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Personal Health Record Background Information

GP ADHD Shared Care Program:

A Child & Adolescent Mental Health Services (CAMHS) initiative in partnership with GP Partners Australia (GPPA)

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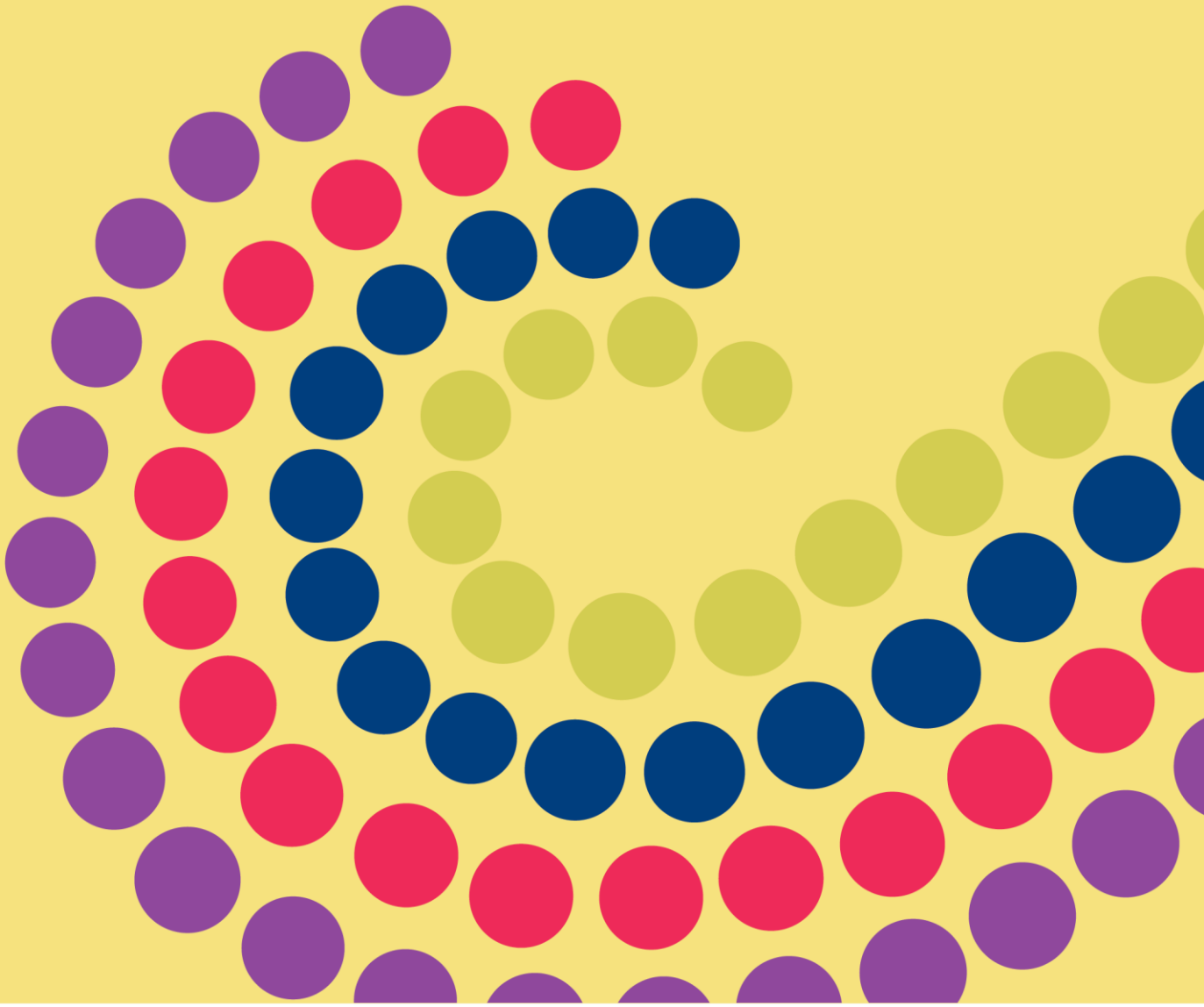
Endorsed Clinical Director CAMHS, Unit Head General Medicine April 2023



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Lifetime ADHD Care:

The Royal Australian and New Zealand College of Psychiatrists position statement "ADHD across the Lifespan" (1) states that "ADHD is a high prevalence neurodevelopmental disorder, often associated with impairment that extends across the lifespan" frequently presenting with comorbidities, and with significant implications for the person with the disorder, their family and community if left untreated.

