**Management approaches for ADHD during the COVID-19 virus pandemic: guidance from the European ADHD Guidelines Group (EAGG)**

Samuele Cortese1-5, Philip Asherson6, Edmund Sonuga-Barke7,8, Tobias Banaschewski9, Daniel Brandeis9-12, Jan Buitelaar13, David Coghill14, David Daley5, Marina Danckaerts15,16, Ralf W Dittmann17, Manfred Doepfner18, Maite Ferrin19, Chris Hollis5, Martin Holtmann20, Eric Konofal21, Michel Lecendreux21, Santosh Paramala22, Aribert Rothenberger23, César Soutullo24, Hans-Christoph Steinhausen25-28, Eric Taylor22, Saskia Van der Oord29,30, Ian Wong31, Alessandro Zuddas32, Emily Simonoff22. European ADHD Guidelines Group (EAGG)

1 Center for Innovation in Mental Health, School of Psychology, Faculty of Environmental and Life Sciences, University of Southampton, UK, and Clinical and Experimental Sciences (CNS and Psychiatry), Faculty of Medicine, University of Southampton, UK,

2 Clinical and Experimental Sciences (CNS and Psychiatry), Faculty of Medicine, University of Southampton, UK,

3 Solent NHS Trust, Southampton, UK,

4 New York University Child Study Center, New York, NY, USA

5  Division of Psychiatry and Applied Psychology, School of Medicine University of Nottingham UK, NIHR MindTech Mental Health MedTech Cooperative & Centre for ADHD and Neurodevelopmental Disorders Across the Lifespan CANDAL, Institute of Mental Health, University of Nottingham, UK

6 Social, Genetic and Developmental Psychiatry Centre, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, United Kingdom

7 Department of Child & Adolescent Psychiatry, Institute of Psychiatry, Psychology & Neuroscience, King’s College London, UK.

8Department of Child & Adolescent Psychiatry, Aarhus University, Denmark

9 Child and Adolescent Psychiatry and Psychotherapy, Central Institute of Mental Health, Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany

 10 Department of Child and Adolescent Psychiatry and Psychotherapy, Psychiatric Hospital, University of Zurich, Zurich, Switzerland

11Neuroscience Center Zurich, University of Zurich and ETH Zurich, Zurich, Switzerland

12Center for Integrative Human Physiology, University of Zurich, Zurich, Switzerland

13Radboud University Medical Center, Nijmegen, The Netherlands.

14Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Australia; Murdoch Children's Research Institute, Melbourne, Australia; Royal Children's Hospital, Melbourne, Australia

15 Research Group of Developmental Psychiatry, Center for Developmental Psychiatry, KU Leuven, Kapucijnenvoer 7, blok H, 3000, Leuven, Belgium.

16 Department of Child and Adolescent Psychiatry, UPC KU Leuven, Leuven, Belgium

17 Paediatric Psychopharmacology, Department of Child & Adolescent Psychiatry and Psychotherapy, Central Institute of Mental Health, Medical Faculty Mannheim, University of Heidelberg, Germany

18 Department of Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy; Faculty of Medicine and University Hospital Cologne, University of Cologne, Germany

19 Haringey CAMHS, NHS, and ReCognition Health, London, UK

20 LWL-University Hospital for Child and Adolescent Psychiatry, Ruhr-University Bochum, Hamm, Germany

21 Service de Physiologie Pédiatrique - Centre Pédiatrique des Pathologies Du Sommeil, AP-HP, Hôpital Robert Debré, Paris, France

22 Department of Child and Adolescent Psychiatry, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK.

23 Klinik für Kinder- und Jugendpsychiatrie/Psychotherapie, Universitätsmedizin, Georg-August Universität Göttingen, Germany

24 Louis A Fallace Department of Psychiatry and Behavioral Science, University of Texas, Houston, Texas, USA

25 Department of Child and Adolescent Psychiatry and Psychotherapy, University Hospital of Psychiatry, Zurich, Switzerland.

