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Is radiology a vital speciality?

Reflections on medium term prospects

Comparing radiology to living at or near the ocean allows the threats to radiology to be explored via a nautical theme.

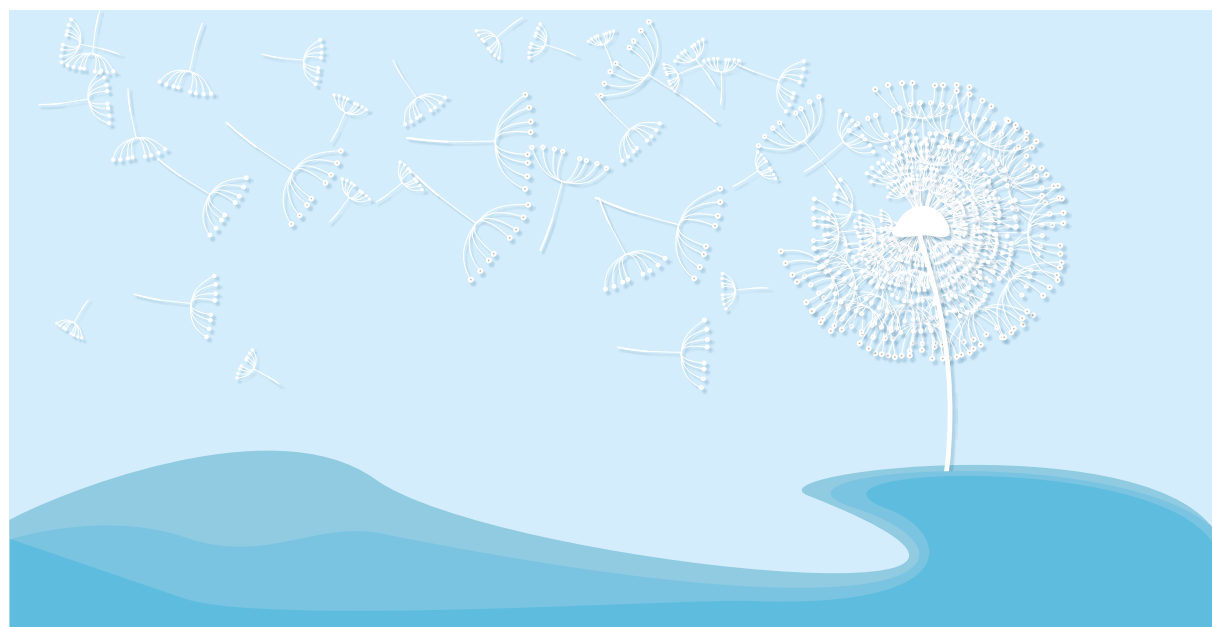


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Our specialty is heading for a period of uncertainty, disquiet, challenge and perhaps peril, one that will likely manifest itself in the medium term, five to fifteen years hence at the latest. The signs that should engender alarm are already evident, more subdued than clamorous perhaps. How can we first acknowledge them and then place them higher in our collective agenda?

Many theorists of knowledge acquisition and retention often emphasise the power of metaphor to enhance discovery by bringing to the fore compelling linkages across intellectual domains. The apt allusion often provides insight undiscovered through conventional narratives. So allow me to reference at several points in this discussion the anticipated journey of our specialty in a nautical context. I wish to compare our field of endeavour to living at or near the ocean.

Radiology over the past 45 years, since the introduction of various measures of producing sectional images, has established itself as a major contributor

to healthcare. Our pictures are indeed “SEE WORTHY”. That is, the products and procedures under our stewardship and mediated by our expertise have been deemed valuable by our referrers and patients and also by economists and social opinion makers. The success of our care delivery project has enabled us to sail along, well regarded and well rewarded. In that sense, the vessel of technology that propels us has been SEAWORTHY.

But like a ship on a voyage we must reckon with uncertainties—they with wind, water and weather—and we with the irresistible force of technological change. In 1814 Goethe wrote the influential poem *Calm Seas and Prosperous Voyage*, a compelling work that stimulated both Beethoven and Mendelssohn to use his words as the programmatic impetus for symphonic compositions of lasting fame. Upon first hearing, I, like most people listening today, completely missed the import of the poem by first coming to it through these musical renditions. In the era of sail (remember it was 1814)

to be becalmed meant the antithesis of prosperity, not its accompaniment as by a boat propelled by a motor.

