

JOURNAL

of Health Inequalities

Welcome Address: The role of historical research in public health

Martin Gorsky 

Centre for History in Public Health, London School of Hygiene and Tropical Medicine, United Kingdom

ADDRESS FOR CORRESPONDENCE: Martin Gorsky, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, United Kingdom, e-mail: martin.gorsky@lshtm.ac.ukContribution presented at the 3rd Calisia Conference on Family Health, Kalisz, Poland, 18-20 June 2023

ABSTRACT

This review argues that history merits a place amongst the subjects which constitute interdisciplinary public health. It claims that three aspects of historical study can inform the contemporary thinking of public health practitioners. First, demographic trends over the very long term yield insights into fundamental drivers of human longevity and wellness. Second, the history of medicine in public health teaches us that medical science is not simply a progression of therapeutic discoveries, but a type of knowledge always situated in a social and cultural context. Third, the history of policy-making for health alerts us to issues of power and vested interest that surround attempts to advance public health goals in the political arena. This last contention is then illustrated through a case study which examines a historical puzzle peculiar to Poland. What were the reasons for the striking decline in cigarette consumption that followed the fall of the Berlin Wall, when all expectations were that the opposite should occur?

KEY WORDS: historical demography, medical history, policy analysis, tobacco control.

Why should history merit a place amongst the subjects which constitute interdisciplinary public health? I will argue that three aspects of historical study can inform the thinking of public health practitioners. First, demographic trends over the very long term. While current patterns of morbidity and mortality are needed to judge where best to focus policy, the timing and nature of longer-run changes also matters, offering insight into fundamental drivers of human longevity and wellness. Second, the history of medicine in public health. This can show us that medical science is not simply a progression of therapeutic discoveries, but a type of knowledge always situated in a social and cultural context. Third, the history of policy-making for health. This alerts us to issues of power and vested interest that surround attempts to advance public health goals through the political arena. Finally, I will illustrate this last contention through a case study which examines a historical puzzle peculiar to Poland. What were the reasons for the striking decline in

cigarette consumption that followed the fall of the Berlin Wall, when all expectations were that the opposite should occur?

Every nation has its own demographic history, traceable through its records of vital events, from which trends in life expectation, and rates of deaths and infant mortality can be calculated. National practices of recording death registrations started at different times: in Sweden for example it was 1749 and in Britain 1837 [1, 2]. Earlier trends can be reconstructed from more fragmentary archives of medical institutions, or religious bodies that presided over rites of birth and death. Derived statistics about age, cause and place of decease allow more fine-grained analysis. This can in turn inform debate about what is perhaps the cardinal question of public health: how to explain the rise of life expectation which accompanied the passage to global modernity? [3].

According to all estimates, this has been dramatic. Early in the 19th century all nations clustered between parameters for mean longevity of twenty-five to forty years [4]. The average was pulled down by the toll of infant mortality but also reflected deaths in childhood and early adulthood. By the mid-century a few countries had broken away from these parameters thanks to the benefits of industrialisation and imperialism [5]. This divergence between the high-income West and the rest was even more marked by the early twentieth century, with life expectancy in the former now between forty and fifty-five years. Here was the beginning of the ‘great escape’ from ill health and poverty [6]. This was driven first by the retreat of major infectious diseases – notably tuberculosis, respiratory illnesses, diphtheria, typhus, typhoid, scarlet fever and smallpox – and second by the ongoing decline in infant mortality from enteric diseases.

While no over-arching explanation can fit all cases, the fundamental causes are clear. There was a broad association between growing prosperity and mortality decline, demonstrable by comparing the trends in life expectation and gross national product (an indicator conceived in 1934 then reconstructed historically) [7]. Most probably the main causal relationship lay with improved nutrition and the capacity to resist infection, though wealth also bought better housing, clothing, cleansing products and sickness insurance [8, 9]. Since mortality decline predated most effective pharmaceutical interventions, medicine’s main role was variolation, then vaccination, against smallpox [10]. However, public health action, in the form of sanitary engineering and dissemination of hygienic practices was vital to the decline of diseases spread by the faecal-oral route. Other general factors were smaller families due to fertility limitation, and hence more concentrated parenting, and the related rise in female education and autonomy [3]. Individual countries illustrate variations on these themes. The white settler colony of New Zealand for example, was, for its non-Maori population, the paradigmatic healthy country between 1860 and 1940, thanks to the self-selection of healthy migrants, their salutogenic rural lifestyles, and the high protein diet of their meat and dairy agriculture [11].

