

## 2022 EULAR Points to consider for remote care in rheumatic and musculoskeletal diseases

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## **Abstract**

### **Background**

Remote care and telehealth have the potential to expand health care access, and the COVID-19 pandemic has called for alternative solutions to conventional face-to-face follow-up and monitoring. However, guidance is needed on the integration of telehealth into clinical care of people with rheumatic and musculoskeletal diseases (RMD).

### **Objective**

To develop EULAR points to consider (PtC) for the development, prioritization and implementation of telehealth for people with RMD.

### **Methods**

A multidisciplinary EULAR task force (TF) of 30 members from 14 European countries was established, and the EULAR standardised operating procedures for development of PtC were followed. A systematic literature review was conducted to support the TF in formulating the PtC. The level of agreement among the TF was established by anonymous online voting.

### **Results**

Four overarching principles and nine PtC were formulated. The use of telehealth should be tailored to patient's needs and preferences. The healthcare team should have adequate equipment and training and have telecommunication skills. Telehealth can be used in screening for RMD as pre-assessment in the referral process, for disease monitoring and regulation of medication dosages and in some non-pharmacological interventions. People with RMD should be offered training in using telehealth, and barriers should be resolved whenever possible.

The level of agreement to each statement ranged from 8.5 to 9.8/10.

### **Conclusion**

The PtC have identified areas where telehealth could improve quality of care and increase healthcare access. Knowing about drivers and barriers of telehealth is a prerequisite to successfully establish remote care approaches in rheumatologic clinical practice.

**Keywords** Telehealth, epidemiology research, health services research, remote care, virtual medicine

**What is already known on this subject?**

- Remote care and telehealth can improve healthcare access and outcomes, particularly in the treatment of chronic diseases.
- The COVID-19 pandemic made the use of telehealth even more frequent in rheumatology, with ad hoc implementation of remote care services in several centres.
- Guidance is needed on how remote care and telehealth should be developed and integrated into long-term rheumatology clinical care.

**What does this study add?**

- These points to consider indicate how telehealth should be developed and implemented in routine clinical care of people with RMD.
- They cover several aspects including screening for RMD, pre-assessment in the referral process, disease monitoring and modification of medication dosages and non-pharmacological interventions.
- The task force identified drivers and barriers to telehealth, which may support a timely implementation in clinical practice.
- These points to consider can be used to tailor telehealth to needs and preferences of people with RMD.

**How might this impact clinical practice?**

- These points to consider can guide the development of national and local telehealth strategies to support best clinical practise.

## 1 Introduction

2 The prevalence of rheumatic and musculoskeletal diseases<sup>1</sup> (RMD) in developed countries has  
3 increased by 60% from 1990 to 2010 and is expected to continue rising. An aging population, earlier  
4 diagnosis, and improved survival among people with RMD are the main reasons for the increased  
5 prevalence.[2, 3] Compounded by a relative drop in the number of rheumatologists [4] and other  
6 health care providers (HCPs), the pressure on the healthcare system has increased.[5, 6] Waiting  
7 times for a new or follow-up rheumatology appointment have grown, hampering implementation of  
8 guidelines for good clinical care.[7] Alternative forms of care using telehealth for follow-up of people  
9 with RMD, and for self-management interventions may preserve and even improve quality of care.  
10 Remote care makes use of digital technologies – so-called ‘telehealth’ interventions.[8] It is used in  
11 all parts of the patient pathway, including communication with patients/caregivers, disease  
12 screening or monitoring of different aspects of the disease (e.g., disease activity, damage, quality of  
13 life, adherence, etc.). It can be delivered synchronously (HCP and patient being present at the same  
14 time) or asynchronously, and be divided into three main types of modalities: *Live video*  
15 (synchronous), and the asynchronous modalities: *Store and forward* (transmission of recorded  
16 health history) and *Remote patient monitoring*.[9]  
17 Telehealth can improve healthcare access and outcomes, particularly in the treatment of chronic  
18 diseases.[10] It can reduce demands on overstretched facilities and make the health sector more  
19 resilient,[8] and has become even more relevant during the COVID-19 pandemic when it has been  
20 difficult to deliver face-to-face care and investigations as usual.[11, 12] Further, the COVID-19  
21 pandemic has resulted in wider use of telehealth services, and remote care has become much more  
22 socially acceptable.[13]  
23 However, guidance is needed on how telehealth should be integrated into routine clinical care.  
24 The aim of this EULAR task force (TF) was to formulate points to consider (PtC) for the development,  
25 prioritization and implementation of remote care and telehealth for people with RMD. The target  
26 users are people with RMD and their relatives, physicians and other HCPs involved in the care of  
27 people with RMD, regulators and policy makers.

