



Does the physical examination have a future?

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The new imaging techniques and recent advances in molecular biology are producing dazzling results in the diagnosis and treatment of human diseases. The power and ease provided by these new technologies might cause us to imagine that the physical examination will become obsolete. Any practising clinician is, quite rightly, likely to dismiss this thought. But what are the grounds for doing so?

Perhaps the most obvious reason why the physical examination will endure is convenience. Medical practice has as its first concern diagnosis of what might be present though it be hidden (that is, its presence must be inferred). Any facts about a hidden process that we can obtain simply by talking to the patient and using our 5 senses should certainly be welcomed. For example, knowing that a 22-year-old college student with a new boyfriend complains of fever, fatigue and a sore throat is utterly orientational as to what to look for on the physical examination, namely enlarged lymph nodes and a palpable spleen. In the presence of these findings, it is effective use of technology to order a monospot test, and possibly a chest x-ray, to arrive at a near-certain diagnosis of infectious mononucleosis. This use of technology at the end of the physical examination — urinalysis to specify the nature of bilateral flank tenderness or electrocardiography to determine the likely nature of chest pain — is valuable precisely because we know in which instances it should be applied. There may be instances where our order of doing things should be changed — doing a chest x-ray before seeing a patient in a chest medicine clinic or an electrocardiogram in a cardiology clinic are obvious examples — but they provide no justification for abandoning the physical examination. Even extreme examples, such as the superiority of cardiac ultrasound over auscultation in the evaluation of cardiac valvular disease, do not mandate any change more radical than the intelligent use of the technology in selected cases.

The second reason for retaining the physical examination is cognitive. Like laboratory test results, physical examination findings are used in diagnosis, that is, in learning what illness may or may not be present. Consider our approach to the patient. First, we hear of what only the patient can tell us: chest pain and shortness of breath, for example. We call these facts of the patient's subjective experience symptoms. Next, we examine for those things that can be readily observed (and that the history may have led us to expect), say raised temperature and audible precordial friction rub. Such facts, which can be readily observed by any physician (and of which the patient may or

may not be aware), we call signs. They include signs that can only be provoked: in this instance, paradoxical pulse and a Kussmaul sign. The astute clinician already has a number of cardiac diagnoses in mind, among which pericardial constriction ought to be predominant. A further provocative manoeuvre, cardiac catheterization and, ultimately, pericardiectomy, can confirm the diagnosis. From the perspective of learning about what illness is likely to be present, there seems to be little qualitative distinction between the various forms of objective information: the friction rub, the provoked Kussmaul sign, the findings of the probing catheter or even the response to pericardiectomy (diagnosis ex juvantibus). Each fact was gathered in a coherent process of learning about all the manifestations of the illness. The order in which the facts were obtained is important: from history to result of intervention, diagnostic possibilities are reduced in number until one of them is highly probable. We use the technology late in the process, when the number of possibilities is small and the testing the most discriminatory.

If these reasons of efficiency were not compelling enough, consideration of cost and bother should be. Annual chest x-rays, even when tuberculosis was prevalent, were never cost effective; annual echocardiograms as part of a check-up would probably consume a prohibitive proportion of our health care budgets.

The final reason that the physical examination is likely to endure is that clinicians and their patients will still value it. Every clinician knows that some patients just “look” hypothyroid or wasted or Cushingoid. Also, there is a directness in the contact of a physical examination, even though it is also an indirect method of seeking that which is hidden, that is unmatched by conversation or by imperceptible, penetrating beams. Although there is no denying that being examined physically is an invasion of our person to some extent, the careful probing by expert hands can be an essential step in transforming worry and suffering into reassurance and action.

What about the argument that it is good science to use and explore our new technology earlier and use it more prevalently? I call this the “technology as toy” argument: by playing with the toy, we can learn how to use it better and perhaps discover the unexpected. Technology as toy can produce good science — consider the discoveries made by Leeuwenhoek with his microscope or by Galileo through his telescope. But technology as toy almost always produces bad medicine. First, it can be dangerous. Remember our earlier and sustained dalliance with cardiac and pul-



monary fluoroscopy. Second, it can mislead. Modern examples are the incidental adrenal mass found on computed tomography of the abdomen or the raised prostate-specific antigen levels found in the presence of carcinoma-in-situ of the prostate. Third, it can be without practical meaning: gone are breast thermography and phonocardiography. This contrast between the role of technology in science and its role in medicine arises because these activities have some basic differences. In science we seek to know whether what we have observed is new, a departure from the familiar; in medicine, we seek to know what among the familiar is likely to be present even though it might be hidden. It follows that the uses of technology for these distinct activities will also be distinct.

Far from rendering the physical examination obsolete, new technology will, I predict, enhance its importance. The physical examination will incorporate more of this technology. Our ability to hear cardiopulmonary sounds was greatly enhanced by the stethoscope. Where would ocular examination be without the use of the ophthalmoscope? Ultrasonographers can tell us, by pressing on the tender abdomen with a probe, which organ is the tender one. The success of these established amplifications of our ability to hear, see or feel encourages a renewed attention

to the ancient practices of smelling and tasting. Could we develop instruments (or train animals) to detect the distinctive but trace odors and tastes by which some illnesses are manifest? A new type of enhancement for the physical examination offered by the new technology is waiting in the wings, namely an iterative one. Imagine knowing that, from a molecular perspective, a patient will ultimately manifest a particular disease. The physical examination will be directed to surveillance for its potential manifestations, perhaps helping to time preventive action or intervention. Thoughtfully integrated with the new technology, the physical examination will continue to be central to clinical practice.

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Competing interests: None declared.

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