

SHORT ABSTRACT

BSR 2019 Annual Meeting: Branding of Radiology to Medical Students

Nicolas De Vos* and Martijn Grieten†

Radiology faces several serious challenges: the mass hysteria on AI, the ever-increasing workload, the growth and ageing of the general population, the ageing of the radiology workforce, the limitation of the number of radiologists in training, the declining interest of medical students, ... Therefore, it is of the utmost importance to promote or 'brand' radiology to medical students. This can be done, among other things, by expressing enthusiasm and positivity for radiology in order to become an inspiration and role model. Moreover, it is very important to actively engage students during their rotation in the radiology department. The future of radiology needs to be assured today!

Keywords: artificial intelligence; workload; job market; medical students; radiologists in training

Over the past few years, the rise of artificial intelligence (AI) has changed the public perception of the future of radiology tremendously. Several internationally renowned AI experts have contributed to that by making some bold statements in this respect. For instance, Geoffrey Hinton from Toronto University stated that "people should stop training radiologists now. It's just completely obvious that within 5 years, deep learning is going to do better than radiologists. We've got plenty of radiologists already" [1]. As always, reality is far more complex and nuanced than what these statements may suggest. It cannot, of course, be denied that AI will have a huge impact on radiology, but it won't replace radiologists who are willing to embrace it. Even more so: in our view, AI is more likely to become indispensable for making the radiologist's job manageable and workable in the future. Indeed, in the coming years, radiologists will face more and more difficulties in their day-to-day practice in terms of workload. This article addresses some of the reasons for that and provides some suggestions on how the future of radiology should already be assured today.

First, there is the ever-increasing workload. This is illustrated by McDonald et al., who studied the effect of changes in utilization and advances in cross-sectional imaging on the radiologists' workloads in their departments between 1999 and 2010. They found a twofold increase in the number of examinations and a 10-fold increase in the number of cross-sectional images. The number of images requiring interpretation per minute of every workday increased from 2.9 in 1999 to 16.1 in 2010 [2].

Second, the general population keeps on growing and ageing. According to the Belgian Federal Planning Bureau, the Belgian population will grow from 11.4 million inhabitants in 2018 to 13.2 million by 2070. By this time, life expectancy will be nearly 90 years and almost one quarter of people will be older than 67 years [3]. A growing and ageing population will lead to an increasing workload for the radiologist.

Third, the radiology workforce is also ageing. By the end of 2016, there were 1519 professionally active radiologists in Belgium [4]. Of these radiologists, 486 (32%) were under 45, while 890 (59%) were between 45 and 65. The remaining 143 (9%) were over 65 (**Figure 1**). This implies that, in the next 20 years, over 1000 Belgian radiologists are likely to retire.

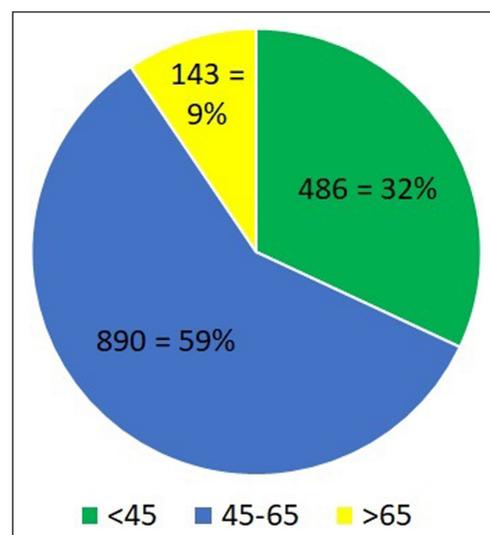


Figure 1: Age distribution of professionally active Belgian radiologists in 2016.

* Ghent University Hospital, BE

† Ziekenhuis Oost-Limburg, BE

Corresponding author: Nicolas De Vos
(devos.nicolas90@gmail.com)

One would expect that the baby boomers' retirement will be compensated for by the recruitment of sufficient new radiologists. However, as from 2024, only 25 radiologists will be allowed to start training each year in Belgium [5]. This way, over 500 retiring radiologists will not be replaced over the next few decades. Although the impact of this imminent shortage of Belgian radiologists is difficult to predict, especially given the uncertainties concerning AI, some neighbouring countries already face the serious consequences of a shortage of radiologists. In the United Kingdom, for example, there was a shortfall of 1104 radiologists in 2018, which is forecasted to rise to 1867 radiologists by 2023. This shortage has resulted in a huge reporting backlog and an inability to provide safe interventional radiology. At any one time across the UK, 250,000 patients will be waiting for more than 30 days (on average) for results on their imaging study [6].

Another challenge radiology faces is the declining interest of medical students. This may have several causes, including the mass hysteria regarding AI, which discourages medical students from choosing radiology, and the declining exposure to radiology in medical school curricula. In addition, there are fewer opportunities for active participation of students during radiology rotation compared with clinical specialties [7]. Another remarkable finding is the gender gap: notwithstanding a preponderance of female students in medical school (60%), only 38% of radiologists in training are female [4].

Therefore, in order to maintain a sufficient number of highly qualified radiologists, it is of the utmost importance to promote or "brand" radiology to medical students. This can be done in several ways. First and foremost, one should express enthusiasm and positivity for radiology to become an inspiration and role model for students showing interest in radiology. Besides that, it is important to emphasize the versatility of radiology: it contains multiple subdisciplines, makes use of cutting-edge technology, and offers a great opportunity to play a pivotal role in patient care, including extensive interaction with other medical specialists and active participation in multidisciplinary team meetings. Moreover, it is also extremely important to engage students during their rotation in the radiology department. This could, for instance, be done by providing them with a detailed weekly schedule in order to allow them to optimally attend a vast array of diagnostic examinations, interventional procedures, and multidisciplinary team meetings. Active participation should be stimulated by giving them the opportunity to discuss interesting cases, prepare their own radiology reports, and so on.

In conclusion, radiology faces several serious challenges, including the mass hysteria regarding AI, the ever-increasing workload, the growth and ageing of the general population, the ageing of the radiology workforce, the limitation of the number of radiologists in training, and the declining interest of medical students. Therefore, it is of the utmost importance to promote or "brand" radiology to medical students. This can be done, among other things, by expressing enthusiasm and positivity for radiology in order to become an inspiration and role model. Moreover, it is very important to actively engage students during their rotation in the radiology department. The future of radiology needs to be assured today!

Competing Interests

The authors have no competing interests to declare.

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