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Coronary Heart Disease and Heart Attacks, 1912–2010

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This paper was originally written for a conference entitled 'The Future of Medical History'. Now it ought to be clear – certainly to historians – that the future of anything is hard to predict; but at least in the short term, any future for medical history seems likely to include the history of disease, and the history of coronary heart disease (CHD) provides an excellent example of what the history of disease has to offer to a wide range of audiences.

Not that disease history is new. There have been many unenlightened examples of this genre over the years – often presenting disease history as a list of milestones reached, a tale of progressive revelation, a marker of 'progress' towards conquering some scourge of humankind. On the other hand, it is not so hard to find good examples. Some sixty-five years ago Owsei Temkin wrote a groundbreaking book on the history of epilepsy.[1] More recent decades have seen key works by Charles E. Rosenberg on framing disease, and Roger Cooter on the possible death of that concept.[2] In the past few years, no fewer than three major publishers have elected roughly simultaneously to put new books on the history of diseases on our shelves (or into our Kindles). Coincidence? I think not. While there is doubtless variation from press to press, all three publishers appear to see some sort of opportunity here for disease history as part of the future of medical history.

Disease history may offer a particularly effective opportunity to extend medical history's reach to four important interest groups that, in the past, have held complex relationships with medical history and seem poised to do so in the future. For the sake of (forced) alliteration let's call them:

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[1] Owsei Temkin, *The Falling Sickness: A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology* (Baltimore, MD: Johns Hopkins University Press, 1945).

[2] Charles E. Rosenberg, 'Framing Disease: Illness, Society, and History', in Charles E. Rosenberg and Janet Golden (eds), *Framing Disease: Studies in Cultural History* (Rutgers, NJ: Rutgers University Press, 1992), xiii–xxvi; Roger Cooter, '"Framing" the End of the Social History of Medicine', in Frank Huisman and John Harley Warner (eds), *Locating Medical History: The Stories and Their Meanings* (Baltimore, MD: Johns Hopkins University Press, 2004), 309–37.

Public

Physicians (used here in the US meaning of the word, to refer to qualified medical practitioners of all specialties)

Policy makers

Fellow historians

The most dramatic and fatal manifestation of the disease now called 'CHD' is what we now call a myocardial infarction, or 'heart attack'. It is interesting to note how little attention the history of CHD has received, especially as it continues to be the leading cause of death worldwide. While in developed countries the number of deaths may be going down somewhat, in developing countries they are continuing to rise. Worldwide, 7.2 million people a year die from the disease.[3]

Any sort of disease history, and certainly the history of a disease with as broad a footprint as CHD, needs to have some sort of analytic frame. One way to start to think about the history of CHD, especially in the twentieth century, could be by examining the technology used to diagnose and treat the disease. My own work on the history of heart disease started by studying the history of technology here at the Wellcome Institute some three decades ago. As is so often the case, I asked one historical question and soon discovered that it was the wrong question. I wanted to understand what seemed at first glance to be the strikingly rapid incorporation into clinical practice of a new tool, the electrocardiograph (ECG). Instead, I was surprised by the decision of Britain's leading advocate for the ECG, Thomas Lewis, to leave the ECG just as it was being seen to provide new and different sorts of information.[4] This and similar analyses of how clinicians actually use medical tools have led historians to question one traditional model of twentieth century Western healthcare, that of a system being inexorably driven to increasing use of medical technology. At the very least, historians have problematised the assumption that, once we learned how to be objective about gathering information using medical technology, there has been a simple, linear progression in the use of machines for healthcare.

Not that technology hasn't played a critical role in changing conceptualisations of CHD: the Chicago physician James Herrick recalled that his purely clinical 1912 description of a patient who survived a myocardial infarction – a survival that flew in the face of previous assumptions that obstruction of a coronary artery would lead to instant death – 'fell flat as a pancake'.[5] It was only when he supported his story with ECG tracings in 1918 that myocardial infarction became widely recognised as a pre-mortem diagnosis.

