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## Why does demand for medical imaging keep rising?

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Demand for medical imaging is rising at a faster rate than most other aspects of healthcare and at a speed with which NHS radiology services cannot currently cope.<sup>1</sup> We radiologists must accept some responsibility for this ourselves—as technological advances result in ever more detailed images, we identify more and more findings of uncertain significance and we frequently choose to resolve this uncertainty by proposing further imaging. Many of these findings will turn out to be of no consequence. The greater part of the increase in demand, however, is attributable to developments elsewhere in clinical practice.

Some specific examples come to mind. The greater range of therapeutic options now available to treat most forms of cancer and the increasing survival of patients with this condition bring a need for more frequent and more prolonged monitoring of the response to treatment, which often involves imaging. A series of national reports and guidelines in the UK have encouraged greater vigilance for conditions which are difficult to diagnose clinically and can only be excluded with imaging such as pulmonary embolism and aortic dissection.<sup>2</sup> At the same time, the increasing use of anticoagulants in the population has led to a marked increase in the number of cranial CT studies performed for patients with minor head injuries.<sup>3</sup> The desire to diagnose and treat cancer at an early stage has led to increasing enthusiasm for imaging-based screening, for example to detect cancers of the breast, lung, and prostate.

As well as these examples relating to specific clinical scenarios, however, a number of systemic factors play a part. The well documented pressures on emergency department staff in particular have fuelled an increase in demand for imaging in the acute setting. The ability to conduct a full clinical examination in a crowded emergency department may be restricted and imaging is increasingly used as a triage tool to help identify patients who can safely be discharged rather than admitted for observation. Over-stretched staff may understandably look to imaging to provide a form of safety net. Away from the emergency department, the widespread adoption of remote consultation which has been accelerated by the covid-19 pandemic has also led to the use of imaging as a form of replacement for clinical examination, an approach which has its own consequences.<sup>4</sup>

Perhaps even more significant overall is the societal trend towards reduced tolerance of uncertainty which in the context of healthcare is sometimes characterised as “defensive medicine.” This often manifests as rigid adherence to guidelines and protocols. In imaging, as elsewhere, these are generally drawn up with the objective of ensuring that any patient who might benefit from a particular

test gets that opportunity. A by-product of this approach is that some patients who may not benefit will still get the test. All good guidelines allow for a clinical decision that the test may not be appropriate in certain circumstances but the decision to image is often delegated to a member of staff—medical or non-medical—who lacks the experience, the confidence, or the authority to override the guideline or depart from protocol. The result is increasing deployment of imaging and other interventions in patients who stand very little chance of receiving any benefit from them.

I fully accept that this is the personal view of a radiologist and that others with other perspectives will have their own opinions as to why demand for imaging keeps rising but my contention is that the rise is an inevitable result of our current model of patient care. I believe that it is an unintended consequence of a series of developments in clinical practice as well as changing societal attitudes which have become embedded over recent years. It follows that any attempt to curb or control this demand will require something much more radical than a new set of guidelines and will need to take into account the views of patients as well as healthcare professionals.

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