28 In the context of these PtC and following the definition of the WHO, telehealth was defined as: ‘the  
29 use of telecommunications and virtual technology to deliver healthcare outside of traditional  
30 healthcare facilities’.[8] Remote care was defined as ‘the provision of care using telehealth and

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<sup>1</sup>: ‘A diverse group of diseases that commonly affect the joints, but can also affect the muscles, other tissues and internal organs’.<sup>1</sup> EULAR. RMD Definition [Available from: [https://www.eular.org/myUploadData/files/rmd\\_definition\\_translation.pdf](https://www.eular.org/myUploadData/files/rmd_definition_translation.pdf).

1 virtual technology allowing patients to be evaluated, monitored and possibly treated while the  
2 patient and HCP are physically remote from each other’.

3

#### 4 **Methods**

5 This work was conducted using the 2014 updated EULAR standardised operating procedures for  
6 developing points to consider/recommendations.[14] After approval from the EULAR Executive  
7 Committee, the conveners (AdT and CD) and fellows (PB and AM) formed an international TF  
8 representing 14 European countries. TF members included one methodologist and two co-  
9 methodologists (TS, CM and YM), rheumatologists (including one representative from EMEUNET),  
10 one epidemiologist (also representing EMEUNET), health professionals in rheumatology (HPRs)  
11 (nurses, occupational therapists, physiotherapists and one psychologist) and four people with  
12 RMD(s). In preparation for the application of this project to EULAR, a broad scoping review  
13 (Supplementary Appendix 1) was undertaken to map the current research and knowledge gaps  
14 within remote care interventions in rheumatology. A scoping review does not aim to produce a  
15 critically appraised and synthesised result nor to answer a particular question, but rather to provide  
16 an overview of the evidence and publications in general on a certain topic.[15] the results of the  
17 scoping review were presented at the first task force meeting and informed the outlined research  
18 questions and the search strategy for the systematic literature review (SLR):

19 what is the efficacy, safety, cost-effectiveness, user perception and adherence of remote care or  
20 blended care as compared to standard care in people with RMD? How is remote care  
21 delivered/tailored to people with RMD and integrated into clinical practice? What are the drivers  
22 and barriers for implementation of remote care in clinical practice? These questions were  
23 transformed into the PICO (Population, Intervention, Comparator, Outcome) format, driving the  
24 development of the search strategy for the SLR. The SLR was conducted by the two fellows under  
25 the guidance of the methodologist and two co-methodologists in accordance with the Cochrane  
26 Handbook.[16] The results of the SLR were reported in accordance with the Preferred Reporting  
27 Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines,[17] and have been published  
28 separately.

29 The two TF meetings were held via a virtual online platform. During the first meeting in November  
30 2020, definitions for remote care and telehealth were discussed and the key questions were  
31 phrased.