Various technologies have continued to play a role in the twentieth-century history of CHD, albeit in more complicated ways than have often been appreciated. Consider the use of technology for diagnosis of asymptomatic disease. Early disease diagnosis

[3] Judith Mackay and George A. Mensah, *The Atlas of Heart Disease and Stroke* (Geneva: World Health Organization, 2004).

[4] Joel Howell, 'Early Perceptions of the Electrocardiogram: From Arrhythmia to Infarction', *Bulletin of the History of Medicine*, 58 (1984), 83–98.

[5] James Herrick, 'An Intimate Account of My Early Experience With Coronary Thrombosis', *American Heart Journal*, 27 (1944), 1–18.

has been a major goal ever since the realisation that while some people may survive a myocardial infarction, too many did – and still do – die at the initial manifestations of the disease. CHD's natural history led physicians to search for ways of diagnosing the disease before it manifests as a possibly fatal heart attack. Starting in the 1920s–1930s, three different tools shared the stage.

One started in 1929 as the 'Master's two-step', during which medical personnel monitored a person's heart while she or he exercised. This test eventually became the twenty-first century multi-stage exercise test. But historically to focus exclusively on this test, as though it somehow led inevitably to current procedures for CHD diagnosis, would be to ignore two other tests that were also widely advocated for exactly the same sort of diagnosis. One was the anoxaemia test, in which patients breathed in oxygen-depleted air in order to deprive the heart of adequate oxygen and thus to produce cardiac ischaemia. Another was the ballistocardiogram, a test that recorded the body's motions produced by the heartbeat. All three were thought to diagnose CHD in the 1940s and 1950s. To focus on only one implies a unanimity of thought that simply did not exist.

All three were less direct ways of establishing the presence of coronary artery occlusion than introducing dye directly into the coronary arteries. Once thought to be invariably fatal, this procedure was only discovered in 1958, when physicians accidently filled a coronary artery with dye. The pictures were dramatic, the patient suffered no apparent ill effects, and this technique was rapidly adopted as yet another diagnostic tool. It was intimately associated with the rapid proliferation of coronary artery bypass grafting as a treatment for CHD, a procedure that made visual sense in a way that was easily understood by lay public and medical professionals alike.[6]

Since the 1950s the death rate from CHD has been falling, with considerable debate over who or what ought to get the credit. One set of medical claims for the falling death rate has centred on early diagnosis and treatment. Practically anyone with chest pain is thought to be at risk and is advised to go immediately for evaluation to an emergency department (ED). As a result, chest pain has become the second most common symptom leading to an ED visit in the US. There, US patients are often introduced to another form of technology, a system with its own protocols, personnel, and physical space called a 'chest pain center'. Patients are admitted to these centres for specialised monitoring and readily available treatment before a decision is taken about whether they need to be admitted. In addition to saving lives, these chest pain centres also save money by allowing patients who do not need intensive care to stay in the ED and avoid being admitted to expensive coronary care units. These chest pain centres spread widely in the US in the 1980s and 1990s. A 'Society of Chest Pain Centers' has a journal, publishes a book that includes a chapter on economics and heart disease, holds the motto 'because every heart matters', and the aim to 'defeat heart disease as a leading cause of death worldwide'. (After which we will all live forever?) The extent to which such

[6] David Jones, 'Visions of a Cure: Visualization, Clinical Trials, and Controversies in Cardiac Therapeutics, 1968–1998', *Isis*, 91 (2000), 504–41.

centres will be transplanted to the UK is not so clear. UK hospitals spend much less on people with chest pain because they do much less – but with arguably at least similar and perhaps superior results.

