SHARED CARE GUIDELINE FOR ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ADULTS AND IN CHILDREN AND ADOLESCENTS AGED 5 TO 18 YEARS

INDICATION

This shared care guideline is written in accordance with NICE Guideline NG87 and the NHSE document 'Responsibility for prescribing between Primary & Secondary/Tertiary Care' (Jan 2018) and relates to adult, adolescents and child service users. Dorset does not have a specialist ADHD centre and diagnosis and initial treatment is managed through the CAMHS teams, paediatrics and CMHTs. After titration and dose stabilisation, medication for service users whose condition is stable should be handed over to primary care.

ADHD is a heterogeneous behavioural syndrome characterised by the core symptoms of hyperactivity, impulsivity and inattention. While these symptoms tend to cluster together, some people are predominantly hyperactive and impulsive, while others are principally inattentive. Symptoms of ADHD are distributed throughout the population and vary in severity; only those with significant impairment meet criteria for a diagnosis of ADHD. These symptoms can overlap with symptoms of other related disorders, therefore care in differential diagnosis is needed.

Symptoms of ADHD become evident during childhood and patients are comprehensively assessed and diagnosed by specialists in the treatment of ADHD in children. For some young people with a sustained diagnosis, symptoms may persist into adulthood requiring treatment. This is addressed in NICE Guideline 87.

Within Dorset, methylphenidate is considered first line. Where a modified release product is recommended, this should be prescribed by brand due to different pharmacological profiles.

Adults

Although recommended by NICE NG87, note that methylphenidate (with the exception of Medikinet XL modified release capsules, under special diagnostic considerations) and Dexamfetamine are not licensed for the treatment of adults with ADHD.

Atomoxetine and Lisdexamfetamine are licensed for the treatment of ADHD in adult patients when pre-existing symptoms during childhood can be confirmed by a third-party.

There is the potential for drug misuse and diversion in adults with ADHD, especially in some settings, such as prison, although there is no strong evidence that this is a significant problem.

Adults in primary care who are referred to the CMHT and transfers from CAMHS and paediatrics should follow the appropriate ADHD referral pathway.

Children and adolescents

Methylphenidate and Atomoxetine are licensed for the treatment of ADHD in children of 6 years or over, as part of a comprehensive treatment programme.

Lisdexamfetamine and Dexamfetamine are indicated as part of a comprehensive treatment programme for attention deficit/hyperactivity disorder (ADHD) in children aged 6 years and over when response to previous methylphenidate treatment is considered clinically inadequate.

Guanfacine is licensed for the treatment of ADHD in children and adolescents 6-17 years old for whom stimulants are not suitable, not tolerated or have been shown to be ineffective.

Although recommended by NICE NG87, note that use of medicines for treating ADHD is off-label in children aged 5

AREAS OF RESPONSIBILITY FOR SHARED CARE

Patients should be at the centre of any shared care arrangements. Individual patient information and a record of their preferences should accompany shared care prescribing guidelines, where appropriate.

Transfer of clinical responsibility to primary care should only be considered where the person's clinical condition is stable or predictable.

Referral to the GP should only take place once the GP has agreed to this in each individual case, and the hospital or specialist will continue to provide prescriptions until a successful transfer of responsibilities. The GP should confirm the agreement and acceptance of the shared care prescribing arrangement and that supply arrangements have been finalised. The secondary/tertiary provider must supply an adequate amount of the medication to cover the transition period. The patient should then be informed to obtain further prescriptions from the GP.

When clinical responsibility for prescribing is transferred to general practice, it is important that the GP, or other primary care prescriber, is confident to prescribe the necessary medicines. Shared care agreements play a key role in enabling primary care prescribers to prescribe medicines with which they may not initially be familiar.

Clinical responsibility for prescribing is held by the person signing the prescription, who must also ensure adequate monitoring.

REFERRAL AND INITIATION

Shared Care is only appropriate if it provides the optimum solution for the patient.