32 During the second virtual meeting, held in April 2021, the TF members formulated the overarching  
33 principles and PtC based on evidence from the SLR and expert opinion, through a nominal group  
34 process. Consensus was accepted in the first-round if >75% of the members voted in favour of a

1 statement. As all statements were accepted in the first round, no additional rounds were necessary.  
2 Finally, each TF member anonymously indicated their level of agreement (LoA) to each statement  
3 using Survey Monkey® (LoA, 0-10 numeric rating scale ranging from 0 =”completely disagree” to 10 =  
4 ”completely agree”). The mean and standard deviation of the LoA, as well as the percentage of TF  
5 members with an agreement  $\geq 8$  are presented. The Level of Evidence (LoE) was assigned to each  
6 statement based on the standards of the Oxford Centre for Evidence Based Medicine.[18]  
7 Finally, a research agenda was formulated based on evidence gaps and controversial points. The  
8 final manuscript was reviewed and approved by all TF members and the EULAR Council.

**Table 1. EULAR points to consider for the use of remote care in people with RMD**

<b>Overarching principles</b>	<b>LoE<sup>1</sup></b>	<b>LoA<sup>2</sup></b>
A. Tailored care combining remote and face-to-face attendance should be based on shared decision making as well as the needs and preferences of people with RMD.	n.a. <sup>3</sup>	9.7 (0.7) 96.6% $\geq 8$
B. Remote care <sup>3</sup> for people with RMD can be delivered by all members of the healthcare team using a variety of telehealth techniques.	n.a.	9.1 (1.3) 86.2% $\geq 8$
C. Telehealth <sup>4</sup> interventions should be developed in collaboration with all stakeholders including the healthcare team, caregivers and people with RMD.	n.a.	9.7 (0.7) 100% $\geq 8$
D. Members of the healthcare team involved in remote care interventions should have adequate equipment and training, as well as telecommunication skills.	n.a	9.7 (0.7) 96.6% $\geq 8$
<b>Specific points to consider</b>		
1. Pre-assessment by telehealth may be considered to improve the referral process to rheumatology and help prioritization of people with suspected RMD.	2b	8.5 (2.1) 82.1% $\geq 8$
2. Telehealth may assist pre-diagnostic processes for RMD; however, diagnosis should be established in a face-to-face visit.	2b	8.7 (2.0) 71.4% $\geq 8$
3. The decision to initiate disease-modifying drugs should be made in a face-to-face visit. Telehealth may be used for drug education, monitoring and facilitating adherence.	2b	9.1 (1.4) 89.3% $\geq 8$
4. Dose modifications or suspension of disease-modifying drugs, as well as addition of analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs) or glucocorticoids can be discussed with people with RMD using telehealth.	2b	9.3 (1.3) 92.9% $\geq 8$
5. Telehealth can be used to monitor symptoms, disease activity and other outcomes.	2b	9.6 (0.8) 96.4% $\geq 8$
6. Telehealth may be used to discuss the need for a face-to-face consultation or other interventions.	2b	9.8 (0.7) 96.4% $\geq 8$
7. Telehealth should be considered for non-pharmacological interventions including, but not limited to, disease education, advice on physical activity and exercise, self-management strategies and psychological treatment.	2b	9.4 (1.1) 92.9% $\geq 8$
8. Barriers to remote care should be evaluated and resolved wherever possible.	5	9.7 (0.8) 96.4% $\geq 8$
9. People with RMD using remote care should be offered training in using telehealth.	5	9.5 (1.0) 96.4% $\geq 8$

1: LoE, level of evidence; 2: LoA, level of agreement (mean (SD)); 3: remote care: the provision of care using telehealth and virtual technology allowing patients to be evaluated, monitored and possibly treated while the patient and HCP are physically remote from each other; 4: telehealth: the use of telecommunications and virtual technology to deliver healthcare outside of traditional healthcare facilities

# 1 **Results**

## 2 **Overarching principles**

3 The TF identified key themes considered to apply across all PtC, formulated and agreed on them as  
4 four overarching principles. They are not necessarily a direct result of the SLR, but considered to be  
5 fundamental aspects of the specific area and form the framework for the PtC.

