



## Challenging issues in rheumatology: thoughts and perspectives

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We consider ourselves privileged to have careers in rheumatology, two of us (NL and LW) near the beginning and one of us (RSP) for a longer time. We view ours as a rather unique discipline, for several reasons. We encounter many diverse medical conditions, we enjoy the multispecialty care our patients often require, we value the long-standing relationships we build with patients, and we derive great satisfaction from seeing our patients respond to our exciting and growing menu of therapeutic interventions. We love the immediacy of our specialty—the ability to understand by talking with and touching patients [1]. We appreciate the evolution of our discipline, in particular the dramatic changes in recent decades with the introduction of biologics and other new treatments. Yet rheumatology, like medicine, is confronted by thought-provoking challenges.

Rheumatology's modern history can be characterized by defining themes, and challenges, in each decade, to which we have adapted well (Table 1). The introduction of glucocorticoids by Philip Hench and colleagues at the Mayo Clinic in the 1950s transformed clinical medicine [2]. The 1960s saw the establishment, development, and growth of rheumatology training programs. In the 1970s, immunology and modern science came to our specialty. During the 1980s, science was confounded by the silicone breast implant controversy [3]. Medicine as a whole confronted questions about the value of subspecialists and their care during the 1990s, leading to clear documentation of our essential role in caring for our

patients [4]. Overriding issues in the 2000s were quality of care and patient safety [5]. Cost of care and medical waste were major concerns of the following decade [6, 7]. And now, we recognize the enormity of injustices and inequities of care [8–10].

We commend Muznay Khawaja, Marc Hochberg, and their colleagues for their excellent work on the overuse of therapies and diagnostics by both rheumatologists and non-rheumatologists [11]. This remains an important problem and unfinished business in medicine. It represents yet another of many important and thoughtful contributions over the years by Dr. Hochberg, an eminent and respected leader in rheumatology. This reminder that some of our more common disorders, like osteoarthritis, are sources of considerable inappropriate diagnostic and therapeutic efforts are timely [12]. Prompted by this work, we reviewed requests for new-patient consultations to the Los Angeles County Medical Center rheumatology clinic from outpatient providers for July 2020 (NL's first month of fellowship), and readily confirmed the prevalence of these issues. Of the 44 requests, we noted incorrect diagnoses and/or unnecessary diagnostic testing in seven of the patients (Table 2). These observations, the study by Hochberg et al [11], and our recent report in this journal about homeless rheumatoid arthritis patients [13] all illustrate how crucial it is to provide quality care—doing the right thing in the right way at the right time for the right patient, always—for all patients.

Medical “waste” is but one of several contemporary and future problems that rheumatology confronts (Table 3). We offer brief comments on some of particular interest and importance. In many instances, we cannot provide answers, but can only identify what we believe to be important questions.

Social justice, at root of which is inequality, is the issue of the moment. This has been ever present with focus on minorities and those of a lower socioeconomic status [8–10]. These disparities have been exacerbated by the COVID pandemic, where minorities have poorer outcomes than others [14]. Berwick has written eloquently about this; for example, in Chicago, 30% of the population is African American, but they

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**Table 1** Thematic issues (challenges) in modern rheumatology by decade

Decade	Theme
1950s	Introduction of glucocorticoids
1960s	Establishment, development, and growth of rheumatology training programs
1970s	Immunology and modern science come to rheumatology
1980s	The silicone breast implant saga—“science on trial”
1990s	Documenting the value of subspecialty care and subspecialists (outcomes)
2000s	Quality of care and safe care
20210s	Cost of care; medical “waste”
2020s	Social justice

account for 68% of the COVID-19 deaths [15]. Why do Hispanic, Asian, and African-American populations experience different outcomes, in rheumatic, and other, diseases than Caucasians? While socioeconomic factors clearly are important, there are likely multifactorial genetic and epigenetic components that contribute [16]; this is important to clarify if we are to provide equitable care to all. We in rheumatology clearly need to do more here.

Disturbingly, we see too many patients skeptical of science, declining disease-modifying anti-rheumatic or biologic therapy due to reservations about side effects and expressing a preference for nebulous so-called natural remedies or complementary and alternative medicine (CAM). How can any reasonable person in 2021 refuse a COVID-19 vaccine? Why is it that so many of our patients are still enamored of CAM? We perceive anti-science sentiment and the appeal of CAM as similar, and both as a challenge and an opportunity for rheumatologists [17]. They reflect, we believe, inadequacies in how we care for patients and in our science. When we fully understand the etiology and pathogenesis of our diseases;

when we can offer our patients relatively straightforward and effective treatments with negligible side effects; when we can provide timely, equitable, empathetic, and humanistic care to all, then we hope to see dissipation of anti-science notions and diminished appeal of CAM. While it is important for us as physicians to recognize and respect the choices of our patients, and to provide empathetic and evidence-based advice, we need to remember, and to tell our patients, that no truly transformative treatments have come from CAM. “What science cannot tell us, mankind cannot know,” said Bertrand Russell.

