In 2002, Speed and Bearcroft [1] described the challenges that faced clinical rheumatologists in acquiring the necessary skills to perform US: this increasingly popular, sensitive bedside imaging tool. They included access to equipment, regular training/supervision, the time commitment involved and the need for sound knowledge of functional anatomy. Ten years on, it is time to ask whether these challenges have been met.

Undoubtedly, the knowledge of US relevant to clinical rheumatology has made huge progress over the past decade. Thanks to ongoing international collaborative initiatives, e.g. the OMERACT US group [2], we have clearer agreement and understanding of synovitis, tenosynovitis, erosion, tendinopathy, enthesisitis and osteophytes as sonographic entities—including their validity when compared with clinical, other imaging and histopathology findings. The reliability of grey-scale US (as the modality that provides structural information) and power Doppler US (PDUS; as the modality that provides information on vascular tissue perfusion as an indicator of inflammation) in the detection of these abnormalities is good or better in expert hands and in established disease. PDUS is of particular importance since increased synovial PDUS signal correlates with increased future risk of flare and joint damage, even in subjects with RA in clinical remission or low disease activity (reviewed in [3]). US may also have added diagnostic value in very early undifferentiated forms of inflammatory arthritis to identify those who will or will not develop RA in future [4]. However, we do not yet know whether changing clinical management on the basis of sonographic redefinitions of diagnosis, disease activity or remission is beneficial for clinical outcome, although this is now starting to be addressed [3]. Furthermore, while US-assisted guidance increases the probability of successful needle entry into the IA space [5], the importance of US-assisted guidance and correct placement of injection on outcome to injections remains unclear for most injection sites and indications. The increasing clinical importance of US is underlined by the fact that US has begun to inform international guidelines on rheumatological diagnosis, e.g. the European League Against Rheumatism (EULAR)/ACR 2010 criteria for RA where US evidence may be used to confirm clinical synovitis [6] or the EULAR guidelines on the diagnosis of CPPD joint disease [7].

As far as US training is concerned, we know what expert rheumatology and radiology sonographers consider appropriate content and levels of training for rheumatologists [8], and these concepts are shared among rheumatological organizations internationally [9, 10]. In the UK, British Society for Rheumatology (BSR)-organized popular training courses exist, but there is no board-approved training programme or competency assessment. Only US-guided injections feature as an optional skill in the 2010 specialty training curriculum for rheumatology. Across Europe, survey data suggest that rheumatologists are the most common non-radiological specialists performing musculoskeletal US in general, but in most countries, US is routinely performed by <10% of practising rheumatologists [11]. In the USA, as many as 20% of ACR fellows and members may perform US themselves [12]; but in only one in five European countries is US an obligatory part of the rheumatology training curriculum and competency formally assessed [11].

We still know very little about how much time is needed for training a rheumatologist, other than that it is considerable both for the trainee and trainer [13]. The time required will vary depending on the level and scope of skills to be achieved and the aptitude of trainee and trainer for the process. Although time for training is likely to remain a major limiting factor for the qualified rheumatologist, consistent access to US equipment and training throughout the rheumatology training period is probably the main challenge for rheumatology trainees. Anecdotally, the task of obtaining US equipment for training and service has been aided in the UK by unrestricted educational support from pharmaceutical companies to individual rheumatology units.

So what remain as key challenges for clinical rheumatologists to integrate US into their clinical practice in the UK and other countries in a similar situation? Time remains a key limitation both for training and integration of US into a clinical service. It can be adapted by using a modular approach that breaks down the spectrum of rheumatological US into meaningful and manageable units, e.g. scanning of small joints of hands and wrist for synovitis or US-guided injections of specific joints. Using US ad hoc in an unselected outpatient clinic poses challenges to work flow planning. In my practice, we use a US plus clinic model, i.e. patients identified as in need of US assessment in a general clinic return to a dedicated US clinic, where US-informed treatment decisions (including US-guided injections) can then be implemented in the same visit. Such a
Supervised hands-on training/mentorship after attending introductory courses is a more difficult challenge to overcome for qualified and training rheumatologists alike. Identifying your own US training priorities and seeking the nearest experienced sonographing rheumatologists, radiologists and radiographers willing to train you are the key steps. A close colleague sharing your objectives is extremely helpful to practice scanning of normal US anatomy, if access to a US system is available. This part of a US trainee’s path will continue to take considerable personal commitment and time.

Lack of accreditation/competency assessment is a factor outside the control of individual rheumatologists and in the UK a challenge for the BSR Ultrasound Special Interest Group. In the current void, arguably the best advice is to keep a thorough logbook of cases (including images) observed and scanned to document experience. Generic assessment forms for observed clinical procedural skills can easily be adapted for US examinations. Reflective case reports, literature studies and audit of practice are also very valuable evidence. This should include a realistic self-assessment of your own limitations, and of US as an imaging method per se, to minimize the risk of over-diagnosis and under-diagnosis alike.

Thus, the challenges for rheumatologists to make US part of their clinical practice have changed little over the past decade. However, as the valid clinical applications of rheumatological US continue to develop, so does the case for clinical rheumatologists to perform US themselves, in the closest liaison possible with their local musculoskeletal imaging colleagues.

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