6

### 7 **A. Tailored care combining remote and face-to-face attendance should be based on shared** 8 **decision making as well as the needs and preferences of people with RMD.**

9 The decision on using remote care should be tailored to the patient's needs and preferences  
10 including demographic, social situation, geographical access to healthcare, employment status,  
11 specific diagnosis, comorbidities, disease phase and status. i.e., in a newly onset rheumatoid arthritis  
12 (RA), a face-to-face visit should be performed, but telehealth may be optimal for education about  
13 disease symptoms, disease activity, therapy, and self-management. Patients with a well-established  
14 diagnosis, stable disease activity and less complex diseases can be offered use of telehealth  
15 solutions.[19] Patients with long-standing, stable RA might require less education and training and  
16 their treatment might not need modification. Some of these patients may prefer telehealth  
17 consultations rather than hospital visits. Similarly, a younger patient in full-time employment living  
18 far away from the hospital might prefer telehealth, whereas an elderly patient living nearby and with  
19 limited access to technology might opt for a face-to-face visit.

### 20 **B. Remote care for people with RMD can be delivered by all members of the healthcare team** 21 **using a variety of telehealth techniques.**

22 As can be seen in Supplementary Table 1, telehealth makes use of different types of technology and  
23 modalities. Not all services in the RMD care pathway can be delivered remotely; but allowing for  
24 security, feasibility and need, all members of the healthcare team can deliver them. Different  
25 services are offered by different HCPs. Interventions within diagnostics, for example, are usually  
26 delivered by physicians; whereas interventions on training and exercise are mostly managed by  
27 physiotherapists. Monitoring of disease activity, rehabilitation and self-management interventions  
28 may involve different HCPs (Supplementary Table 1).

### 29 **C. Telehealth interventions should be developed in collaboration with all stakeholders including** 30 **the healthcare team, caregivers and people with RMD.**

31 User involvement by all stakeholders (e.g., patients, carers, HCPs, and decision makers) are believed  
32 to be important in order to overcome usability issues of telehealth solutions.[20, 21] Patients are at  
33 the centre of this process, and the goal is to develop user-friendly, intuitive and effective technology

1 that helps to improve healthcare services from a patient’s perspective. It is essential to include HCPs  
2 in order to reflect daily clinical practice, i.e. by letting them propose which intervention can be  
3 delivered remotely and how technology could be incorporated into the overall clinical evaluation  
4 and workflow. The involvement of administration personnel and funding bodies is required to  
5 guarantee reimbursement of services and to prevent additional bureaucracy to HCPs and patients.

6 **D. Members of the healthcare team involved in remote care interventions should have adequate**  
7 **equipment and training, as well as telecommunication skills.**

8 Successful telehealth interventions require that the healthcare team receives training in telehealth  
9 communication, interaction, legacy and clinical assessment.[22] Despite great interest, HCPs often  
10 are unaware of available telehealth tools,[12] and should take responsibility for their ongoing  
11 professional development,[23] but health care organizations are also responsible for preparing the  
12 workforce for telehealth-based clinical practice.[22] In future, telehealth should be incorporated into  
13 the existing curricula at universities and other healthcare educational institutions so that HCPs can  
14 develop the skills to provide safe and competent telehealth care.

15

16 **PtC 1: Pre-assessment by telehealth may be considered to improve the referral process to**  
17 **rheumatology and help prioritization of people with suspected RMD.**

18 Waiting lists within rheumatology are forecasted to become longer in the future.[24] Effective  
19 prioritization is therefore key to guarantee rapid access to those patients with the most severe and  
20 active diseases. A short pre-assessment via telehealth may help to decide on this priority, advise  
21 patients and other HCPs which tests should be done and/or whether another specialist should be  
22 involved first. The SLR identified one study showing that referrals could be triaged by a nurse  
23 practitioner, with a rheumatologist participating in the encounter via a tele-link.[25] Agreement to  
24 this statement was lower than to other PtC, mainly because the TF was of the opinion that more  
25 evidence is needed about which pre-assessment methods are most appropriate as well as in which  
26 patients and at what level of the referral process they should be applied.