The 2022 Australian Evidence-Based Clinical Practice Guideline For Attention Deficit Hyperactivity Disorder (ADHD) (2) recommends that:

1. Treatment for ADHD, with or without medication as part of the treatment plan, requires regular review and follow- up according to the severity of the condition and individual factors such as co-occurring conditions, medical complications, compliance, response to treatment, social supports, and lifestyle factors.

2. Individualised monitoring based on a **chronic disease management model** is recommended for patients stabilised on medication.

3. People taking medication for ADHD can be empowered to monitor and record their adverse effects, and clinicians can additionally monitor using standard symptom/adverse effect rating scales as indicated.

4. Clinicians need to be aware that patients with ADHD may experience challenges adhering to treatment plans, due to the symptoms of ADHD or their effects. Problems with adherence can also be due to misconceptions and clinicians need to ensure their patients are fully informed of the balance of risks and benefits of their treatment plan and medication regime. Example supports include the provision of clear medication instructions (in picture or written format), use of reminders tools (apps, alarms, clocks, pill dispensers, or notes on calendars or fridges), making taking medication part of their daily routine (eg with teeth brushing), making regular appointments with their prescribing clinicians, particularly to ensure timely reviews/prescriptions.

5. Culturally responsive care for Aboriginal and Torres Strait Islander patients are specifically advised in the 2022 Australian Evidence-Based Clinical Practice Guideline For Attention Deficit Hyperactivity Disorder (ADHD) (2) as follows:

   "Recommendation 6.2.4: Interventions should include input from parents, families, community, and Elders, as appropriate, to maximise treatment effectiveness given strong

family values in Aboriginal and Torres Strait Islander cultures. The wishes of parents, families and individuals with ADHD regarding treatment options (e.g. cultural, pharmacological versus nonpharmacological treatments and their combination) should be prioritised.

Recommendation 6.2.5: Non-pharmacological interventions need to be culturally sensitive and appropriately tailored for Aboriginal and Torres Strait Islander peoples with consideration for the local cultural context.

Recommendation 6.2.6: Pharmacological interventions should be explained carefully with an awareness of potential cultural issues. Pharmacological options may be more acceptable if offered as part of a broad package aimed at helping a person reach their potential."

The following GP ADHD Shared Care clinical recommendations are primarily based on the 2022 Australian Evidence-Based Clinical Practice Guideline For Attention Deficit Hyperactivity Disorder (ADHD) (1). Where other clinical practice guidelines and research contribute to the GP ADHD Shared Care clinical recommendations, the relevant resource is referenced (3-17).

1. Height and weight:

- Growth deficits can be associated with long term stimulant medication (3, 4)
- Long term 6 monthly measurements (plotted on growth charts) are advised for children and adolescents (Initially 3 months after first starting treatment). Long-term care should plan for more frequent measurement if indicated.
- Adult patient weight is monitored if indicated. This is supported by the Guidelines for Preventive Activities in General Practice, 9th edition (5) for preventative health care over the lifetime for all individuals, not just those with ADHD.
- Lifestyle factors such as diet and physical activity levels can be explored, and strategies and/or referral to assist with any challenges, can be offered if needed.
- Weight loss/insufficient weight gain and/or poor gain of height in children requires assessment to exclude other medical causes, in addition to the consideration of the following strategies:
    i. taking medication either with or after food, rather than before meals
    ii. taking additional meals or snacks early in the morning or late in the evening when stimulant effects have worn off
    iii. obtaining dietary advice
    iv. consuming high-calorie foods of good nutritional value
    v. taking a planned break from treatment
    vi. changing or stopping medication.
    vii. consider a planned break in treatment over school holidays to allow 'catch-up' growth, or an alternate medication.
- The impact of appetite suppression due to stimulant treatment must be considered in co-occurring eating disorders or other medical conditions that may contribute to weight loss. Dose titration should be slower, and monitoring more frequent, if

eating disorders are present, and managed in partnership with the young person's eating disorder specialist team [6].