The history of CHD is further muddled by changing diagnostic standards. Over the twentieth century, standard diagnostic procedures to diagnose myocardial infarction, in chest pain centres and elsewhere, have come to involve increasingly sensitive blood tests to detect the death of heart muscle, tests that over the century changed from singular events conducted once on admission to a series of tests conducted over many hours.[7] As a result, people with small amounts of cardiac damage that would previously have avoided detection are now given the diagnosis of myocardial infarction. Imaging technology has further blurred the line between normal and diseased. The search for early diagnosis has included a panoply of high-technology imaging devices that can lead to otherwise asymptomatic people being warned of a 'ticking time bomb' in their chest. Small wonder that such a metaphor combined with overweening faith in science, technology, and the curative powers of modern medicine has led to an explosion of interventions, some of which may lead to neither better health nor longer life. Studying changing technology makes it clear that the diagnosis of myocardial infarction has never been stable, whether made by symptoms, ECGs, ever-more-subtle blood tests, or ever-more-impressive pictures.

CHD History for Whom?

So what can the history of CHD offer the four interest groups listed at the outset of this paper?

Public: Members of the public today are hungry for history. History books attract attention, sell well, and are routinely nominated for prestigious prizes. Television shows (and even entire channels) about history abound; history often provides the gist for motion pictures. Stories about the history of diseases can be an especially compelling form of history, especially when, as with the case for CHD, a disease is common or serious (or both). Some members of the public will have been diagnosed with the disease, some may know people who have been diagnosed with the disease, and some are simply frightened of ever having the disease. The history of disease thus has a ready and receptive audience. Such history can not only historicise medical ideas and practices but also, if written broadly, provide insights into the history of a time and place. It can thus demonstrate, not merely assert, the importance of history to a wide audience.

Physicians: Most physicians are no more sophisticated about medical history than the average member of the general public, and are an important audience for the

[7] Joel Howell, *Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century* (Baltimore, MD: Johns Hopkins University Press, 1995).

same reasons. But disease history could have important added value for healthcare providers, such as physicians. It can show how facts change, an important insight for providers who are likely to see dramatic changes in the diagnosis and treatment of a specific disease over their careers. CHD is not the first disease to be defined and redefined through new sorts of technologies, and it is unlikely to be the last.

Policy makers: In the US, healthcare consumes seventeen per cent of the gross domestic product, and meaningful cost control does not seem to be on the horizon. Common, expensive diseases such as CHD make up a great proportion of the cost of healthcare in the US and in all developed countries. As changing scientific ideas lead to all sorts of new tests and treatments for a wide range of diseases, the history of a disease such as CHD could help policy makers understand how the choice of diagnostic technologies reflects social norms and popular assumptions. Realising how we got to the current widespread fetish on science and technology could help policy makers question the implicit assumptions that underlie this belief structure and realise a broader range of possible solutions to current dilemmas.

Fellow historians: Whilst our fellow historians understand historicism, they have found it remarkably easy to ignore healthcare. Consider but one example: hospitals are arguably the single physical structure most emblematic of twentieth-century medicine. Yet it is truly remarkable how little attention is paid by urban historians to the place of hospitals in the urban environment. A similar sort of selective inattention applies to the history of CHD, and to medical history in general.

Because health and medicine is such a ubiquitous part of the human experience, part of historians' disinclination to grapple with medical history could be that the boundaries between 'medical' and 'social' history are often quite porous. It can be difficult to disentangle medical history from everything else. One might also speculate that part of the tendency amongst historians to relatively disregard healthcare is that historians are often intensely intellectual people who, in general, think rather historically. If one takes seriously the theoretical underpinning of medical history, it must apply as well to contemporary medicine. Yet perhaps the last thing historians want when they or their loved ones fall ill is for their physician to be working in an historical moment. They want transcultural, ahistorical infallibility (who wouldn't?) Yet that proximity of disease history to the lived experience opens a wide range of possibilities for interactions between medical and non-medical historians.

CHD, because it is so serious, so common, and so expensive, has become the playground for some of the most significant attempts to change the management of medical practice. There are many policy and clinical decisions to be made, and lots of money riding on those decisions. As medical and political ideas are given agency through technologies, architecture, and social relations, the changing approaches to the diagnosis and treatment of CHD offer a fruitful area to try to unpack these relationships. The history of CHD could be a fruitful area for research by historians

both medical and otherwise and, one hopes, could make medical history manifest to a larger set of audiences.

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