Consideration of comparative trends from the Global South suggests two further factors. First, over time poorer countries have been able to improve population health prior to making the gains in wealth seen earlier in the rich world. The explanation lies with technology transfers such as vaccines, oral rehydration therapies, insecticide treated bed-nets, coupled with use of community health workers to improve primary care and public health [12, 13]. Second, once countries have made the ‘great escape’, the correlation between wealth and health begins to break down further, as richer nations with higher levels of consumption were exposed to new risks. Cardio-vascular diseases, cancers, diabetes and poor mental health link with social and cultural behaviours such as diets high

in fat and sugar, tobacco and alcohol use, road traffic hazards and work stress. As the practices of consumer societies globalise, so poorer countries can suffer both from communicable illnesses and newly prevalent alcohol and tobacco related diseases, alongside a ‘double burden’ of malnutrition and obesity from poor diets [14].

In recent decades, new metrics like the Disability Adjusted Life Year have combined mortality and morbidity data, the better to monitor not just longevity, but also longer-run effects on the body of pathogenic consumption [15]. This allows historical epidemiology to illuminate the embedding of such patterns in place and social class, showing how present inequalities are anchored in the past. The lessons for public health are many, but the imperative of encouraging healthy behaviours at the personal level, and addressing ‘upstream’ structural forces are the most obvious. The goal must be to carry forward the historical rise in life expectation, while at the same time compressing morbidity into the very final stage of life [16].

II

The history of medicine as applied to public health began as the narrative of canonical figures, from Hippocrates and Galen to Fleming and Crick. This was a story dominated by European males, though occasionally non-Westerners like al-Rhazi, or women like Curie joined the pantheon. The emphasis was on moments of innovation in drugs, surgery, anatomical understanding or clinical techniques, personalised around the careers of notable individuals. There are benefits to this style of history. The ‘breakthrough’ episodes are of inherent interest and the ‘pantheon’ approach to historicising medicine can be inspirational, building valuable *esprit de corps* amongst practitioners. Yet there are also risks. Depiction of biomedical sciences as a march of progress carried forward by heroic endeavour can obscure complexity, efface the social and political context in which knowledge evolves, and breed hubris towards other systems of healing.

In fact, the reaction against ‘great doctor’ history started with studies of how breakthrough moments often met with resistance from those unable to accept new paradigms [17]. The slow take-up of Pasteur’s germ theory is a case in point. One well-known story is that of the German hygienist Max von Pettenkofer, who in 1894 drank a dose of vibrio cholerae to disprove the claims of Robert Koch, whose microscopy had identified its bacterial cause [18]. Similarly, Florence Nightingale’s writings remained committed to the miasmatic theory of disease causation that had informed the sanitary practices in nursing and hospital administration on which she built her career. The translation of knowledge into practice is never a straightforward ‘advance’, but always occurs within a social and cultural framework.

However, history also discloses more alarming evidence of how power can shape the assertion of scientific

truth. Nineteenth century cholera pandemics again afford an example. First was the rift between ‘contagionists’, who believed cholera was passed from person to person, and ‘anti-contagionists’ who claimed a miasmatic or zymotic cause. Strikingly, anti-contagionism became the science underpinning official policy in places where it suited economic interests. British India for instance saw the debate settled against the contagionists once the Suez Canal was opened and the volume of shipping increased [19]. Tight quarantines to restrict infection would, of course, have damaged trade. Political systems may have mattered as well. Quarantine policies were thought to have been associated with Europe’s more autocratic or monarchical regimes, while the liberal nations in which merchant interests were prominent erred to anti-contagionism [20].

Another rift was between those who argued that poverty and malnutrition were fundamental causes of cholera, and the miasmaticists, who tended to blame physical ‘filth’, and ‘predisposing causes’ of personal immorality. Addressing the former would have required a fundamental reallocation of the fruits of industrialisation. Hence the sanitarian approach of sewers and fresh water, which involved a more modest fiscal redistribution, was also ‘the greatest technical fix in history’ [21, pp. 12-13]. Not only did it ameliorate disease risk, it also preserved intact the economic inequalities of early capitalism.