2. Cardiovascular function

- Routine monitoring of heart rate and blood pressure (7,8), compared with the normal range for age :
    i. on initiation of treatment
    ii. before and after each dose change, and
    iii. every 6 months.

- For children and young people, heart rate and blood pressure are measured with an appropriately sized cuff and compared with centile for age and height. The Royal Children's Hospital Clinical Practice Guidelines for paediatric hypertension provide further information including standardised BP centile charts for age and height, for girls and boys (9), and link to an online BP calculator (10).

- Specialist support is advised for patients with abnormal heart rates/rhythms and/or if blood pressure is consistently above age-based normal values, or for children and adolescents above the 95th centile for age and height.

- Electrocardiogram (ECG) is **not** needed before starting stimulants, atomoxetine or guanfacine (11), unless as part of a Cardiology opinion for patients who have/develop any of:
    i. A history of congenital heart disease or previous cardiac surgery
    ii. A history of sudden death in a first-degree relative under 40 years suggesting a cardiac disease
    iii. Shortness of breath on exertion, compared with peers
    iv. Fainting on exertion
    v. Palpitations that are rapid, regular and start and stop suddenly
    vi. Chest pain suggesting cardiac origin
    vii. Heart murmur (not including innocent heart murmurs in children)
    viii. Hypertension.
    ix. A co-occurring condition that is being treated with medications that may pose an increased cardiac risk.

- Severe hypertension is a contra-indication for Methylphenidate (12) and dexamphetamine (13)

- If cardiac disease is present [and Cardiology opinion has confirmed the cost-benefit to the patient supports ongoing medication], dose titration should be slower, and monitoring more frequent.

3. Tics

- Tics are a rare but known risk of stimulant medication (14).
- Motor tics, Tourette syndrome, or a family history of Tourette syndrome are contra-indications for Methylphenidate (12).

4. Sexual function

- Methylphenidate can be associated with decreased libido, and very rarely occurs, priapism (a medical emergency) (12).

5. Seizures:

- Uncommon but severe side-effects of dexamphetamine are cerebrovascular accidents and seizures (13).

6. Sleep quality:

- Insomnia is a commonly reported adverse effect of methylphenidate (12)
- Clinicians should offer guidance on lifestyle factors to help people with ADHD, including asking about sleep and offering strategies and/or a referral to assist with sleep, if needed.

7. Worsening ADHD symptoms

- Comprehensive assessment (including history and examination) is recommended to identify/exclude:
    i. Physical and/or mental health conditions which present similarly to, or are known to exacerbate, ADHD symptoms (e.g. hearing or vision impairment, thyroid disease, anaemia, anxiety, epilepsy, substance use, sleep disorders).
    ii. Medications with psychomotor effects such as cognitive dulling (e.g. mood stabilisers) or psychomotor activation (e.g. decongestants, asthma medication, non-prescribed stimulants like caffeine).

8. Psychological health:

- ADHD has secondary impacts such as anxiety, oppositional symptoms, depression, and reduced self-esteem.
- Patient benefit from education regarding possible increased risk of self-medicating, increased risks of substance misuse, impacts on driving when ADHD is not treated and possible impacts on relationships.

9. Worsening of mood and/or increased anxiety:

- Mood changes and/or anxiety can be primary side-effects of stimulant medication (feeling nervous, agitated or irritable (12, 13) as well as being present as co-morbidities (e.g. anxiety)
- More frequent monitoring is advised in these circumstances.

10. Medication dosage, effectiveness & compliance reviews:

- ADHD medication should be reviewed and discussed at least yearly, with ongoing diligence ensuring medicolegal requirements for schedule 8 medicaiotn prescriptions for your state are adhered to (15, 16).
- Review should address:
    i. the preferences of the child, adolescent, or adult with ADHD (and their family or carers as appropriate)
    ii. benefits, including how well the current treatment is working throughout the day
    iii. adverse effects
    iv. the clinical need and whether medication has been optimised
    v. impact on education, employment and participation
    vi. effects of missed doses, planned dose reductions and periods of no treatment
    vii. effect of medication on existing or new mental health, physical health or neurodevelopmental disorders
    viii. need for support and type of support (e.g. psychological, educational, social) if medication has been optimised but ADHD symptoms continue to cause a significant impairment.

