

## Online supplementary appendices

### Appendix 1: Content of the parent and adolescent surveys – items adapted from other studies and items developed for the present study

#### (1) Utilisation of paediatric primary care services

##### (1.A) Deferral and cancellation of different types of paediatric primary care services

Please remember the time since the beginning of the COVID-19 pandemic:

Apart from your visit today, were there any reasons to visit a paediatrician with your child?

- ☐ Yes
- ☐ No

if *Yes*:

Did you then visit the paediatrician?

- ☐ Yes, always
- ☐ Yes, sometimes
- ☐ No

if *Yes, sometimes* or *No*:

Which of the following examinations/treatments did you postpone or cancel during the pandemic?

Please tick all that apply.

- ☐ Examination/treatment due to an acute illness
- ☐ Routine examination or check-up due to a chronic illness
- ☐ Vaccination
- ☐ Routine child health check-up ("U-Untersuchung")
- ☐ Other examinations: \_\_\_\_\_

#### (2) Utilisation of telemedical services

##### (2.A) Utilisation of different types of telemedical services before and during the COVID-19 pandemic

Which of the following telemedical services did you use to contact your paediatrician before the COVID-19 pandemic began?

Please tick all that apply.

- ☐ Video consultation
- ☐ Telephone consultation
- ☐ E-mail/online chat
- ☐ Telemonitoring (e.g. transmission of blood sugar values from patients to paediatricians)
- ☐ Keeping a digital diary of symptoms (e.g. of headaches or abdominal pain) and transmitting the data to the paediatrician
- ☐ Other: \_\_\_\_\_

Which of the following telemedical services have you used for the first time since the beginning of the COVID-19 pandemic to contact your paediatrician?

Please tick all that apply.

- ☐ Video consultation
- ☐ Telephone consultation
- ☐ E-mail/online chat
- ☐ Telemonitoring (e.g. transmission of blood sugar values from patients to paediatricians)

- Keeping a digital diary of symptoms (e.g. of headaches or abdominal pain) and transmitting the data to the paediatrician
- Other: \_\_\_\_\_

### **(3) Correlates of paediatric primary care utilisation**

#### **(3.A) Concerns about visiting the paediatric primary care practice**

Since the beginning of the COVID-19 pandemic, what are your concerns when visiting a paediatrician?

*Free-text question*

Since the beginning of the COVID-19 pandemic, have you been more or less concerned about visiting a paediatrician with your child than before the pandemic?

- Much more
- Somewhat more
- The same
- Somewhat less
- Much less

When thinking back on the visits to your paediatrician since the beginning of the COVID-19 pandemic: To what extent do you agree with the following statements?

*Fully agree - rather agree - neither agree nor disagree - rather disagree - disagree completely*

- I am worried that we could be infected with COVID-19 in the paediatrician's office.
- I am worried that a visit to the paediatrician's office will not be welcome unless it is an emergency.
- I think that the doctor is currently needed more urgently by other children.
- I think the government's recommendations mean that we should not visit the paediatrician's office.
- I am worried that the office is extremely busy and we have to wait a very long time.
- I don't own a car and don't like to use public transport.

#### **(3.B) Sense of security in paediatric primary care practice**

How safe do you feel regarding the risk of infection when you visit your paediatrician's office with your child during the COVID-19 pandemic?

- Very safe
- Safe
- Neutral
- Unsafe
- Very unsafe

#### **(3.C) Perceived implementation of infection control measures in paediatric primary care practice**

Are the infection prevention measures in your paediatrician's office sufficient in your opinion?

- Absolutely sufficient
- Rather sufficient
- Rather insufficient
- Absolutely insufficient

#### **(3.D) Personal experiences related to the pandemic**

Are there people in your household at risk for COVID-19 (e.g. elderly people, people with pre-existing conditions)?

- Yes

- ☐ No
- ☐ I don't know

What situations applied to you or any other person in your household since the beginning of the COVID-19 pandemic?

*Please tick all that apply.*

- ☐ Preventive self-isolation due to a chronic disease/pre-existing condition
- ☐ Quarantine due to suspicion of COVID-19 infection
- ☐ Quarantine due to confirmed COVID-19 infection
- ☐ Quarantine due to contact with a person with suspected or confirmed COVID-19 infection
- ☐ Quarantine after having stayed in a COVID-19 risk area
- ☐ Hospitalisation due to confirmed COVID-19 illness

### **(3.E) Fear of child's infection with COVID-19**

Are you concerned that your child could be infected with COVID-19?