26 Clinical Psychology and Epidemiology, Institute of Psychology, University of Basel, Basel, Switzerland.

27 Department of Child and Adolescent Mental Health, University of Southern Denmark, Odense, Denmark.

28 Child and Adolescent Mental Health Centre, Capital Region Psychiatry, Copenhagen, Denmark.

29 Clinical Psychology, KU Leuven, Leuven, Belgium.

30 Developmental Psychology, University of Amsterdam, Amsterdam, The Netherlands.

31 School of Pharmacy, University College London, London, UK

32 Child and Adolescent Neuropsychiatry Unit, Department of Biomedical Sciences, University of Cagliari & Antonio Cao Paediatric Hospital, G. Brotzu Hospital Trust, Italy.

**Address correspondence to:**

Professor Samuele Cortese, Centre for Innovation in Mental Health, School of Psychology, Faculty of Environmental and Life Sciences, University of Southampton, Highfield Campus, Building 44, Southampton, SO17 1BJ, UK, Phone: +44 (0) 2380599645, E-mail: samuele.cortese@soton.ac.uk

The current COVID-19 virus crisis is creating unprecedented challenges at every level of society. Individuals with neurodevelopmental disorders such as Attention-Deficit/Hyperactivity Disorder (ADHD) are particularly vulnerable and may display increased behavioural problems. The current crisis also poses several important questions for their clinicians on how best to deliver care within the new restrictions.

This document provides a summary of the guidance on the assessment and management of ADHD during the COVID-19 virus pandemic, developed by the European ADHD Guidelines Group (EAGG). The full guidance is reported in the Appendix.

**Diagnosis, follow-up assessments, and monitoring**

Given the requirement for physical distancing in clinicians and patients, all relevant service provision should continue to take place using telephone or appropriate online video technology, in line with current recommendations for the use of telepsychiatry (e.g., guidance from the Royal College of Psychiatrists1 or the American Psychiatric Association2).

Across the age groups, the current crisis can be particularly challenging for adolescents, and even more for those with ADHD. Schools and teachers should try to monitor all their students but should include those with ADHD, especially adolescents, as a priority group, due to their disorganisation and increased level of risks (e.g., are they participating in online classes, are they submitting their tasks? Are there worries about their social emotional well-being?)

**The importance of behavioural management strategies**

For families with children with ADHD, the EAGG recommends the use of behavioural parenting strategies because it improves parenting and has beneficial effects in reducing oppositional defiant and disruptive behaviour, which is common in ADHD.3 Under the current circumstances, when face-to-face support is not possible, parents will have to rely on self-help versions of evidence-based systems. The efficacy of some of these are supported by trial evidence.4-6 Some online systems have also been shown to have value.7 However, parents must be cautious and avoid paying for untested applications that could do more harm than good. Under the current circumstances, the EAGG highlights six essential messages reported in Table 1 in the Appendix.

In relation to other non-pharmacological strategies,patients using neurofeedback or cognitive training should be encouraged to continue practicing transfer exercises during homework and new challenges.

**Pharmacological management**

* Individuals with ADHD should, if clinically indicated and as recommended in standard national guidelines, be offered the opportunity to start on a pharmacological treatment after completion of the initial assessment or, if already on medication, continue with this as usual. Being prevented access to pharmacological treatment after the initial assessment or failure to continue ongoing pharmacological treatment may increase health risks related to COVID-19 virus infection, as behaviour related to ADHD may become more disorganised and poorly controlled at this time, adversely impacting on the ability to comply with the requirements for physical distancing.
* It is hoped that regulatory authorities will allow for some flexibility around restrictions to access ADHD medications during the COVID-19 virus crisis to make sure patients receive their medication in a timely manner.
* Parents of children with ADHD and adolescents/adults with ADHD should avoid increasing doses or adding additonal doses (beyond those prescribed) to manage crisis/stress related to confinement. Likewise, the use of antipsychotics to manage disruptive behaviour or of sedative agents when not clinically indicated should be avoided.
* In our previous recommendations we stated that “the risk-benefit balance of drug holidays during weekend must be taken into account and better investigated”.8 Given that family confinement and physical distancing may exacerbate ADHD related risks, we see no strong rationale to introduce weekend drug-holidays during the current crisis.
* Monitoring of possible adverse events during pharmacological treatment:

1. Routine cardiovascular clinical examination and face-to-face monitoring for individuals with ADHD without any cardiovascular risk factors could be postponed until routine face-to-face visits are reinstated, as currently the risks from conducting face-to-face cardiovascular assessments in this patient group outweigh the benefits of cardiac monitoring. When possible, home monitoring of blood pressure and pulse using home blood pressure machines is recommended, following the guidance detailed in Table 2 in the Appendix. Patients should contact their prescribers should they experience any emerging cardiovascular symptom (e.g., chest pain, prolonged palpitations, and breathing difficulties), or any other concerning symptoms.
2. Whilst sleep-onset delay is a possible adverse event during psychostimulants treatment, sleep disruption may also be accounted for by other factors, such as stress, late morning waking and disruption of daily routines related to the COVID-19 virus crisis. Appropriate sleep hygiene should be implemented/reinforced in preference to increasing the doses of melatonin beyond the therapeutic range (up to 5-6 mg/nocte9).
3. Headache can occur during treatment with psychostimulants. Given uncertainty around its possible unfavourable effects in patients with COVID-19 virus infection10, ibuprofen for headache should be avoided.

**Conclusions**

In summary, COVID-19 virus infection and the attendant physical distancing are presenting many challenges for children, young people and their families, and these are likely to be considerably greater for those with ADHD. It will therefore be even more important to draw upon the strategies routinely recommended in parent-focussed ADHD interventions, as well as mental well-being interventions for children and young people. The inability to undertake routine, face-to-face clinical visits to initiate and monitor medication should not be viewed as an absolute contraindication to pharmacotherapy. Instead, the risks and benefits of initiating/maintaining medication under the current COVID-19 virus guidance should be carefully considered. Where the use of medication is deemed desirable, strategies for remote

monitoring, as described above, should be implemented.

**References**

1. Royal College of Psychiatrists. [www.rcpsych.ac.uk/docs/default-source/members/sigs/private-and-independent-practice-pipsig/pipsig-telepsychiatry-guidelines-revised-mar16.pdf](file:///C:\Users\edmundbarke\Desktop\www.rcpsych.ac.uk\docs\default-source\members\sigs\private-and-independent-practice-pipsig\pipsig-telepsychiatry-guidelines-revised-mar16.pdf)).

2. American Association of Psychiatry. <https://www.psychiatry.org/psychiatrists/practice/telepsychiatry>.

3. Daley D, Van Der Oord S, Ferrin M, et al. Practitioner Review: Current best practice in the use of parent training and other behavioural interventions in the treatment of children and adolescents with attention deficit hyperactivity disorder. *J Child Psychol Psychiatry.* 2018;59(9):932-947.

4. Dose C, Hautmann C, Buerger M, Schuermann S, Woitecki K, Doepfner M. Telephone-assisted self-help for parents of children with attention-deficit/hyperactivity disorder who have residual functional impairment despite methylphenidate treatment: a randomized controlled trial. *J Child Psychol Psychiatry.* 2017;58(6):682-690.

5. Daley D, O'Brien M. A small-scale randomized controlled trial of the self-help version of the New Forest Parent Training Programme for children with ADHD symptoms. *Eur Child Adolesc Psychiatry.* 2013;22(9):543-552.

6. Katzmann J, Hautmann C, Greimel L, et al. Behavioral and Nondirective Guided Self-Help for Parents of Children with Externalizing Behavior: Mediating Mechanisms in a Head-To-Head Comparison. *J Abnorm Child Psychol.* 2017;45(4):719-730.

7. DuPaul GJ, Kern L, Belk G, et al. Face-to-Face Versus Online Behavioral Parent Training for Young Children at Risk for ADHD: Treatment Engagement and Outcomes. *J Clin Child Adolesc Psychol.* 2018;47(sup1):S369-s383.

8. Cortese S, Holtmann M, Banaschewski T, et al. Practitioner review: current best practice in the management of adverse events during treatment with ADHD medications in children and adolescents. *J Child Psychol Psychiatry.* 2013;54(3):227-246.

9. Bruni O, Alonso-Alconada D, Besag F, et al. Current role of melatonin in pediatric neurology: clinical recommendations. *Eur J Paediatr Neurol.* 2015;19(2):122-133.

10. Day M. Covid-19: ibuprofen should not be used for managing symptoms, say doctors and scientists. *BMJ.* 2020;368:m1086.