Finally, COVID-19 has changed our world. For rheumatologists it transformed how we learn, teach, communicate, and care for our patients. Who among us knew a couple years ago what Zoom or telehealth meant? How do we perform, or teach, a rheumatologic exam, or the art of injections, by telehealth? How do we substitute for that spontaneous hallway dialogue with a colleague? Is it still medicine without the touching [18]? How will we reasonably integrate telehealth in a broader menu of care than heretofore? To help solve the

**Table 2** Examples of overuse, incorrect diagnoses, and medical “waste”

Reason for referral	Instance of overuse, incorrect diagnosis, and/or “waste”
“Known history of ‘RA’”	Documented in prior rheumatology notes to have ankylosing spondylitis; unnecessarily repeated anti-CCP, RF, and ANA; uric acid ordered
“Polyarthralgias”	Thought to be secondary to hypothyroidism; received thyroid replacement prior to diagnosis of rheumatoid arthritis
“Chronic left knee pain, sister with lupus”	ANA, ESR, and CRP ordered; no imaging of affected joint provided; ANA positive
“Intermittent rash, positive anti Scl-70”	ANA negative, but anti-Scl 70 positive; unnecessary laboratory testing; diagnosis of scleroderma on primary care notes
“Lower back pain, positive ANA”	MRI with evidence of sacral spinal cyst; unnecessary ANA, anti-ds-DNA, ANCA, and auto-antibodies obtained
“Joint pain, documented; history of RA and PsA”	Rheumatology diagnosis of PsA, not RA; wrong diagnosis listed on chart; was receiving hydroxychloroquine for “RA”
“Hand pain for 1 month after a fall”	Unnecessary testing and treatment; ESR, CRP, RF, anti-CCP, and ANA ordered; received Medrol dose pack with no improvement in symptoms

*Abbreviations:* RA rheumatoid arthritis, anti-CCP anti-cyclic citrullinated protein, RF rheumatoid factor, ANA anti-nuclear antibody, ESR erythrocyte sedimentation rate, CRP C-reactive protein, anti-ds-DNA anti double stranded DNA, ANCA antineutrophil cytoplasmic antibody, PsA psoriatic arthritis

**Table 3** Important issues/challenges for rheumatology now and in the future

•Costs
•Outcomes
•Quality and safety
•Value; specialist vs non-specialist care
•Social justice
•Inequities of care
•Universal healthcare
•Care, education, and training in a post-COVID era
•Public/societal skepticism for science; complementary and alternative medicine
•Guidelines for care out of the office, clinic, and hospital
•Tele-health
•Integrating artificial intelligence, technologic advances, “precision medicine” in education and care
•Sustaining the passion (burnout)
•Maintaining interconnections with colleagues in increasingly busy and complex environments
•Maintaining and recapturing humanistic care
•Preserving core values, morals, ethics, and principles
•Internationalism in rheumatology

vexing problem of caring for patients who cannot always come to the office or clinic? And how do we counsel those patients who are terrified to receive their scheduled infusion or routine labs due to fear of COVID-19? Who will develop a technology to measure outcomes (i.e., a self-administered joint exam by ultrasound or infrared, or something not yet conceived) and transmit the information remotely? Already directors of training programs are re-imagining how to train our fellows [19].

One of us (NL), whose father is also a practicing rheumatologist, is in the midst of fellowship training and wonders what practice in the coming years will look like for him. We envision the immediate future to be a combination of telemedicine and office visits. Telemedicine should remain a desirable option for those with stable disease or are unable to journey to the office. Conferences and meetings will hopefully return to in-person settings, supplemented by virtual attendance. CAM will persist, perhaps in decline, if/as public and societal confidence in science is restored. The workday of the future may be drastically different than that of today. We imagine walking into the clinic or office, preparing for a day of alternating in-person and telemedicine visits, then logging on to virtual seminars to learn the latest developments and advances, then finding time to read, write, and participate in studies and trials with colleagues across the globe. We will need to develop better

ways to contain costs, to measure and use outcomes, to improve quality and safety, to assure equitable care, and to incorporate artificial intelligence and other technological advance into practice [15, 18, 20]. All of this while remaining humanistic and supporting and promoting social justice.

The evolution of rheumatology in both the near future and distant future is undoubtedly being influenced by these new and changing paradigms. Over time we have seen the growth and development of new treatments that have forever changed the landscape of rheumatology. Imagine how a rheumatologist 50 years ago would react if told that these debilitating diseases would be treated to remission or near-remission with oral medications and periodic injections. The practice of rheumatology has and will continue to change and evolve.

In 2006, one of us (RSP) speculated about the future of medicine, discussing issues such as appreciating how privileged we are to be physicians, redefining roles of health care professionals, moving from individual to team-focused efforts, emphasizing “salutogenesis” (health rather than illness), learning quality and outcomes, “making do with less” (resources), accepting advances in information technology, tolerating change and uncertainty, recognizing that change is discontinuous, retaining core academic and professional values, cherishing our commitment to care for others, and sustaining our passion [20]. Most of these items remain relevant, and the list of important issues and challenges (Table 3) has grown, a daunting prospect. Eugene A. Stead, Jr., MD, a legend and giant of American medicine during the late twentieth century (and Chair of Medicine at Duke while RSP was a resident), presciently opined that “the future of medicine belongs to those who, in spite of the bureaucratic systems, pressures and financial disincentives, spend time with patients and continue to care for the patients as human beings” [21]. We are optimistic that rheumatologists know this well and will, as in our past, successfully surmount the challenges before us.

## Declarations

**Conflict of interest** None

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