- ☐ Not worried at all
- ☐ A little worried
- ☐ Moderately worried
- ☐ Rather worried
- ☐ Very worried

How bad do you think the disease will be if your child is infected with COVID-19?

- ☐ Not bad at all
- ☐ Not so bad
- ☐ Moderately bad
- ☐ Quite bad
- ☐ Very bad

### **(3.F) Reasons for not using telemedical services**

If no telemedical services are or were used:

Why don't you use telemedical services?

*Please tick all that apply.*

- ☐ My paediatrician's office does not offer telemedical services.
- ☐ I don't have the necessary technical equipment (e.g. laptop, computer).
- ☐ I don't have reliable and fast internet access.
- ☐ I don't have the necessary technical skills to use telemedical services.
- ☐ I am missing the personal contact with the paediatrician when using telemedical services.
- ☐ In my opinion, the use of telemedical services is associated with a lower quality of care.
- ☐ I have privacy concerns when using telemedical services.
- ☐ I encounter communication problems when using telemedical services (e.g. limited knowledge of German).
- ☐ Other reasons: \_\_\_\_\_

## **(4) Leverage points for strengthening paediatric primary care**

### **(4.A) Possibilities to facilitate carefree consultations at paediatric primary care practices during the COVID-19 pandemic**

What would have to change in order for you to be able to visit a paediatrician without any concerns during the COVID-19 pandemic?

*Free-text question*

## **(7) Sociodemographic characteristics**

### **(7.A) Child age**

Please state the age of your child:

*If your child is under one year of age, please enter 0 years.*

\_\_\_ year(s)

**(7.B) Child gender**

Please state the gender of your child:

- ☐ Female
- ☐ Male

**(7.C) Migration background**

What was your nationality at birth?

German, Afghan, Bosnian, Bulgarian, Chinese, French, Greek, Iraqi, Italian, Kosovar, Croatian, Austrian, Polish, Portuguese, Romanian, Russian, Serbian, Spanish, Syrian, Turkish, Hungarian, Dual nationality, Other

What was the nationality of the other parent at birth?

German, Afghan, Bosnian, Bulgarian, Chinese, French, Greek, Iraqi, Italian, Kosovar, Croatian, Austrian, Polish, Portuguese, Romanian, Russian, Serbian, Spanish, Syrian, Turkish, Hungarian, Dual nationality, Other, I don't know

What was the nationality of your child at birth?

*When answering questions about your child, please remember to answer for the child with whom you are visiting your paediatrician today. If you are visiting with several children, please answer for the oldest child.*

German, Afghan, Bosnian, Bulgarian, Chinese, French, Greek, Iraqi, Italian, Kosovar, Croatian, Austrian, Polish, Portuguese, Romanian, Russian, Serbian, Spanish, Syrian, Turkish, Hungarian, Dual nationality, Other

**(7.D) Parent age**

Please state your age:

- ☐ < 20 years
- ☐ 20 – 29 years
- ☐ 30 – 39 years
- ☐ 40 – 49 years
- ☐ 50 – 59 years
- ☐ ≥ 60 years

**(7.E) Parent gender**

Please state your gender:

- ☐ Female
- ☐ Male

**(7.G) Single parent**

Are you a single parent?

- ☐ Yes
- ☐ No

## Appendix 2: Content of the paediatrician survey – items adapted from other studies and items developed for the present study

### (1) Provision of paediatric primary care services

#### (1.A) Deferral and cancellation of different types of paediatric primary care services

Have you postponed or cancelled any consultations since the COVID-19 pandemic began?

- ☐ No
- ☐ Yes

If Yes:

Which of the following examinations/treatments did you postpone or cancel during the pandemic?

*Please tick all that apply.*

- ☐ Examinations/treatments due to an acute illness
- ☐ Routine examinations or check-ups due to a chronic illness
- ☐ Routine child health check-ups (“U-Untersuchungen”)
- ☐ Vaccinations
- ☐ Other examinations: \_\_\_\_\_

Did your practice have to close temporarily due to the COVID-19 pandemic?

- ☐ No
- ☐ Yes

If Yes:

- ☐ Yes, \_\_\_\_\_ weeks

#### (1.B) Change in opening hours

Have the opening hours of your practice changed since the start of the COVID-19 pandemic?

- ☐ No
- ☐ Yes

If Yes:

To what extent have the opening hours of your practice changed since the start of the COVID-19 pandemic?