27

28 **PtC 2: Telehealth may assist pre-diagnostic processes for RMD; however, diagnosis should be**  
29 **established in a face-to-face visit.**

30 During a face-to-face visit, additional information (resulting from personal interaction and clinical  
31 and physical examinations) helps to make a diagnosis. For that reason, face-to-face visits are  
32 indispensable to rheumatology. The final diagnosis may certainly be made after a face-to-face visit,  
33 as well, and discussed with the patient remotely, e.g., when the clinician needs to wait for blood  
34 tests or images.

1 Patients with risk factors for developing an inflammatory rheumatic disease (e.g., patients with  
2 psoriasis without arthritis, people with positive autoantibodies but no inflammatory symptoms and  
3 people with positive family medical history for systemic autoimmune disease) would benefit from  
4 screening using telehealth techniques. Hence, regular monitoring via telehealth could help to  
5 facilitate a face-to-face visit at the appropriate time. In other situations, where diagnosis largely  
6 depends on history and imaging (e.g., for axial spondyloarthritis), several parts of the pre-diagnostic  
7 process could be handled by telehealth, and a face-to-face visit could be scheduled when treatment  
8 is initiated. Evidence indicates that such telehealth interventions may save unnecessary visits, time  
9 and resources for patients, the healthcare system and society.[24, 26]

10

11 **PtC 3: The decision to initiate disease-modifying drugs should be made in a face-to-face visit.**  
12 **Telehealth may be used for drug education, monitoring and facilitating adherence.**

13 The TF agreed that the decision to initiate or change disease-modifying anti-rheumatic drugs  
14 (DMARDs) would usually take place on the background of active disease, requiring a face-to-face  
15 consultation. However, a telehealth appointment may be more optimal to reinforce information and  
16 education to improve adherence to treatment, especially when the patient is in familiar  
17 surroundings and possibly with relatives. The SLR identified evidence that telehealth could be used  
18 for drug education, monitoring, and facilitating adherence to drugs,[27-29] and that patients believe  
19 they can benefit from telehealth-provided drug information, but prefer it to complement face-to-  
20 face information rather than replacing it.[30]

21

22 **PtC 4: Dose modifications or suspension of DMARDs, as well as addition of analgesics, NSAIDs or**  
23 **glucocorticoids can be discussed with people with RMD using telehealth.**

24 In chronic inflammatory arthritis such as RA, optimal sequencing of DMARDs is important as the  
25 disease often fluctuates between active disease and remission.[31, 32] The SLR identified some  
26 evidence that an intensive treatment strategy based on telehealth led to increased remission rates  
27 and a decrease in functional impairment.[33] The TF was also of the opinion that telehealth could be  
28 used in cases of infection, adverse events or abnormal lab results, where temporal or permanent  
29 discontinuation of DMARDs is needed. Further, addition of analgesics, non-steroidal anti-  
30 inflammatory drugs (NSAIDs) and glucocorticoids could be prescribed remotely as bridging therapies  
31 or to treat minor flares, residual disease activity, and comorbidities until patients receive face-to-  
32 face assessment.

33

34 **PtC 5: Telehealth can be used to monitor symptoms, disease activity and other outcomes.**

1 According to the EULAR treat-to-target (T2T) recommendation, disease activity in inflammatory  
2 arthritis should be evaluated every 1-6 months depending on disease activity and severity.[34] Due  
3 to resource constraints, a full implementation of T2T in rheumatology practice is still scarce.[35] In  
4 patients with low, stable disease activity, telehealth follow-up may be a valid alternative to face-to-  
5 face visits, given that this approach can make room for new patients or patients with more complex  
6 disease presentation. It may also help to monitor changes or emerging trends during long-term  
7 follow-up.

