

## Supplemental material

*Details to the case-collecting registries and data ascertainment:*

### NPRD

*Procedure:* Pediatric rheumatologists were asked to record patients with RMD who were registered in the NPRD in their pediatric rheumatology outpatient clinics or practices using the SARS-CoV-2 questionnaire if a history of SARS-CoV-2 infection was obtained during a follow-up visit. Even if at the beginning of the pandemic, for reasons of contact minimization, clinical follow-up was less frequent in some children (especially those with a stable disease), at least those treated with DMARD and/or glucocorticoids returned sooner or later to the paediatric rheumatology outpatient clinic or practice for a follow-up (FU).

*Questionnaire items:* The following items were documented by the physician on the specific questionnaire: demographic parameters like age, sex, diagnosis and ethnicity, information on the date of a positive SARS-CoV-2 test, method of detection (PCR, antigen test, serology) and reason for testing (symptomatic, contact to a person who tested positive for SARS-CoV-2), on symptoms and clinical manifestations (bronchitis/bronchiolitis, pneumonia, acute respiratory distress syndrome, myocarditis, encephalitis, sepsis, multi-organ failure), the disease course (asymptomatic, mild, moderate, severe, life-threatening defined according to Dong et al.), laboratory parameters, treatment and outcome of COVID-19 (recovered, not yet recovered, permanent damage, deceased). Furthermore, the drug therapy of the underlying disease at the time of virus detection/diagnosis of COVID-19 (disease-modifying antirheumatic drugs [DMARDs] during the last 6 months, glucocorticoids at time of SARS-CoV-2 infection) and changes of treatment (frequency of administration, change in dosage or discontinuation) in response to SARS-CoV-2 infection were recorded.

*Outcome evaluation:* Based on documentation of recent FU, disease activity (21-point numeric rating scale (NRS 0 – 10, 0: best) of the underlying rheumatic disease before the date of SARS-CoV-2 infection and at the corresponding visit of the outcome evaluation were documented. Since, due to the quarantine measures alone, a FU could only take place with a time lag after the acute infection, the patients could be assessed both with regard to the COVID-19 outcome and with regard to the disease activity of their underlying disease (NRS) during one and the same FU after the SARS-CoV-2 infection. Because no further follow-up of these patients was needed to document all data and complete the questionnaire, there was no drop-out. However, not all questionnaires were filled out completely, so that results for some items were partially missing.

*Timing of follow-up:* As the FUs in the different paediatric rheumatology centres already normally take place at different intervals, but even more so under pandemic conditions, it

was decided not to define a fixed time window for the assessment of COVID-19 outcome and disease activity of the underlying disease.

*Standardised recording:* The paediatric rheumatology centres participating in the NPRD are aware of the way most items are collected through the annual query in the general NPRD. The "severity" item specific to the SARS-CoV-2 questionnaire according to Dong et al. was explained on the questionnaire itself. The outcome assessment of COVID-19 was done according to the reporting of an "event of special interest", with which the documenting colleagues are also familiar. These uniform questionnaires with a largely familiar structure provide a good basis for standardized recording, even if it cannot be completely ruled out that the situations queried are assessed differently by different people in the participating centers.

### BiKeR

By email, institutions participating in the BiKeR registry were asked to report SARS-CoV-2 infection that becomes known during FU visits as ESI in BiKeR patients starting in April 2020. In terms of items collected, the NPRD and BiKeR questionnaires largely matched. Solely the recording of the disease activity of the underlying disease before or after the SARS-CoV-2 infection was done exclusively via the SARS-CoV-2 questionnaire of the NPRD. If patients with NPRD identification numbers (ID) were recorded in BiKeR, the data were forwarded to us. Using NPRD ID and demographic data, these records were matched with data in our database already collected through the NPRD SARS-CoV-2 questionnaire to avoid duplication of identical individuals.

### DGPI

This registry records demographic data as well as coinfections and comorbidities of the patients, clinical manifestations (upper respiratory tract infection, fever, bronchitis, pneumonia, ARDS, sepsis, gastrointestinal symptoms as well as other symptoms), therapy of SARS-CoV-2 infection including the need for intensive therapy, O<sub>2</sub> supplementation, respiratory support or ventilation as well as the outcome of COVID-19. Like the other two registries, the DGPI-registry is based on voluntary reporting and thus probably does not represent a complete coverage of all hospitalized SARS-CoV-2 infected cases in children and adolescents in Germany. In order to avoid double documentation, demographic parameters of the reported patients were matched with the already recorded patients in our database. The data from the DGPI registry could not be subsequently supplemented by queries with further information, e.g. from hospital records, as these were reported to us anonymously.

Reference: Dong Y, Mo X, Hu Y, et al. Epidemiology of COVID-19 among children in China. *Pediatrics* 2020;145(6):e20200702. doi: 10.1542/peds.2020-0702