*Please tick all that apply.*

- ☐ Currently reduced opening hours
- ☐ Currently extended opening hours
- ☐ Temporarily reduced opening hours in the past (e.g. during lockdown)
- ☐ Temporarily extended opening hours in the past (e.g. during lockdown)

If Yes:

For what reasons have you changed your regular opening hours?

*Please tick all that apply.*

- ☐ Staff shortage due to sick leave
- ☐ Staff shortage due to quarantine of employees
- ☐ Staff shortage due to preventive measures (e.g. risk groups staying away from the workplace)
- ☐ Staff shortage due to obligations caring for children or relatives
- ☐ Higher administrative workload than before the start of the COVID-19 pandemic
- ☐ Infection control measures could not be implemented with regular opening hours
- ☐ More patients than at the same time last year

- Fewer patients than at the same time last year
- Personal reasons
- Other reasons: \_\_\_\_\_

**(1.C) Provision of COVID-19-specific services**

How many COVID-19 smears do you currently take per day on average?

- < 5 smears/day
- 5 – 9 smears/day
- 10 – 14 smears/day
- 15 – 19 smears/day
- ≥ 20 smears/day

How many certificates do you currently issue on average per day in connection with the COVID-19 pandemic (e.g. at the request of kindergartens or schools)?

- < 5 certificates/day
- 5 – 9 certificates/day
- 10 – 14 certificates/day
- 15 – 19 certificates/day
- ≥ 20 certificates/day

**(2) Provision of telemedical services****(2.A) Provision of different types of telemedical services before and during the COVID-19 pandemic**

Do you use telemedical services in your practice?

- Yes
- No, but the use is being prepared
- No, I won't use it in a foreseeable time

If Yes:

Which of the following telemedical services did you use before the COVID-19 pandemic began?

Please tick all that apply.

- Video consultation
- Telephone consultation
- E-mail/online chat
- Telemonitoring (e.g. transmission of blood sugar values from patients to paediatricians)
- Keeping a digital diary of symptoms (e.g. of headaches or abdominal pain) and transmitting the data to the paediatrician
- Other: \_\_\_\_\_

If Yes:

Which of the following telemedical services have you used for the first time since the beginning of the COVID-19 pandemic?

Please tick all that apply.

- Video consultation
- Telephone consultation
- E-mail/online chat
- Telemonitoring (e.g. transmission of blood sugar values from patients to paediatricians)
- Keeping a digital diary of symptoms (e.g. of headaches or abdominal pain) and transmitting the data to the paediatrician
- Other: \_\_\_\_\_

If No, but the use is being prepared:

Which of the following telemedical services is your practice currently preparing to use?

Please tick all that apply.

- ☐ Video consultation
- ☐ Telephone consultation
- ☐ E-mail/online chat
- ☐ Telemonitoring (e.g. transmission of blood sugar values from patients to paediatricians)
- ☐ Keeping a digital diary of symptoms (e.g. of headaches or abdominal pain) and transmitting the data to the paediatrician
- ☐ Other: \_\_\_\_\_

If Yes:

What proportion of patient consultations did you handle via telemedical services before the COVID 19 pandemic, i.e. before March 2020?

Please estimate the proportion.

- ☐ 0%
- ☐ 1% - 4%
- ☐ 5% - 9%
- ☐ 10% - 49%
- ☐ ≥ 50%

If Yes:

What proportion of patient consultations have you handled via telemedical services in the last 4 weeks?

Please estimate the proportion.

- ☐ 0%
- ☐ 1% - 4%
- ☐ 5% - 9%
- ☐ 10% - 49%
- ☐ ≥ 50%

### **(3) Infection control measures implemented in paediatric primary care practices**

#### **(3.A) Implementation of infection control measures in paediatric primary care practices**

Which of the following infection control measures are being implemented in your practice due to the COVID-19 pandemic?