8 The SLR identified two randomized controlled trials (RCTs) indicating that in patients with sustained  
9 remission, telehealth follow-up resulted in similar outcomes including disease activity, physical  
10 function and quality of life compared with regular face-to-face visits.[36, 37]

11

12 **PtC6: Telehealth may be used to discuss the need for a face-to-face consultation or other**  
13 **interventions.**

14 Telehealth can be a low-barrier opportunity to get in contact with the healthcare system either by a  
15 telephone helpline, a chat function or a secure email service. By doing so, patients can be referred for  
16 a face-to-face visit, a specific examination (e.g., blood test or imaging) or to another specialist. The  
17 SLR identified one RCT showing that telehealth is a good platform for reaching a shared decision  
18 between the patient and the HCP.[38] Another study concluded that telehealth can be used to decide  
19 whether patients require a face-to-face consultation.[36]

20

21 **PtC 7: Telehealth should be considered for non-pharmacological interventions including but not**  
22 **limited to disease education, advice on physical exercise, self-management strategies and**  
23 **psychological intervention.**

24 The SLR identified several studies that supported the use of telehealth as an intervention to promote  
25 physical activity and exercise.[39-44] The TF debated the mechanism of delivery of any non-  
26 pharmacological intervention considering the possibilities of delivering this entirely face-to-face,  
27 remotely or combinations thereof. The TF agreed that it depends on patient factors such as previous  
28 experience with the intervention and the intervention itself. Disease education for example may not  
29 require face-to-face visits, whereas complex physical exercises should preferably be instructed and  
30 checked face-to-face.

31

32 **PtC 8: Barriers to telehealth care should be evaluated and resolved wherever possible.**

1 Telehealth has the potential to provide access to resources and care, increase flexibility, and reduce  
 2 waiting lists and patient travel time. However, some barriers that might obstruct successful  
 3 implementation of telehealth must be assessed systematically.[30, 41, 45-52]  
 4 In Table 2, we depict a list of possible barriers identified in the SLR and by the TF members and  
 5 provide suggestions on how these barriers could be resolved. This list is not exhaustive but may form  
 6 the basis for the development of local checklists enabling implementation of telehealth into clinical  
 7 practice.

8 Table 2. Identified barriers to telehealth and suggested interventions to overcome them

Factors	Identified barriers	Suggested interventions
Patient factors	<p>Patient reluctance [30, 45, 47, 51, 53]            Varying digital and health literacy skills [46, 47, 51, 54]</p> <p>Lack of access to necessary equipment [46, 55]</p>	<ul style="list-style-type: none"> <li>• Integration of digital support into routine patient education.</li> <li>• Assessment of the patient's health literacy before referral to telehealth care.</li> <li>• Assessment of the patient's digital skills before referral to telehealth care.</li> <li>• Assessment of access to required equipment before referral to telehealth.</li> </ul>
Clinical factors	<p>No possibility of face-to-face clinical and instrumental examination [45, 47, 49, 56]</p> <p>Disease burden, medical and psychological comorbidity [45, 53]</p>	<ul style="list-style-type: none"> <li>• Assessment before referral: Will telehealth provide all necessary information needed to make a clinical decision?</li> <li>• Assessment before referral: Will telehealth be safe for this patient?</li> </ul>
Healthcare provider factors	Lack of training [48, 49]	<ul style="list-style-type: none"> <li>• Ensure necessary competencies by providing training on telehealth communication, interaction, legacy and clinical assessment.</li> </ul>
Organizational factors	<p>Lack of data security [51, 55]</p> <p>Lack of approval for reimbursement from insurance companies [44]</p>	<ul style="list-style-type: none"> <li>• Ensure that the telehealth interventions follow national and local obligations on legacy such as privacy and security requirements.</li> <li>• Involve payers and administration from the beginning in the development of telehealth interventions.</li> </ul>

9

10

11 **PtC 9: People with RMD using remote care should be offered training in using telehealth.**

12 Training of members of the healthcare team in telehealth techniques and communication skills was  
 13 seen as an overarching principle; however, the TF agreed that a separate statement was needed on  
 14 training people with RMD in using telehealth. Many of the included surveys and qualitative studies  
 15 refer to problems with digital literacy.[46, 52, 54, 55] People with RMD should be offered training in

1 using telehealth solutions and should be informed how to prepare for a telehealth consultation (e.g.,  
2 by having questions prepared, sitting in a quiet place, etc.). Any member of the healthcare team,  
3 depending on the local setting, can offer this training.

