuel Hahnemann (1755–1843), the German medical reformer and founder of the homeopathic system claimed that the cholera pandemic was not 'epidemicly atmospheric-telluric', that is, not caused by a miasma, but probably transmitted by

a swarm of infinitely small, invisible living organisms, which are so murderously hostile to human life, and which most probably form the infectious matter of cholera.<sup>15</sup>

From the direction and timing of the appearance of the national epidemics, Hahnemann deduced that the second pandemic (1826–1832) originated in India and was transmitted to Europe, possibly through shipping. He was mistaken in thinking that the bacteria survived in vapour rather than water, but correctly identified humans as an important disease vector. He also warned that medical attendants who handled patients without careful attention to hygiene could spread the disease, and in another pamphlet gave directions for sterilising clothing and bedding for 2 h in an oven at 80° Réaumur (100°C), preventive measures that would have been helpful if followed.<sup>16</sup> His cholera publications first appeared in English in 1847, translated by the prominent British homeopath Robert Dudgeon, who later included them in his edition of Hahnemann's minor works.<sup>17</sup> In contrast, miasmatic theory dominated mainstream British medical thinking until the last decade of the century when Charles Creighton's magisterial *History of Epidemics in Britain* was published as a refutation of germ theory.<sup>18</sup>

Intravenous saline infusion was pioneered by Thomas Latta at Edinburgh's Drummond Street Hospital in the 1831–1832 epidemic, but was not followed up after his death in 1833 and the temporary disappearance of cholera in the UK.<sup>19</sup> It was used again at the beginning of the 20th century, and brought mortality down to 40%, and is still used in serious cases. The present first-line treatment is oral rehydration therapy with salt and sugar, believed to have been first used in 1960.<sup>1</sup>

John Drysdale (1816–1890), the influential editor of the *British Journal of Homoeopathy*, published an analysis of a series of 175 cholera patients whom he had treated homeopathically in Liverpool in 1849.<sup>20</sup> He allowed his patients to drink as much water as they wanted, following the lead of John MacKintosh, a colleague of Latta at the

Drummond Street Hospital.<sup>21</sup> Drysdale also realised that it was important to prevent the physiological effects of massive loss of bodily fluids and minerals but, in line with orthodox thinking, rejected intravenous saline as potentially dangerous. Instead, he prescribed a 'cheap and easily procurable natural product', a drink which contained 'all the salts of the blood, and in very nearly the proportion contained in the cholera evacuations'. This was whey, the watery liquid left after solids are separated from milk. He reported that it 'was taken to a considerable extent in a good many cases', and thought it deserved further evaluation, while insisting that he was making no therapeutic claims for it. His report was well known enough to be disseminated in European homeopathic journals in translation. It is also worth noting that whey contains lactose which may have assisted uptake of salts.

The data collection forms used by the Medical Council contained no spaces for entering data about general measures such as hygiene or rehydration, so there is no record of whether the London Homoeopathic Hospital followed their professional leaders' recommendations. Nevertheless, it is not unreasonable to speculate that they may have played some part in reducing mortality.

## Conclusion

The history of the professional response to cholera is one of dead ends and missed opportunities. Snow's idea of a waterborne poison did not catch on. Neither did Hassall's microscopic near miss. Koch's priority in identifying the cholera vibrio as the causal factor in 1883 by rights belonged to Filippino Bassi who made the same discovery in 1854, but who was not scientifically honoured until 1965.<sup>22</sup> However, the first contagionist microbiological theory that tried to account for the global spread of cholera had been published in 1831 by Hahnemann. Regarding treatments used today, intravenous saline was tried in the 1830s and 1840s then forgotten until the next century. Oral rehydration therapy is believed to have been unknown until 1960, although Drysdale used whey for the same clinical reasons in 1849.

The treatment evaluation in London has been recognised as an historic moment in the evolution of comparative treatment evaluation,<sup>23</sup> but the dominant professional group's suppression of the homeopathic results has been reported only in homeopathic histories. It is still tempting to wonder what might have happened if, rather than treating the interesting returns from the Golden Square hospital with contempt, the Medical Council had regarded what went on there as a subject for scientific inquiry.

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## References

- Guerrant RL, Carneiro-Filho BA and Dillingham RA. Cholera, diarrhea, and oral rehydration therapy: triumph and indictment. *Clin Infect Dis* 2003; 37: 398–405.
- Medical Council. Report on the results of the different methods of treatment pursued in epidemic cholera. Parliamentary Papers, no. 1901, xlv, 1855.
- Lewis RA. *Edwin Chadwick and the Public Health Movement 1832–1854*. London: Longmans, Green, 1952.
- Medical Council. Report of the Committee for Scientific Inquiries in relation to the cholera epidemic of 1854. Parliamentary Papers, no. 1980, xxi, 1855.
- Medical Council. Appendix to the Report of the Committee for Scientific Inquiries in relation to the cholera epidemic of 1854. Parliamentary Papers, no. 1996, xxi, 1855.
- Snow J. On the pathology and mode of communication of the cholera. *Lond Med Gaz* 1849; 44: 730–732, 745–752, 923–929.
- Farr W. *Report on the Mortality of Cholera in England, 1848–49*. London: Her Majesty's Stationery Office, 1852.
- Medical Council. Report of the Medical Council in relation to the cholera-epidemic of 1854. Parliamentary Papers, no. 1989, xlv, 1855.
- General Board of Health (Medical Council). Letter of the President of the General Board of Health accompanying a report from Dr Sutherland on epidemic cholera in the Metropolis in 1854. Parliamentary Papers, no. 1893, xlv, 1855.
- House of Commons. Return to an Address of the Honourable House of Commons. Sessional Papers, no. 255. xlv: 189–226, 1854–1855.
- Quin FF, ed. *Pharmacopœia Homoeopathica*. London: S. Highley, 1834.
- Leary B. Cholera and homoeopathy in the nineteenth century. *Br Homoeopath J* 1987; 76: 190–194.
- Iezzoni LI. 100 apples divided by 15 red herrings: a cautionary tale from the mid-19th century on comparing hospital mortality rates. *Ann Intern Med* 1996; 124: 1079–1085.
- Sack DA, Sack RB, Nair GB and Siddique AK. Cholera. *Lancet* 2004; 363: 223–233.

15. Hahnemann S. *Aufruf an denkende Menschenfreunde über die Ansteckungsart der asiatischen Cholera*. Leipzig: Berger, 1831.
16. Hahnemann S. *Die Cholera. Sicherste Heilung und Ausrottung der asiatischen Cholera*. Leipzig: Glück, 1831.
17. Hahnemann S. *The lesser writings*. London: Headland, 1852.
18. Creighton C. *History of Epidemics in Britain*. Cambridge: Cambridge University Press, 1891–1894.
19. MacGillivray N. Dr Thomas Latta: the father of intravenous infusion therapy. *J Infect Prevent* 2009; 10: s3–s6.
20. Drysdale JJ. Analysis of one hundred and seventy-five cases of cholera treated at Liverpool, in the autumn of 1849. *Br J Homoeopathy* 1850; 8: 92–136.
21. Drysdale JJ. Analysis of one hundred and seventy-five cases of cholera treated at Liverpool, in the autumn of 1849 (ii) Treatment. *Br J Homoeopathy* 1850; 8: 145–165.
22. Howard-Jones N. Robert Koch and the cholera vibrio: a centenary. *Br Med J* 1984; 288: 379–381.
23. Lilienfeld A. Ceteribus paribus: the evolution of the clinical trial. *Bull Hist Med* 1982; 56: 1–18.