Yes - no, as not useful - no, but would be useful

- ☐ Consultation by appointment only
- ☐ Parents and children wait outside the practice prior to the consultation.
- ☐ Measures to ensure distancing between families in the practice (e.g. floor marking for queues, reduced number of chairs in the waiting room)
- ☐ Consistent enforcement of mask-wearing for parents
- ☐ Consistent enforcement of mask-wearing for children and adolescents aged 10 years and older.
- ☐ Consistent enforcement of mask-wearing for children 6 – 9 years of age
- ☐ Consistent enforcement of mask-wearing for children below 6 years of age
- ☐ Consistent enforcement of mask-wearing for practice staff
- ☐ Separate consulting hours for children with symptoms consistent with COVID-19 infection (e.g. infection consultations) and children with other conditions (e.g. vaccination or screening consultations)

- Spatial separation between children with symptoms compatible with COVID-19 infection and children with other complaints (e.g. use of an "infection room" or "infection area")
- Additional hygiene measures for parents and children (e.g. hand disinfection or hand washing after entering the practice)
- Implementation of additional disinfection measures after each patient contact
- Structural measures to protect against infection (e.g. installation of physical barriers at reception desks)
- Use of personal protective equipment during physical examinations of children and adolescents with symptoms of infection
- Use of personal protective equipment when taking nasopharyngeal swabs
- Implementing screening measures among staff
- Regular airing of the practice rooms

What other infection control measures are being implemented in your practice due to the COVID-19 pandemic?

*Free-text question*

What other infection control measures should be implemented in your practice beyond the existing measures?

*Free-text question*

Do you need support to implement appropriate infection control measures in your practice in the coming months?

- Yes
- No

If Yes:

What support do you need?

*Free-text question*

#### **(4) Correlates of paediatric primary care service provision**

##### **(4.A) Factors related to the pandemic affecting service provision**

How much do the following factors currently affect your daily practice?

*Very much – considerably – not so much – not at all*

- Staff shortage due to sick leave
- Staff shortage due to quarantine of employees
- Staff shortage due to preventive measures (e.g. risk groups staying away from the workplace)
- Staff shortage due to obligations caring for children or relatives
- Higher administrative workload than before the start of the COVID-19 pandemic
- Time-consuming infection control measures
- Costly infection control measures
- More patients than at the same time last year
- Fewer patients than at the same time last year

##### **(4.B) Reasons for not providing telemedical services**

If no telemedical services are or were used:

Why don't you use telemedical services?

*Please tick all that apply.*

- I don't have the necessary IT infrastructure in practice.

- I don't have reliable and fast internet access.
- I don't have the necessary technical skills to use telemedical services.
- I consider personal contact with patients and parents to be indispensable.
- I don't have the time to establish telemedical services in the practice.
- I don't reach all families with telemedical services.
- There is a lack of demand for telemedical services among families.
- Other reasons: \_\_\_\_\_

#### **(4.C) Opinion towards telemedical services**

To what extent do you agree with the following statements?

*Fully agree; rather agree; neither agree nor disagree; rather disagree; disagree completely*

- Telemedical services are associated with lower quality of treatment.
- Telemedical care is more time-consuming than care without telemedical services.
- I have data protection concerns about the use of telemedical services.
- Most of the families I care for want telemedical care.
- I would like more support in the use of telemedical services (e.g. in the form of training, information material, technical support).
- I prefer personal contact.

#### **(4.D) Personal experiences related to the pandemic**

Which of the following statements apply to you?

*Please tick all that apply.*

- I myself belong to a risk group for COVID-19 (e.g. due to my age or due to pre-existing conditions).
- I had to (temporarily) reduce or suspend my work in the practice during the COVID-19 pandemic due to childcare obligations or the care of relatives.
- I self-isolated as a precautionary measure due to a chronic disease/pre-existing condition.
- I had to self-isolate because I was suspected of having a COVID-19 infection.
- I had to self-isolate because I had a confirmed COVID-19 infection.
- I had to self-isolate because I had contact with a person with suspected or confirmed COVID-19 infection.
- I had to self-isolate because I had been in a COVID-19 risk area.
- I had to be hospitalised because of a confirmed COVID-19 illness.

### **(6) Leverage points for strengthening paediatric primary care services**

#### **(6.A) Concerns and support needs related to the upcoming months**

To what extent do you agree with the following statement?

*Fully agree; rather agree; neither agree nor disagree; rather disagree; disagree completely*

- As a practising primary care paediatrician, I am worried when I think about the coming months.

*If Fully agree or Rather agree:*

What worries you when you think about the coming months?

*Free-text question*

What support do you need so that you, as a practising paediatrician, can handle the coming months well?

*Free-text question*

#### **(6.B) Ideas how to improve paediatric primary care services during the COVID-19 pandemic for children and adolescents in general and those with special healthcare needs**

What would have to be done so that as many children and adolescents as possible can be cared for adequately in paediatric primary care during the COVID-19 pandemic?

