To the World Health Organization,

**We would like to express our concerns regarding considerations of including methylphenidate (MPH) for children on the WHO Model List of Essential Medicines (WHO-MLEM) at this time.**

The intention of this list is to identify a select and limited set of medicines that should always be available in all healthcare systems. They are to be chosen for priority health problems based on clear scientific evidence of safety and cost-effectiveness (1). We argue that such criteria do not apply to MPH.

The WHO-MLEM is an important tool for decision makers to prioritize a key set of medicines for a society. We fear that the inclusion of MPH will serve to undermine the integrity of the WHO-MLEM and thus hinder efforts to make medicines available that are truly critical to human health.

The WHO-MLEM includes medicines for conditions such as cancer, various infections and diabetes mellitus, for which there is little controversy regarding the validity of the diagnoses or the severity of the illness course without treatment. In contrast, the scientific evidence for ADHD as a neurodevelopmental disorder is still contested. After several decades of research, no specific neurobiological mechanisms have been identified, and many recognize that ADHD must be understood as a multifactorial, context-dependent disorder. For instance, the Dunedin Longitudinal Study—widely recognized as one of the most rigorous prospective studies—analyzed four decades of follow-up data (2). Its findings show that most children diagnosed with ADHD do not meet criteria when reaching adulthood, and that more than 90% adult ADHD cases lacked a history of childhood ADHD (2). The implication of this knowledge may ask for a more nuanced understanding of ADHD rethinking early interventions as more focused on systematic educational and social support in preventing the persistence of ADHD into adulthood.

The lack of any specific biological mechanism and corresponding biomarker, also means that prevalence estimates are based on normative considerations of what symptoms and what symptom severity is deemed disordered. This heightens the risk of undue medicalization of human traits.

Adding to this, there is also high-quality longitudinal evidence calling into question whether being diagnosed with ADHD as a child is helpful. In a recent study following 393 children diagnosed with ADHD for 8 years (from 6-7 to 14-15 years of age) matched with 393 children with similar levels of ADHD symptoms found that diagnosed children did not experience improved quality of life at age 14-15, and that a diagnosis was in fact associated with worse scores in some outcomes, including increased risk of self-harm (3). Academic improvement is considered an important driver to medicate juvenile ADHD. Several studies have examined if stimulants improve learning, with unclear outcomes (4, 5, 6). In sum, there is no scientific basis for the assumption that MPH is an essential medicine that promotes better health and well-being in the population in the long term.

While MPH has shown short-term efficacy in managing core symptoms of ADHD, the long-term benefits and risks—particularly in relation to neurodevelopment, growth, and overall quality of life—remain insufficiently documented through high-quality, randomized controlled trials (7). Because ties to the pharmaceutical industry are so frequent there is also a strong risk of bias in systematic reviews on MPH (8). This further complicates the overall picture.

Adverse effects in children shortly after starting MPH are frequent. These include insomnia, appetite suppression, irritability, and cardiovascular changes. A Cochrane review found a higher relative risk of sleep disturbances compared to placebo (7). Long-term stimulant medication is shown to both suppress growth and is associated with heightened body mass index (9). Studies have also found that stimulants increase the risk of cardiovascular disease, particularly hypertension and arterial disease (10, 11).

It is important to note how the increased prevalence of ADHD and the use of stimulants such as MPH has received increasing critical attention by well-regarded media outlets. *The Economist* recently covered the issue in a leader with the title *ADHD should not be treated as a disorder* (12). Here, they urge policy makers to discard the binary view of ADHD as a disorder, which they find is not supported by science, and suggest resources should be redirected to schools and other environments where adaptation to support healthy development can be prioritized instead of medication. In line with these arguments, *The New York Times* recently

published an investigative journalistic piece where overprescription of MPH and similar stimulants were detailed with in-depth interviews from leading scientists in the field (13).

In 2019 and 2021, the World Health Organization declined to include MPH in its list of essential medicines, citing the lack of robust long-term data on safety and efficacy (14). We cannot see that any new evidence has emerged since 2021 that would justify including MPH on the list. We also understand that the inclusion of MPH to the list will bolster the credibility of the diagnosis and availability of the medicine. However, there are already grave concerns in many countries that ADHD is overdiagnosed with inflated prevalence estimates, and that MPH is thus overprescribed (15). We fear that the premature inclusion of MPH will enable further overdiagnosis and overuse with detrimental rather than beneficial effects on lives.

Considering the current state of the evidence, and the growing public debate questioning the real-world impact of treating children with stimulants, we strongly advice against adding MPH to the WHO-MLEM at this time. We advocate for a cautious and individualized approach to ADHD treatment. More independent, long-term research is urgently needed before MPH can be endorsed as an essential medicine for children.

We have no conflict of interest.

Magnus Johan Engen, PhD, Assistant Head of Department, Head of the Early Bipolar Unit, Nydalen District Psychiatric Center, Division of Mental Health and Addiction, Oslo University Hospital, Norway

Erlend Strand Gardsjord, MD, PhD, Head of Outpatient Unit, Section for Early Intervention in Psychosis, Division of Mental Health and Addiction, Oslo University Hospital, Norway

Espen Idås, Specialist in Child and Adolescent Psychology, private practice, Horten, Norway

Grete J. Sølvberg Larsen, MD, Head of Section for Psychosis, Nydalen District Psychiatric Center, Division of Mental Health and Addiction, Oslo University Hospital, Norway

Guro Ramsøy-Halle, Master in educational psychology and family therapist, Department of Child and Adolescent Mental Health, Oslo University Hospital, Norway

Henriette Sandven, MD, Senior Consultant, Department of Child and Adolescent Mental Health,Oslo University Hospital, Norway

Einar Aasen Tryti, Neuropsychologist, Division of Paediatric and Adolescent Medicine, Akershus University Hospital, Norway

Trond Velken, MD, Head Senior Consultant, Department of Child and Adolescent Mental Health, Vestfold Hospital Trust, Norway

Henrik Vogt, MD, PhD, associate professor, Department of Community Medicine and Global Health, Institute for Health and Society, Faculty of Medicine, University of Oslo, Oslo, Norway.

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