This social and political framing of the development of biomedicine opens up other critiques which can broaden practitioners’ viewpoints. One such concerns the dehumanising nature of the clinical ‘gaze’ [22]. The argument is that before biomedicine a more holistic, patient-focused approach to healing prevailed. Then came the revolution in hospital medicine, first seen in Paris and Edinburgh, consisting of new techniques of clinical observation, combined with pathological analysis and quantification [23, 24]. For the first time the body was understood as a biochemical organism, and diseases as specific entities, discussed in professional jargon impenetrable to lay people. Arguably this inscribed a new distance between doctor and patient: ‘to look in order to know, to show in order to teach, is not this a tacit form of violence, all the more abusive for its silence, upon a sick body that demands to be comforted, not displayed?’ [22, p. 84].

The emergence of biomedicine also coincided with the zenith of European imperialism. In the earlier phase of colonialism Western medicine had been just one amongst many forms of healing. These included the classical literate schools of Islamic, Ayurvedic and Chinese medicine, and the diverse oral traditions of Africa and South America. However, as confidence in the new science of Europe and North America grew, biomedicine increasingly distanced itself from these traditions, now deemed inferior [25]. Its globalisation occurred initially in the service of empire, with innovations like smallpox vaccination, sanitarian practices, anaesthesia and antiseptics concentrated in colonial enclaves of settlers, workers

and troops [26]. Later, as experts in ‘tropical medicine’ began to uncover the aetiologies of filariasis, malaria and trypanosomiasis, medicine came to be a ‘tool of empire’, a beneficial force that legitimised colonialism [27, 28].

What have been the results? It is self-evident that for most people, the effectiveness of Western medicine against other approaches undergirds its popularity. However, for practitioners this breeds hubris, a conviction that their way of knowing is indeed superior and that those who dissent are prey to superstition. Consider for example the eradication of smallpox. The familiar ‘great doctor’ account privileges Edward Jenner’s discovery in 1796 that vaccination using a zoonotic disease, cowpox, provided immunity against smallpox [29]. The journey to eradication could then begin as states introduced compulsion, albeit impeded by the irrational protests of the anti-vaccination movement, with ‘smallpox zero’ finally declared in 1980.

History casts a different perspective. The principle of immunisation by inoculating with an attenuated strain of smallpox was long-established in other medical traditions, as in India, where variolation was integrated with the worship of Sitala, the goddess associated with the disease [28]. Knowledge of the process reached the New England colonies of America in the 1710s via an African slave, and was disseminated in Europe through travellers from the Ottoman Empire [30]. Brilliant as he was, Jenner’s insight built on long-standing global practices in folk medicine. Closer examination of the ‘anti-vaxxers’ also reveals there was more involved than simplistic rejection of science. In the nineteenth century this was a compound of religious belief, faith in other forms of healing (including sanitary reform), and suspicion of state intrusion into personal liberties [31]. History therefore cautions that we should neither despair nor castigate unduly, but rather understand the complexity of motivation. Again it reminds that rightful confidence in biomedicine’s capacity might be tempered by humility.

III

Thirdly, the history of health policy provides insights into how public health can translate into human betterment. For as soon as we consider medicine in society, rather than the one-to-one clinical encounter, politics inevitably intrudes. ‘Medicine is a social science and politics is nothing but medicine at a larger scale’ [32]. So argued the German scientist Rudolf Virchow in 1848. Today remembered as a polymath – cellular pathologist, anthropologist, liberal politician, public health doctor – Virchow in that year joined an investigation into a typhus epidemic in Upper Silesia. This region, then part of Prussia, now Poland, had experienced serious famine with typhus mortality highest amongst impoverished peasants. Virchow’s insight was that this population-level distribution of the disease had social causes; as solutions he advocated for economic development, improved food supply

and medical care, tax reform, free education, separation of Church and State, making Polish the official language, and ‘full and unlimited democratic government’ [33, 34]. Attuned to the radical mood of 1848, Europe’s ‘year of revolutions’, he wrote in the reformist medical journal he founded:

‘Medicine as a social science, as the science of human beings, has the obligation to point out problems and to attempt their theoretical solution; the politician, the practical anthropologist, must find the means for their actual solution’ [32].

Virchow then, was the first to draw attention to what we now call the ‘upstream’ determinants of disease aetiology. In his subsequent career, first on Berlin’s city council then in the German Reichstag, he would engage with two such issues, the building of sanitation systems, and the mandating of social health insurance.