*Free-text question*

The care of children and adolescents with chronic diseases is an important task of paediatricians in private practice.

What do you think needs to be done to ensure that children and adolescents with chronic diseases can also be cared for adequately during the COVID-19 pandemic?

*Free-text question*

## **(7) Aspects of primary care paediatrician health**

### **(7.B) Burden related of the COVID-19 pandemic**

To what extent do you agree with the following statements?

*Fully agree; rather agree; neither agree nor disagree; rather disagree; disagree completely*

- ☐ I am worried that I will be infected with COVID-19 at work.
- ☐ I am worried that I may infect people around me with COVID-19 because of my work.
- ☐ I have changed my socialising and travel patterns because of the COVID-19 pandemic (e.g. I avoid large crowds or public transport).
- ☐ The COVID-19 pandemic has led to an increase in my daily workload.
- ☐ Due to the COVID-19 pandemic, I have significantly less time for my personal life.
- ☐ Since the COVID-19 pandemic, I have been sleeping less well.
- ☐ I feel that my work is appreciated by families during the COVID-19 pandemic.
- ☐ Since the outbreak of the COVID-19 pandemic, the satisfaction with my job has worsened.
- ☐ I feel left alone by the responsible political decision-makers.
- ☐ Due to the COVID-19 pandemic I feel mentally strained.
- ☐ My everyday life at home has become significantly more stressful due to the COVID-19 pandemic.
- ☐ Due to the COVID-19 pandemic, I am worrying more often about the future.
- ☐ Due to the COVID-19 pandemic, I am worrying more often about the well-being of my family.
- ☐ I feel stressed by the infection control measures in my everyday work.

## **(8) Sociodemographic and professional characteristics**

### **(8.A) Age**

Please state your age:

- ☐ < 30 years
- ☐ 30 – 39 years
- ☐ 40 – 49 years
- ☐ 50 – 59 years
- ☐ ≥ 60 years

### **(8.B) Gender**

Please state your gender:

- ☐ Female
- ☐ Male

### **(8.C) Number and age of own children**

The following is about your own children.

*Questions about the children and adolescents you care for in your practice can be found further on in the questionnaire.*

Do you have children?

- ☐ Yes

- ☐ No

If Yes:

How many children do you have in each of the following age groups?

- ☐ 0 – 1 year: \_\_\_\_ child(ren)
- ☐ 2 - 5 years: \_\_\_\_ child(ren)
- ☐ 6 – 11 years: \_\_\_\_ child(ren)
- ☐ 12 - 18 years: \_\_\_\_ child(ren)

**(8.D) Subspecialty training**

Have you completed a fellowship after finishing paediatric residency?

- ☐ Yes
- ☐ No
- ☐ No, I am still in residency

**(8.E) Experience in paediatric primary care**

How many years have you been working in outpatient paediatric primary care?

- ☐ < 5 years
- ☐ 5 – 9 years
- ☐ 10 – 19 years
- ☐ 20 – 29 years
- ☐ 30 – 39 years
- ☐ ≥ 40 years

**(8.F) Employment status**

Do you run your own practice as a self-employed paediatrician or do you work in primary care as an employed doctor?

- ☐ Self-employed
- ☐ Employed

**(8.G) Weekly working hours**

How many hours per week do you work in your practice?

- ☐ < 10 hours
- ☐ 10 – 19 hours
- ☐ 20 – 29 hours
- ☐ 30 – 39 hours
- ☐ 40 – 49 hours
- ☐ ≥ 50 hours

**(9) Practice characteristics**

**(9.A) Type of practice**

In what type of practice are you currently working?

- ☐ Solo practice
- ☐ Group practice
- ☐ Multispecialty medical care centre
- ☐ Other: \_\_\_\_\_

**(9.B) Practice size**

How many statutory health insurance claims are processed in your practice per quarter?

- ☐ 0 – 299
- ☐ 300 – 599
- ☐ 600 – 899

- 900 – 1199
- 1200 – 1499
- ≥ 1500

Please estimate the percentage of patients in your practice with private health insurance:

\_\_\_\_\_ %

**(9.C) Population of the municipality the paediatric primary care practice is located in**

How many inhabitants are there in the municipality/city your practice is located in?

- < 5,000
- 5,000 to < 20,000
- 20,000 to < 50,000
- 50,000 to < 100,000
- 100,000 to < 500,000
- ≥ 500,000