- People with ADHD should be encouraged to discuss their preferences for continuing, stopping or changing medication, and to be actively involved in any decisions about their treatment.

- Trial periods of stopping medication or reducing the dose should be considered when assessment of the overall balance of benefits and harms suggests this may be appropriate. If the decision is made to continue medication, the reasons for this should be documented.

- Medications known to have discontinuation symptoms, such as SSRIs, should be gradually reduced then discontinued, to minimise these symptoms.

- Risk of stimulant diversion should be thoughtfully considered if the patient's presentation indicates this issue needs excluding.

11. Eye health

- After 40 year of age, eye disease and visual impairment increase three-fold with each decade of life (5) and regular eye health checks are a core component of GP preventative health care. Given glaucoma is a contra-indication for methylphenidate (12), [regular optometry including intraocular pressures may be particularly important in patients medicated for ADHD.]

12. Other situations:

- Acquired brain injury:
    i. Initiation of ADHD medication will require slower dose titration, and more frequent monitoring over the life-time.

- Acute psychotic episodes are a rare but significant risk of stimulant medication (14). Acute psychotic or manic episode during treatment with stimulant medication, requires:
    i. Cessation of stimulants and review other medication for ADHD
    ii. Targeted treatment of psychotic or manic episode as necessary
    iii. Consider introduction of a mood stabiliser
    iv. Consider alternate treatment for ADHD after the episode has resolved
    v. Consider costs and benefits of reintroducing stimulant medication.
    vi. If stimulant medication is to be reintroduced, take extra precautions in monitoring, such as admitting the person to a hospital/clinic for observation.

13. Future studies:

- The results of at least one prospective longitudinal study still in progress are awaited with interest (17).

References:

1. ADHD across the lifespan, March 2023, RANZCP Position statement 55: ADHD across the lifespan | RANZCP: https://www.ranzcp.org/news-policy/policy-and-advocacy/position-statements/adhd-across-the-lifespan?utm_medium=email&utm_campaign=Position%20Statement%20Publication%20-%20ADHD%20Across%20the%20Lifespan&utm_content=Position%20Statement%20Publication%20-%20ADHD%20Across%20the%20Lifespan+CID_aa39f8920078d75ca9f71a12498585bc&utm_source=Campaign%20Monitor&utm_term=ADHD%20Across%20the%20Lifespan

2. Australian Evidence-Based ADHD Clinical Guideline (aadpa.com.au): https://aadpa.com.au/guideline/

3. Carucci S, Balia C, Gagliano A, Lampis A, Buitelaar JK, Danckaerts M, Dittmann RW, Garas P, Hollis C, Inglis S, Konrad K, Kovshoff H, Liddle EB, McCarthy S, Nagy P, Panei P, Romaniello R, Usala T, Wong ICK, Banaschewski T, Sonuga-Barke E, Coghill D, Zuddas A; ADDUCE Consortium. Long term methylphenidate exposure and growth in children and adolescents with ADHD. A systematic review and meta-analysis. Neurosci Biobehav Rev. 2021 Jan;120:509-525. doi: 10.1016/j.neubiorev.2020.09.031. Epub 2020 Oct 17. PMID: 33080250.

4. McCarthy S, Neubert A, Man KKC, Banaschewski T, Buitelaar J, Carucci S, Coghill D, Danckaerts M, Falissard B, Garas P, Häge A, Hollis C, Inglis S, Kovshoff H, Liddle E, Mechler K, Nagy P, Rosenthal E, Schlack R, Sonuga-Barke E, Zuddas A, Wong ICK. Effects of long-term methylphenidate use on growth and blood pressure: results of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS). BMC Psychiatry. 2018 Oct 11;18(1):327. doi: 10.1186/s12888-018-1884-7. PMID: 30305167; PMCID: PMC6180569

5. Guidelines for Preventive Activities in General Practice, 9th edition, 17048-Red-Book-9th-Edition.pdf (racgp.org.au) : https://www.racgp.org.au/download/Documents/Guidelines/Redbook9/17048-Red-Book-9th-Edition.pdf

6. Eating disorders: recognition and treatment (nice.org.uk) : https://www.nice.org.uk/guidance/ng69/resources/eating-disorders-recognition-and-treatment-pdf-1837582159813