We are seemingly becalmed in radiology if we believe that prosperity will continue to be our expectation. We must adjust to the signals provided by the winds of change. For example, we have relied on our “stock in trade”, the macroscopic depiction of disease to provide value of our worthiness. But in the coming genomic age, medicine will be personalised, a tumour will have a signature, a unique identifier to be recognised. Traditional pathology, which engages in cell type delineation, ie “species” recognition of malignancy, will take a back seat, and identification of the “family” of diseases of a particular neoplasm by its radiograph delineation will become increasingly irrelevant. The identity of an individual tumour by DNA determinations through initial and recurrent inspection of peripheral blood samples will become the new means of diagnosis. In this regard we will send radiology adrift. So too will be another means by which we have prospered, the recognition of abnormality occasioned by pattern changes in the distribution of white, grey and black shadows on computed tomography (CT) and magnetic resonance (MR) images of the brain. Artificial intelligence will bear directly on the particularities of image interpretation of neural disease. This diagnostic activity, heretofore the province of radiologists, is likely to become automated for most presentations, putting neuroradiology as we know it in jeopardy.

“ WE ARE SEEMINGLY BECALMED IN RADIOLOGY IF WE BELIEVE THAT PROSPERITY WILL CONTINUE TO BE OUR EXPECTATION ”

As physicians responsible for other body systems become more adept at reviewing images, and as they set up training protocols and testing procedures incorporating demonstrations of competence, then another of our prosperous voyages may come to an end, because they too will promise to be just as “see worthy” without us as their ‘pilots’. My oncology colleagues have maintained that they believe themselves to be just as capable to follow the growth or shrinkage of a lung tumour on a CT. Frankly they may be right if enough of them believe it without demonstrable contradiction. Here too our sails may not catch that wind for long.

We might now consider radiology as a heterogeneous collection of subspecialties, some more clearly defined near the West Atlantic shore than further East in Europe. Consider some of our subspecialties metaphorically as

islands having coasts high enough not to be flooded by the rush of events. From my American perch I see this as clearly defined already. Paediatric radiology, a small island, is sheltered by its confinement to hospital settings where intrusions into our hegemony of imaging by clinical colleagues are unlikely. Breast radiology has become a fortress, like Malta, impregnable to invasion. It has control over all imaging of the organ, of its focus, validated by the state and acquiesced to by referrers. Interventional radiology, too, has by dint of its personal, immediate interaction with the patient and its demonstration of effectiveness become a bastion of capability and confidence and should consider itself “hurricane-proof” for the foreseeable future.

All other subspecialties in radiology are not land-based. They may be losing their moorings in the face of undercurrents they may not perceive even though there is evidence of their presence. To prepare and react they must scan the instruments of change and not rely on the past in the uncharted waters they must now navigate.

So what can be done? For one thing, “bromides” are not usually effective medicine. Saying that we must take a more inclusive role in patient care is meaningless if radical change is not introduced in the way we educate abdominal radiologists, chest radiologists and orthopaedic radiologists. Placing our hopes on expanding now conventional techniques such as CT colonoscopy as a first-line procedure will not boost our volume significantly. If we are to retain our functionality then subspecialty training must involve our dedicated, daily, on sight presence as a member of the clinical team, not as someone assigned to a distant office, who communicates only electronically. And often that communication is typically unidirectional and mechanical.

My roster of metaphorical inferences must also include a favourite flute concerto by Vivaldi entitled *La Tempesta di Mare*. The beautiful sounds of this energetic piece occasion me to ruminate further on the prospects of my specialty in this uncertain age. To be calm about it is to be becalmed, to prosper requires a change of course to pursue favourable winds and avoid becoming tossed about or even capsized by a tempest we should have seen coming. ■

KEY POINTS

- ✓ Radiology has always been “SEE WORTHY”, but will it be “SEAWORTHY” in the age of personalised medicine?
- ✓ Outlines threats to radiology and suggests solutions