We can learn much from policy histories of both these areas. Both were politically contentious as they necessarily involved infringement on individual liberties. Sanitarianism meant the state’s advance into the realm of public goods funded by taxation. The history of sewers, drains, fresh water supplies and building regulation is therefore also that of tussles between pressure groups: doctors, citizens associations, landlords, business-owners and tax-payers [35]. Urban histories such as that of Hamburg in the cholera years paint tragic pictures of how vested interests slowed the development of environmental improvement [36].

Likewise, the introduction of compulsory health insurance, initially by Bismarck in 1883 was always controversial. Hitherto the remit of guilds and trade unions, sickness cover now became a formal aspect of employment, paid for by German workers and bosses, with doctors’ remuneration subject to third party sick funds. Histories of the Bismarck system’s subsequent spread through Europe and beyond have teased out the key factors [37]. Again there was the jostling of interest groups: doctors’ associations, business circles, drug companies, private insurance, progressive bureaucrats and the labour movement. Liberals argue this occurred in an open policy arena while Marxist analysts view it as an unequal setting shaped by class power. Conversely ‘institutionalist’ historians attend to the political systems in which the issue was contested and the scope law-making processes allowed for radical reform.

Drawing more systematically on political science theory can also help contemporary public health activists seeking lessons of history. One much cited concept is that of the ‘policy triangle’ which aims to steer analysis away from its usual focus on the *content* of a proposed reform towards two other points of the triangle: *context*, that is the larger environment in which policy ideas are formed and adopted, and *process*, the political settings in which a proposed change succeeds or fails. Within this triangle, and interacting with its different points, sit

the *actors*, either key individuals or groups [38]. Another popular approach is to think in temporal terms, about the confluence of factors which together can open a ‘policy window’ at a given moment in time. A well-known example is the ‘multiple streams’ thesis, which argues that such windows open when three influential determinants coincide. These are the perception of a *problem*, clearly understandable by citizens and the state; a *solution* which is well-articulated and workable in practice; and a favourable *political environment* to enact this proposal [39, 40]. Thinking in these terms can guide *policy entrepreneurs* seeking to open the ‘window’, for example by publicising their issue heavily at a politically auspicious juncture, or committing resources to the feasibility of draft legislation.

Other theoreticians have concentrated on those elements which they consider especially vital. For example, the process of *agenda-setting* is a key part of the problem stream, and of policy context. Research considers the optimum ways of doing this, for example through the use of different media, mass mobilisations or selective lobbying of elites. Alternatively the focus might be on actors combined in groups to promote change. *Network analysts* emphasize the expert communities external to state bureaucracies which influence policy, attending to the circumstances in which these arise and the ways they interact with governments [41]. The *advocacy coalition framework* is a more refined variant, examining networks in media, academia and bureaucracies favouring a controversial reform [42]. It asks how they combine, then negotiate both the less contentious technical aspects of change, and the more divisive elements which touch on core political beliefs.

We can now look in detail at a Polish case study of policy history to explore how theory and empirical research can interact to provide lessons for the present. Our example will concentrate on the recent history of a still salient public health issue – the challenge of reducing tobacco consumption. It draws on the unpublished doctoral work of the late Mateusz Zatonski, to which reference may be made for all sources [43].

The policy problem at issue is to explain the rise and decline of smoking in Poland between 1950 and 2010. Its context is two starkly interrelated trends: mortality and smoking rates. Between the mid-1960s and mid-1990s, male life expectation at birth had stalled, fluctuating at between 66 and 68 years. Deaths from non-communicable disease were a crucial reason, and a key causal factor was the relentless rise in tobacco use. Poland was one of the world’s highest consumption countries, with cigarette sales at some 20 billion per annum by 1950, rising to around 70 billion by 1970. In the late 1980s, on the eve of the Soviet Union’s collapse, they peaked at about 100 billion, and everything augured for the continuation of this trend. Economic liberalisation would open the Polish market to tobacco multinationals and expose its people to Western advertising and promo-

tional tools. Further deterioration of population health in consequence seemed certain. Yet this did not happen. By the early 2010s there had been a dramatic fall in consumption, with cigarette sales back below 50 billion.

