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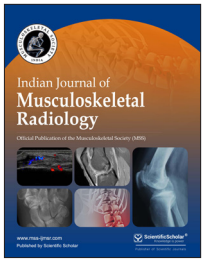

Invited Editorial

Accessible, uniform and standardized care for all of India: Can Musculoskeletal Society (MSS) India lead the way?

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During the past decade, musculoskeletal (MSK) radiology, in India, has made incredible strides at a rapid pace. This is in terms of state-of-the-art equipment, skill, and demand. Various technological advancements have resulted in the initiation, establishment, and development of a robust sub specialty MSK practice, all within a very short span of time. At present, our MSK radiology subspecialty stands second to none across the globe. The burgeoning magnetic resonance equipment across the country, be it 1.5 T, 3T, open magnets with the latest software; multidetector computed tomography scanners with advanced software such as dual energy; high resolution US with the latest applications like elastography; and digital fluoroscopy facilitating the latest interventional techniques; have all provided a very fertile environment to foster skilled practice of MSK radiology to our communities. This trend has enticed many budding radiologists to enter MSK fellowship programs, both national and international and contribute their services and skill in this area. At present, MSK subspecialty radiologist jobs are considered highly satisfying, a much sought after career with good lifestyle, high incomes, and related perks. However, most of these MSK radiology practices are rooted in academic centers, corporate hospitals, pain management, and diagnostic centers. As these set-ups are based in urban and semi-urban areas, we see clusters of such centers booming across the country, and they have even penetrated district headquarters and larger towns. We find innumerable diagnostic centers with state-of-the-art equipment, skilled MSK radiologists and technologists, offering yeoman service to local urban and semi-urban communities. It is heartening to see highly competitive practices flourish alongside and outside of academic institutions. In most urban and semi-urban regions, patients have tremendous choices as to where they can get investigated, where the MSK intervention can be done, based on proximity, skill, and affordability. Given this milieu and the fact that India is on the fast track to becoming a developed country, equal and affordable health care to every citizen is mandatory as one of the criteria to be a called a developed nation. Hence, the time is ripe and it is imperative for us now, the MSK radiologists to introspect on how we can play a role, take a lead in our own communities, to help provide the thrust for uniform, standardized, equal, accessible, and affordable access to MSK radiology for all in the country. This would mean percolating the current MSK radiology services to the rural areas, where currently there are none of the above-described enviable facilities. This is indeed our current challenge. Here are some aspects which we need to explore, discuss, focus on, advocate, and strive to facilitate the much-needed change. Our role in developing an MSK subspecialty service that is accessible to all will put us in the drivers' seat. It will help accelerate other subspecialties of radiology to follow suit, to foster an environment and culture of equal and accessible healthcare to all which is the first step. Affordability will follow, once subspecialty practice moves into the

relatively remote areas. Here are some areas we can work upon toward attaining the described goals:

1. Awareness and education: All aspects of healthcare begin with education and awareness. We need to develop community health education programs related to MSK disorders providing awareness of the importance of early diagnosis. This will help our rural patients seek timely radiological services, for example, in the treatment of bone and soft-tissue tumors, osteomyelitis, TB, diabetic foot, and trauma wherein patients present very late in the disease process and are therefore unable to avail timely treatment and successful management. Various awareness and education programs can be rendered through teaching institutes, corporate hospitals, charitable hospitals, etc., and can reach the rural population through camps, telehealth, regular site visits, and student rural rotations. MSK societies such as ours which have the workforce and skill can spearhead this movement that will become a real game changer and set the model for other sub-specialties.
2. Infrastructure development: Improving healthcare infrastructure in rural areas by establishing diagnostic centers with at least the basic necessary radiological equipment and support staff at the outset, for example, plain radiography and ultrasound at every chosen site. With only these two low-cost modalities, a large percentage of radiological health care needs can be resolved locally. Besides basic equipment, training local personnel as technologists with the bare minimum skills necessary to provide service at the local health and imaging centers will be the first step towards creating local manpower/skill. The primary healthcare physicians at the rural centers can be trained to read basic plain radiographs, and work under the umbrella of the next level center in the chain of health, taking help through teleradiology. Simply scanning or taking a picture shot and sending the images to the teleradiology center should suffice to get a quick opinion on whether the patient can be managed locally or needs to take time off to travel to the nearest district center/town. One suggestion for providing ultrasound service is to have regular visits to the rural center by radiologists who perform US/US-guided procedures in the nearby district headquarters or have the patient travel to the nearest district/semi-urban center where the US investigations/procedures can be performed.
3. Mobile radiology units: Deploying mobile radiology units equipped with necessary imaging technology–including bedside radiographs, is a step towards making rural healthcare function as an independent entity. These mobile units can travel to rural areas, providing services on-site and reducing the need for patients and families to travel long distances. This is a highly cost-effective service and is very popular in developed countries. The results/interpretation can be quickly obtained via teleradiology. The same applies to ultrasound units.
4. Telemedicine and teleradiology: Developing telemedicine/teleradiology platforms will facilitate local rural healthcare physicians and/or technologists to consult with MSK radiologists in semi-urban or urban centers. Teleradiology can be a quick, easy, and cost-effective solution to obtain timely remote interpretation of radiological images. The patient and family can then decide if travel is necessary or not, for example, if a fracture is present or absent. If there is no fracture, it saves a minimum of a day's visit, related transportation cost and loss of income for the given day.
5. Training and capacity building: Invest in training the local healthcare professionals in basic radiology skills and image interpretation. This can widen the base of accessible health care, by updating the primary care physicians, X-ray technologists and can be through providing resources, digital or hard copy, to local libraries besides regular site visits by the nearest suburban/urban MSK radiologists. In this context, one example is, setting up an effective chain of care wherein five suburban centers offer 1 day or half day coverage each to the nearby rural center. Done in rotation, this will cover nearby villages over the entire week. The payoff of such an integrated plan will be one step closer to accessible health care to all. Establishing and running one such model in each district will provide the teething experience, related solutions, and will pave the way to becoming a viable proposition. Next steps can be expansion of this model. Ongoing education through workshops, online courses, partnerships with medical institutions, franchises with corporate and diagnostic centers, as well as tie ups with charitable hospitals are some ways of building capacity and providing training.
6. Government initiatives: Advocating for government policies that focus on enhancing healthcare services in rural areas, including subsidies for radiological equipment and funding for training programs/skill development. Procuring basic cost-effective X-ray machines and US will be the first step towards accessible health care to all. As most of our health care imports are technological and equipment related, developing indigenous cost-effective equipment through research will be the way forward.
7. Public-private partnerships: Encourage partnerships between government/governmental institutions and private sectors including philanthropic and established charitable bodies, some of which are already serving rural communities through their health institutions such as Puttaparthi region in Anantapur district in Andhra Pradesh run by the Saibaba Trust. These

partnerships will serve to create model villages to study the feasibility of new patterns of rural healthcare, focusing on accessibility, availability, and affordability of MSK radiology services in rural settings.

8. Community health workers: By recruiting community health workers from the local population, we can bridge the gap between patients and the MSK healthcare services, helping to guide the patients in their local language and bring them within the framework of appropriate and skilled radiology services, in a timely cost-effective manner.

By implementing these strategies, we can significantly improve access to MSK radiology services in rural communities across India. While this can mean a decade or two of dedicated planning and execution, it is not an impossible task as India is moving forward swiftly with respect to its economic strength, technological advances, skilled human resources, research, and development. All these factors play a pivotal role in developing the radiology infrastructure, through cost effective state-of-the-art equipment, trained, and skilled radiology personnel which includes MSK radiologists, technologists, and nurses, a digital network including teleradiology units, together providing an efficient and effective chain of care. The ultimate aim should be accessible, uniform, and standardized care to every citizen. Only then, we can become a truly developed nation.

I thank Dr. Raj Negi, the chief-editor and the Indian Journal of Musculoskeletal Radiology editorial board for providing this wonderful opportunity to express my ideas on a matter that is very close to my heart and which I consider, of immediate need and urgency for our country. Once we achieve the goal of accessible, standardized, and uniform radiological services to all in our country, we can truly pat and credit ourselves, for there is no better leadership than to foster such all-inclusive change. So, let us, the MSK radiologists, embark on this challenging path of uniform and accessible health care to all in our communities, and don the leadership hat, positively affecting the health of the entire nation which is indeed a "one big family!" Isn't this what we all dreamed of, when we first donned our white coats and held our first stethoscopes?

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