The son of a tenant farmer from Scone, James Mackenzie was a remarkable example of social mobility in Victorian and Edwardian Britain. After initial schooling and an apprenticeship as a dispensing chemist, he entered medical training, and shortly after completing his course, he became a general practitioner in Burnley in 1879. In general practice, he became one of the leading researchers of heart disease of his generation, and by 1907, had advanced to lead the new cardiac department of the London Hospital. He went on to become a knight, Fellow of the Royal Society and honorary physician to the king. In 1921, he was nominated for a Nobel prize, and given his ground-breaking work in heart failure, mitral stenosis, atrial fibrillation and the role of digitalis, his case for a prize may appear strong, but perhaps because of the primacy of laboratory methods against which he furiously railed in his article in the *BMJ*, his work, although of great clinical value, was not rewarded with a prize.

In the 91 years since he published his lecture delivered at St Mary's Hospital, medical practice has transformed. The laboratory methods that so frustrated him have produced an abundance of riches in both clinical investigations and therapeutic interventions that even Mackenzie would be forced to marvel at. Our understanding of cardiac physiology and function, our ability to investigate the heart in the living subject and the pharmacological and surgical therapies now at our disposal would surely be sufficient to cause Mackenzie to reverse his opinions, and acknowledge with almost everyone else that laboratory methods are patently more complex and more rewarding than the role of the humble clinical observer—the doctor, most commonly a general practitioner, who records in detail the symptoms and signs that may be the initial features of disease or risk of disease, and follows up the people in his care for several years. However, wait a moment—perhaps, he would not change his mind, but instead stubbornly would remind us once again not to overlook the importance of the frequent opportunities that present to observe, record and monitor clinical details.

**The clinical observer and the early detection of disease**

If James Mackenzie was one of the greatest of general practitioners, Julian Tudor Hart was another. Working like Mackenzie in a small practice that served a deprived community, he acted as the clinical observer to his patients and was able to point to reduced mortality rates as the outcome of his efforts. Writing in the *BMJ* 70 years after Mackenzie’s article, he showed that whole-population care helps reduce mortality, and that assiduous recording, audit and continuity were fundamental.1 Hart tackled the common problems of smoking, obesity, hypertension, alcohol and diabetes. Despite his example of the systematic application of the simple steps of measurement, management and monitoring to his population, in the context of the continuity of care with which Mackenzie would have been familiar, he remains the only general practitioner I am aware of who is able to present data to demonstrate how his working life has reduced mortality rates. Hypertension, for example, remains remarkably under-detected and inadequately controlled; the 2010 Health Survey for England found that among adults aged ≥16 years, 30.2% had hypertension, but only 10.6% (around one-third) were controlled; 7.1% were being treated but were not controlled, and 12.5% were untreated.2 This is important because the detection of hypertension is associated with population mortality: in England, the number of people with diagnosed hypertension predicts coronary heart disease mortality at primary care trust level. The more people with a diagnosis of hypertension on general practice disease registers, the lower the mortality from coronary heart disease.3 Faced with this evidence of failure in clinical observation, Mackenzie could justifiably say ‘I told you so’.

The National Institute for Health and Clinical Excellence (NICE) guidelines on referral of patients from general practitioners to specialist care when cancer is suspected involved extensive literature searches to identify publications that described the
earliest features of various cancers. The guideline panel concluded that the evidence was surprisingly limited. Many of the studies were case series of patients attending secondary care, and of the relatively few studies in primary care, the number of providers involved was usually small, and consequently, because of the small number of patients, their ethnic and socio-economic varieties were rather narrow. Progress in the clinical observation that Mackenzie demanded, at least in the field of early cancer diagnosis, has been poor. Thankfully, this wholly unsatisfactory state of affairs is beginning to be addressed in studies of large samples of electronic general practice records with the derivation of potentially helpful diagnostic algorithms. Finally, therefore, some progress in this field appears possible, although the full benefits may need to wait until the general practitioner record is supplemented by the painstaking prospective collection of data on all seemingly unimportant symptoms and signs, as was originally envisaged by Mackenzie in his research institute at St Andrews—‘our chief method is seen to be a general practitioner quietly asking questions of a patient who has little the matter with him’. In the case of early diagnosis of cancer, therefore, he is once again entitled to say ‘I told you so’.