How to explain this? The most obvious factor was tough tobacco control laws passed by the Polish Sjem in 1995 and 1998. The 'Act for the Protection of the Public from the Effects of Tobacco and Tobacco Products' prohibited the sale of cigarettes to under-18s and placed limits on coal tar and nicotine content to 1.5 mg. Next came compulsory health warning labels, to occupy at least 30% of a cigarette package's surface. However these acts slightly post-dated the decline in smoking rates, and moreover there had been anti-smoking legislation in 1974 which was widely ignored. The problem therefore broke into three research questions. Why did tobacco consumption start to fall prior to governmental action, and in the face of market pressures? Why did policy-makers enact anti-smoking laws at a time of economic liberalisation? Why was this legislation effective when previous attempts had failed?

In pursuit of his answers, Zatonski began by identifying the different policy actors. These included: politicians, as individuals and as party members; scientists who provided the evidence; a pro-tobacco lobby, consisting of farmers (Poland was also a leaf grower), local manufacturers, transnational tobacco companies (TTCs) and sections of the hospitality industry; and finally an anti-tobacco lobby consisting of different civil society organisations. He then identified his sources and devised data collection methods. Some were the historians' traditional standbys, documents preserved in the archives of government and institutions, and oral history interviews with prominent players [44]. Others were more novel. One was the digital repository of internal tobacco industry documents, created in 1998 following litigation that found the TTCs knowingly marketed a dangerous product while publicly casting doubt on smoking/lung cancer links [45]. Another was a 'witness seminar', a form of group oral history in which participants join a structured conversation about past events, which is recorded, transcribed and mined for details. The historian's job, after selecting these diverse sources, is then to analyse, synthesise and triangulate to produce a plausible account, verifiable through careful referencing.

These were the methods, but what about the conceptual frame? Before beginning data collection, Zatonski used theory from political science to organise selection and guide his questioning. Instead of a single rigid approach, he selected several to use as heuristics guiding his thinking. First, to understand why the 'policy window' opened at that particular moment, but not before, he followed the 'multiple streams' approach: how did problem articulation, policy solution and political opportunity come together in the 1990s? He also drew on the idea of 'bounded pluralism'. This notion balances

the liberal ideal of politics as an open, egalitarian arena of decision-making, with the more realistic assumption that the 'playing-field' is always tilted in favour the powerful. If the problem at issue is conceived as 'low politics', then relatively pluralistic decision-making can proceed, but if it is 'high politics', which bears upon the interests of the powerful, then their influence will likely block reform. Could this explain why control efforts in the 1970s failed, but succeeded in the 1990s?

Having observed the importance of civil society actors he also drew on the advocacy coalition framework, to help conceptualise the anti-tobacco groupings and their links with the state. Finally, to analyse why non-state organisations could be effective at some moments but not at others, he turned to voluntary sector studies for reflections on generic strengths and weaknesses of the civil society actors.

Armed with this framework, the evidence was collated and the following account emerged. Before 1989, tobacco policy was a matter of 'high politics', in which various economic interests aligned with the state to keep control policies off the agenda. The agricultural concerns of leaf growers, the industrial objectives of cigarette manufacturers and the sales ambitions of retail and leisure outlets all favoured rising consumption. Government's interests were pecuniary, because tobacco generated tax revenue. They were also social, in that cigarettes were a cheap, available product in a country still lacking the panoply of goods available in the West, and thus an important salve to consumer desires. Meanwhile, the anti-tobacco advocacy coalition was weak. Scientists were aware of smoking-lung cancer epidemiology, but in the Communist polity had little independent voice and agenda setting capacity. Meanwhile the state-approved anti-smoking organisation was poorly led and ineffectual, its inventive poster campaigns obscuring the absence of substantive impact. Effectively then the policy window remained closed, despite the Sjem legislating in 1974 to impose smoking bans in certain public spaces. Without strategies to promote a broader cultural shift, these were widely ignored.

After 1989 however, tobacco policy increasingly became 'low politics', and the interest group alignment fragmented. Privatisation created a new and more distant relationship between the state and industrial policy, while the incoming TTCs failed to make common ground with national producers who saw them as competitors. Concurrently, the removal of constraints on civil society unleashed a media-savvy anti-smoking movement. Activities like the 'Great Polish Smoke-out' exemplified the use of high profile mass campaigns in problem articulation and agenda-setting. This revived advocacy coalition was also aided by a cultural shift visible in advertising and consumption, which treated healthy lifestyles as an attractive Western commodity to which Poles could aspire. Other factors helped open the policy

window. The long-standing tactic of employing ‘Polish School’ poster artists, such as Andrzej Pagowski, to design hard-hitting images now began to shift the public mood. Anti-tobacco experts also gained standing from the World Health Organisation’s decision to hold a major conference on smoking and health at Kazimierz. Such exposure to international control strategies also aided policy formulation that fed into legislation. Finally, there was a favourable political conjuncture in which a number of doctors were elected to the post-Communist Sejm and gave voice to anti-tobacco debates.