7. Buitelaar JK, van de Loo-Neus GHH, Hennissen L, Greven CU, Hoekstra PJ, Nagy P, Ramos-Quiroga A, Rosenthal E, Kabir S, Man KKC, Ic W, Coghill D; ADDUCE consortium. Long-term methylphenidate exposure and 24-hours blood pressure and left ventricular mass in adolescents and young adults with attention deficit hyperactivity disorder. Eur Neuropsychopharmacol. 2022 Oct 6;64:63-71. doi: 10.1016/j.euroneuro.2022.09.001. Epub ahead of print. PMID: 36209558.

8. Hennissen L, Bakker MJ, Banaschewski T, Carucci S, Coghill D, Danckaerts M, Dittmann RW, Hollis C, Kovshoff H, McCarthy S, Nagy P, Sonuga-Barke E, Wong IC, Zuddas A, Rosenthal E, Buitelaar JK; ADDUCE consortium. Cardiovascular Effects of Stimulant and Non-Stimulant Medication for Children and Adolescents with ADHD: A Systematic Review and Meta-Analysis of Trials of Methylphenidate, Amphetamines and Atomoxetine. CNS Drugs. 2017 Mar;31(3):199-215. doi: 10.1007/s40263-017-0410-7. PMID: 28236285; PMCID: PMC5336546.

9. Clinical Practice Guidelines : Hypertension in children and adolescents (rch.org.au) https://www.rch.org.au/clinicalguide/guideline_index/hypertension/

10. AAP Pediatric Hypertension Guidelines - MDCalc https://www.mdcalc.com/calc/4052/aap-pediatric-hypertension-guidelines#pearls-pitfalls

11. Recommendations | Attention Deficit Hyperactivity Disorder: diagnosis and management | Guidance | NICE: https://www.nice.org.uk/guidance/ng87/chapter/recommendations

12. Methylphenidate - StatPearls - NCBI Bookshelf (nih.gov) https://www.ncbi.nlm.nih.gov/books/NBK482451/

13. Dextroamphetamine-Amphetamine - StatPearls - NCBI Bookshelf (nih.gov) https://www.ncbi.nlm.nih.gov/books/NBK507808/

14. Krinzinger H, Hall CL, Groom MJ, Ansari MT, Banaschewski T, Buitelaar JK, Carucci S, Coghill D, Danckaerts M, Dittmann RW, Falissard B, Garas P, Inglis SK, Kovshoff H, Kochhar P, McCarthy S, Nagy P, Neubert A, Roberts S, Sayal K, Sonuga-Barke E, Wong ICK, Xia J, Zuddas A, Hollis C, Konrad K, Liddle EB; ADDUCE Consortium. Neurological and psychiatric adverse effects of long-term methylphenidate treatment in ADHD: A map of the current evidence. Neurosci Biobehav Rev. 2019 Dec;107:945-968. doi: 10.1016/j.neubiorev.2019.09.023. Epub 2019 Sep 20. PMID: 31545988.

15. ADHD Stimulant Prescribing Regulations & Authorities in Australia & New Zealand (aadpa.com.au) https://aadpa.com.au/adhd-stimulant-prescribing-regulations-in-australia-new-zealand/

16. Drugs of dependence | SA Health, https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/clinical+resources/clinical+programs+and+practice+guidelines/medicines+and+drugs/prescribing+medicines+regulations+and+requirements/prescribing+drugs+of+dependence/prescribing+drugs+of+dependence

17. Inglis SK, Carucci S, Garas P, Häge A, Banaschewski T, Buitelaar JK, Dittmann RW, Falissard B, Hollis C, Kovshoff H, Liddle E, McCarthy S, Nagy P, Neubert A, Rosenthal E, Sonuga-Barke E, Wong I, Zuddas A, Coghill DC; ADDUCE Consortium. Prospective observational study protocol to investigate long-term adverse effects of methylphenidate in children and adolescents with ADHD: the Attention Deficit Hyperactivity Disorder Drugs Use Chronic Effects (ADDUCE) study. BMJ Open. 2016 Apr 26;6(4):e010433. doi: 10.1136/bmjopen-2015-010433. PMID: 27118284; PMCID: PMC4853973.