The opportunities of the general practitioner—some taken, some missed

The tone and sentiments of Mackenzie’s lecture are as remarkable as the descriptions he gives of his clinical discoveries of the effects of atrial fibrillation and the action of digitalis. Mackenzie is angry. Forthright in his criticism of what he saw as the medical establishment’s high regard for laboratory methods and low regard (or as he seems to believe, no regard at all) of clinical observation, he pulls no punches in his assault on his colleagues, the learned physicians who dominated medicine at that time. Yet, despite his fervent argument in support of the general practitioner as clinical observer, his lecture ends in firm resignation—‘I know quite well that these views at present will fail to carry conviction’. If he could be brought back to life today, he would find much less resistance to his argument; indeed, his supporters would probably be in the majority. However, he would probably still find reasons for anger, at least I hope he would, as the changes in clinical practice and research that he sought still need emotional energy to bring to entire fruition.

General practices and the populations they serve have transformed since 1921. Multi-disciplinary primary health care teams are the norm, and they have numerous investigations and therapies at their disposal. Academic general practice has been firmly established, not only in this country but in most developed countries as well; general or family practice is a key pillar of the health care system. In England, in April 2013, general practice is being given responsibility over much of the National Health Service (NHS) budget through the creation of commissioning groups. Surely, Mackenzie would be astounded that general practitioners, those lowly medical beings regarded as falling from the last rung of the ladder, had ascended to such status and power? Well, he probably would express some satisfaction, but being a careful methodical investigator, he would spend some time looking beneath the surface of this apparent success, and would start to find evidence that things have not changed so much as it first appeared. He would quickly encounter that familiar infatuation with technology and the laboratory methods that distracts us from also paying attention to the basics of clinical practice.

Perhaps, one of the first things he would notice are the large sometimes newly constructed hospitals throughout the land, each one well-staffed with specialists. The numbers of specialists in the NHS has increased steeply in the past 17 years; in England, in 1995, there were 8000 more general practitioners (GPs) than specialists, but today there are 5000 more specialists than GPs, and the number of specialists is still growing. The investment in specialist medicine has been enormous. Although this has addressed the problem of waiting lists that seemed endemic to the NHS, it has not prepared us well for managing the disease distributions of today’s older demographic. The populations general practices care for include greater proportions of older people, and many with chronic conditions. It follows that we need more clinical observers in the community to care for the growing numbers of people with several chronic conditions each, and to keep them at home and away from the expensive hospitals. Mackenzie would not be impressed.

Therefore, for all the achievements of medicine in the past 9 decades in improving our understanding of disease and in developing new therapies, Mackenzie, would, I believe, still argue that the opportunities of the general practitioner are essential for the investigation of disease and the progress of medicine, and, he would likely add, the delivery of efficient health care too. He might briefly express some pleasure at the emergence of electronic systems to capture the clinical data he regarded as so important, but he would swiftly move on to scold us on our obsession with high-tech medicine and our failure to concentrate on the clinical basics, particularly the early detection of disease and the consistent application of management principles, which together have the potential to transform the clinical prognosis of countless people. Imagine him, standing at the lectern in St Mary’s, shaking his finger at us and telling us we have still to find the balance between the basics and the irresistible glittering technologies.
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References


Commentary: Sir James Mackenzie (1853–1925): An ambiguous pioneer for research in primary care

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Sir James Mackenzie is generally accepted as the founder of research by general practitioners in Great Britain, studying their own patients where and how they actually live. His pioneering work on arrhythmias was a foundation for modern cardiology, consolidated by his pupil Thomas Lewis, Britain’s first full-time clinical researcher for the Medical Research Council. Mackenzie became a dominant figure in public imagination, more widely celebrated than any later generalist. At the clinical research institute he founded at St Andrews in 1919, he hoped to set in train a permanent and growing body of longitudinal clinical research outside hospitals, by community generalists studying their own patients. This article tries to explain the failure of this project: how it influenced later research by general practitioners and others in primary care after creation of the National Health Service (NHS) in 1948 and its relevance today to primary care research policy. Such research is now becoming an urgent necessity, for the British National Health Service to survive as a public service and as a foundation for democratic development of biosciences.