A historical analysis such as this cannot provide present-day public health advocates with a guaranteed recipe for success. After all, explaining the decline of smoking has famously been likened to ‘unravelling gossamer with boxing gloves’ [46]. Nonetheless, Zatonski’s case study is highly suggestive. It underlines the value of campaigning by civil society with a mix of activities in the public sphere that engage mass opinion. It emphasizes the importance of scientific and policy expertise working together to prepare feasible and effective legislative ideas. Clearly the fortuitous political juncture will not always be available, but if the work of agenda-setting and policy articulation is ongoing, then the moment can be seized when it does arise.

CONCLUSIONS

There are no immutable ‘lessons’ of history that are open to scientific proof. However well we may understand our surrounding social and economic structures, human events do not repeat themselves. Instead they will always be contingent, dependent on the actions and decisions of individuals, alone or *en masse*. Despite the absence of verifiable laws though, history does have its uses. Most obviously, it is our collective memory, a repository of knowledge about how we arrived at our present state. It can tell us what solutions to our problems have been tried before, what has worked and what has failed, and thereby it informs our discussion of the future. It reminds us that science is always embedded within culture, and that different cultures of healing have contributed through time to human betterment. It helps us to think systematically about how power works in the political sphere, and, as the preceding example illustrates, helps us to plan for policy change. Last but not least, the long history of achievements of public health in the conquest of infectious and non-communicable diseases should be an inspiration and spur to future action.

DISCLOSURE

The author reports no conflict of interest.

References

- Glei D, Lundström H, Wilmot J. About mortality data for Sweden. Human Mortality Database. Available from: <https://mortality.org/File/GetDocument/hmd.v6/SWE/Public/InputDB/SWEcom.pdf> (accessed: 10 October 2023).
- Hardy A. ‘Death Is the Cure of All Diseases’: using the general register office cause of death statistics for 1837-1920. *Soc Hist Med* 1994; 7(3): 472-492.
- Riley JC. *Rising Life Expectancy: A global history*. Cambridge University Press, Cambridge 2001.
- Eg. Gapminder. Life Expectancy/ GDP per capita in constant PPP dollars. Available from: [https://www.gapminder.org/tools/#\\$chart-type=bubbles&url=v1](https://www.gapminder.org/tools/#$chart-type=bubbles&url=v1) (accessed: 10 October 2023).
- Pomeranz K. *The great divergence: China, Europe and the making of the modern world economy*. Princeton University Press, Princeton 2021.
- Deaton A. *The great escape: health wealth and the origins of inequality*. Princeton University Press, Princeton 2015.
- Fioramonti L. *Gross domestic problem: the politics behind the world’s most powerful number*. Zed Books, London 2013.
- McKeown T. *The modern rise of population*. Edward Arnold, London 1976.
- Harris B. Public health, nutrition, and the decline of mortality: the McKeown thesis revisited. *Soc Hist Med* 2004; 17(3): 379-407.
- McKeown T. *The role of medicine: dream, mirage, or nemesis?* Princeton University Press, Princeton 1979.
- Woodward A, Blakely T. *The healthy country?: a history of life and death in New Zealand*. Auckland University Press, Auckland 2014.
- Preston SH. The changing relation between mortality and level of economic development. *Popul Stud* 1975; 29(2): 231-248.
- Preston SH. The changing relation between mortality and level of economic development. *Int J Epidemiol* 2007; 36(3): 484-490.
- Tanumihardjo SA, Anderson C, Kaufer-Horwitz M, et al. Poverty, obesity, and malnutrition: an international perspective recognizing the paradox. *J Am Diet Assoc* 2007; 107(11): 1966-1972.
- Gorsky M, Sirrs C. World health by place: the politics of international health system metrics 1924 - c. 2010. *J Glob Hist* 2017; 12(3): 361-385.
- Fries JF. Aging, natural death, and the compression of morbidity. *N Engl J Med* 1980; 303(3): 130-135.
- Stern BJ. *Social factors in medical progress*. Columbia University Press, New York 1927.
- Evans RJ. *Death in Hamburg: society and politics in the cholera years 1830-1910*. Penguin, Harmondsworth 1990.
- Watts SJ. *Epidemics and history: disease power and imperialism*. New Haven University Press, Yale 1999.
- Ackernecht E. Anticontagionism between 1821 and 1867. *Bull Hist Med* 1948; 22: 562-593.
- Hamlin C. *Public health and social justice in the age of Chadwick: Britain 1800-1854*. Cambridge University Press, Cambridge 2008.
- Foucault M. *The birth of the clinic: an archaeology of medical perception*. Vintage, New York 1975.
- Risse GB. *Hospital life in Enlightenment Scotland: care and teaching at the Royal Infirmary of Edinburgh*. Cambridge University Press, Cambridge 1986.