4

5 Based on the discussions and the areas of uncertainty, a research agenda has been proposed which  
6 is depicted in Box 1.

7

8 Box 1. Research agenda

9

**Remote care in RMD - identified unmet needs and suggested focus for future research:**

10

- To conduct randomised non-inferiority and superiority trials to test the efficacy and patient satisfaction of telehealth interventions as compared to conventional care.

11

12

- To perform longitudinal studies to test if telehealth leads to more or less treatment changes.

13

- To evaluate methods of pre-assessment and prioritization within different settings and diseases.

14

- To evaluate the cost-effectiveness of telehealth interventions.

15

- To explore factors associated with digital health literacy (for both, people with RMD and HCPs)

16

- To explore barriers to the implementation of telehealth and how they can be solved.

17

- To explore how artificial intelligence can be integrated into telehealth interventions in order to support the development of knowledge of clinical processes.

18

19

- To evaluate patient safety and data security when using telehealth in daily clinical practice and in an extended follow-up.

20

1 **Discussion**

2 The current paper presents the first EULAR PtC on the use of telehealth in daily clinical rheumatology  
3 practise. These PtC can be used to inform and guide the development of national recommendations  
4 and local telehealth solution and complement previous EULAR PtC for the development, evaluation  
5 and implementation of mobile health application aiding self-management of people with RMD.[57]  
6 Within rheumatology, telehealth has been discussed in the context of the increasing prevalence of  
7 RMD, and workforce limitations.[2, 6] Recently, the COVID-19 pandemic has made telehealth even  
8 more relevant with 78% of patients finding it acceptable.[58] A recent EULAR survey conducted in 35  
9 countries showed that during the pandemic, the majority of European face-to-face consultations  
10 were converted into telehealth consultations.[46] However, that study also pointed out that more  
11 research within tele-rheumatology is needed.[46]

12 As this is a relatively new research area, the present PtC are only partially supported by evidence.  
13 Furthermore, few of the studies addressed disease monitoring in inflammatory arthritis.[33, 36, 37,  
14 59] PtC 8 (barriers) and 9 (training of people with RMD) are mainly based on qualitative research  
15 that is considered low quality of evidence by the Oxford hierarchy.[18] This does, however, not  
16 indicate a lower importance of these PtC.

17 Telehealth has been promoted as a means to increase cost-effectiveness, but this was only  
18 addressed in two studies on remote physiotherapy,[60, 61] revealing conflicting results.  
19 Furthermore, in some studies telehealth interventions were applied as an add-on to and not as a  
20 replacement of face-to-face contact.[41, 42, 62, 63] This makes a direct comparison between  
21 telehealth and face-to-face interventions difficult.

22 None of the included studies addressed security and potential adverse effects of telehealth  
23 interventions. Also, the follow-up time was generally short (mostly  $\leq 1$  year) therefore, it is not  
24 possible to make any conclusions about the long-term effects or potential harms of telehealth  
25 interventions. It is possible that more longitudinal studies looking at the effects of telehealth as  
26 opposed to routine care will become available in the next few years because of the greater shift to  
27 remote working during the COVID-19 pandemic.

28 In conclusion, these PtC identified several areas where telehealth may potentially improve quality of  
29 care and increase healthcare access within rheumatology. Although our SLR did not reveal any  
30 evidence on how to implement telehealth solutions, we identified barriers and facilitators that may  
31 potentially play a role for the implementation of telehealth interventions into clinical practice.

32  
33  
34

1 **Competing interests:**

2 AN has received consulting and/or speaker's fees from UCB, CHUGAI, BMS all unrelated to this  
3 manuscript.

4 YM has received speakers fees from Pfizer unrelated to this manuscript.

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6 unrelated to this manuscript

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10 remote care in rheumatic and musculoskeletal diseases. AM and PB were the fellows. AT and CD were  
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