24. Hannaway C, La Berge AEF. *Constructing Paris medicine*. Rodopi, Amsterdam 1998.
25. Worboys M. Colonial Medicine. In: *Companion encyclopedia of medicine in the twentieth century*. Cooter R, Pickstone JV (eds.). Routledge, London 2003; 67-80.
26. Harrison M. *Public health in British India: Anglo-Indian preventive medicine 1859-1914*. Cambridge University Press, Cambridge 1994.
27. Haynes DM. *Imperial Medicine: Patrick Manson and the conquest of tropical disease*. University of Pennsylvania, Philadelphia 2001.
28. Arnold D. *Colonizing the body: state medicine and epidemic disease in nineteenth-century India*. University of California Press, Berkeley 1993.
29. Bailey I. Edward Jenner, Benefactor to mankind, In: *History of vaccine development* Plotkin SA (ed.). Springer, New York 2011; p. 21-25.
30. Brown TH. The African connection: Cotton Mather and the Boston smallpox epidemic of 1721-1722. *JAMA* 1988; 260(15): 2247-2249.
31. Durbach N. *Bodily Matters: The anti-vaccination movement in England 1853-1907*. Duke University Press, Durham 2005.
32. Virchow R. Der Armenarzt' Medicinische Reform 1848; 18: 125-127.
33. Brown TM, Fee E. Rudolf Carl Virchow: medical scientist, social reformer, role model. *Am J Public Health* 2006; 96(12): 2104-2105.
34. Pridan D. Rudolf Virchow and social medicine in historical perspective. *Med Hist* 1964; 8(3): 274-278.
35. Melosi MV. *The sanitary city: urban infrastructure in America from colonial times to the present*. Johns Hopkins University Press, Baltimore 2000.
36. Evans RJ. *Death in Hamburg: society and politics in the cholera years 1830-1910*. Penguin, Harmondsworth 1990.
37. Gorsky M. The political economy of health care in the nineteenth and twentieth centuries. In: *The Oxford handbook of the history of medicine*. Jackson M (ed.). Oxford University Press, Oxford 2011; p. 429-449.
38. Walt G, Gilson L. Reforming the health sector in developing countries: the central role of policy analysis. *Health Policy Plan* 1994; 9(4): 353-370.
39. Kingdon J. *Agendas, Alternatives and Public Policies*. Harper Collins, New York 1984.
40. Mackillop E, Sheard S. Quantifying life: understanding the history of quality-adjusted life-years (QALYs). *Soc Sci Med* 2018; 211: 359-366.
41. Berridge V. *Making health policy: networks in research and policy after 1945*. Rodopi, Amsterdam 2016.
42. Gorsky M, Millward G. Resource allocation for equity in the British National Health Service 1948-89: An Advocacy Coalition Analysis of the RAWP. *J Health Polit Policy Law* 2018; 43(1): 69-108.
43. Zatoński MZ. *State, society, and the politics of smoking in Poland during and after Communism*. PhD. University of London 2018.
44. Archives: Centrum Onkologii – Instytut im. Marii Skłodowskiej-Curie, Główny Urząd Statystyczny, Muzeum Plakatu w Wilanowie, Biblioteka Narodowa, Biblioteka Sejmowa, Instytut Pamięci Narodowej, Fundacja Promocja Zdrowia, Truth Tobacco Industry Documents.
45. Hurt RD, Ebbert JO, Muggli ME, et al. Open doorway to truth: legacy of the Minnesota tobacco trial. *Mayo Clin Proc* 2009; 84(5): 446-456.
46. Chapman S. Unravelling gossamer with boxing gloves: problems in explaining the decline in smoking. *BMJ* 1993; 307: 429-432.