Specialist Responsibilities	
1.	Before starting medication for ADHD, people with ADHD should have a full assessment, which should include: • a review to confirm they continue to meet the criteria for ADHD and need treatment • a review of mental health and social circumstances, including: - presence of coexisting mental health and neurodevelopmental conditions - current educational or employment circumstances - risk assessment for substance misuse and drug diversion - care needs
2.	To determine a comprehensive pharmacological management strategy and discuss with the patient/carer the risks, benefits and alternatives of/for treatment.
3.	To initiate treatment and titrate the dose against symptoms and side effects, supplying at least the first 8 weeks treatment until dose optimisation is achieved.
4.	To ask the GP whether he or she is willing to participate in shared care. Requests to GPs should be made in writing and must include appropriate information to allow an informed decision to be made.
5.	On agreement from the GP, to provide the GP with appropriate information, including relevant clinical and physical assessment information to support the transfer of clinical responsibility including • the brand of methylphenidate prescribed • details of BP/pulse/weight at handover, and recommendations for future monitoring, • information on when the patient will next be reviewed and by whom (NB minimum of annual specialist review initially).
6.	To communicate promptly with the GP when treatment is changed, stopped or adjusted and to communicate changes in response to treatment or the condition itself.
7.	Have a mechanism in place to receive rapid referral of a patient from the GP in the event of deteriorating clinical condition.
8.	Ensure that clear backup arrangements exist for GPs to obtain advice and support.
9.	Ensure that patients know what to do and who to contact if they experience adverse events or an exacerbation of their condition.
10.	To ensure the patient has sufficient supply of medication until such time as is appropriate for the GP to assume prescribing responsibility. This may include times to cover initial transfer of responsibility and/or after reviews
11.	To ensure the patient/ carer has given informed consent to their treatment.
12.	To provide the patient/ carer with comprehensive advice and information

Specialist Responsibilities	
13.	To review the patient at least annually, liaise with the GP on any suggested changes in prescribed therapy and to stop treatment where appropriate.
14.	Report adverse events to the MHRA. https://yellowcard.mhra.gov.uk/

General Practitioner Responsibilities	
1	Initially, to refer the patient for specialist advice using the ADHD referral pathway. Initial referral must include: For Adults: • ASRS form for completion by the patient prior to specialist assessment • Physical Assessment (see 9) • Drugs and alcohol screen • Psychiatric history • Previous treatment For Children and Adolescents: For Children and adolescents, patients should be referred to either CAMHS or paediatric services
2	Reply to the request for shared care as soon as practicable.
3	Where appropriate, to prescribe medication at doses agreed with the specialist
4	To deal with general health issues of the patient.
5	Monitor heart rate and blood pressure when requested by the specialist if it is required between outpatient appointments and communicate the results back to the specialist.
6	Refer patient to the specialist if the patient's condition deteriorates.
7	Stop treatment on the advice of the specialist or immediately if an urgent need to stop treatment arises. e.g. new or worsening seizures, development of psychotic symptoms, suicidal thinking and self-harm of an urgent nature with atomoxetine or if diversion of medication is suspected with methylphenidate, dexamfetamine or lisdexamfetamine.
8	To refer back to secondary/tertiary care if withdrawal of treatment might be indicated. This could be because: •The patient is well controlled and has been free of ADHD symptoms for at least one year whilst taking medication •ADHD symptoms are not evident on days when medication is forgotten or missed •There is evidence of misuse or diversion of ADHD medication •There has been no need to increase the dose of medication in child or adolescent patients despite growth and weight gain over the preceding one to two years
9	In accordance with the recommendations from NICE NG87 a review of physical health, including: ○ a medical history, taking into account conditions that may be contraindications for specific medicines ○ current medication ○ height and weight (measured and recorded against the normal range for age, height and sex) ○ baseline pulse and blood pressure (measured with an appropriately sized cuff and compared with the normal range for age) ○ a cardiovascular assessment ○ An electrocardiogram (ECG) to be performed prior to referral as the treatment may affect the QT interval. Consider whether further physical testing/monitoring (such as blood tests, ECG, etc) or a cardiologist opinion is required prior to commencing on medication. See NICE guidance for further details.

Patient's role (or that of carer)	
1	Report to the specialist or GP if he or she does not have a clear understanding of the treatment.
2	Attend appropriate consultant and GP appointments for physical monitoring
3	Share any concerns in relation to treatment with ADHD medication
4	Use written and other information on the medication.
5	Seek help urgently if it is suspected that ADHD medication is causing side effects, or if the patient is otherwise unwell.
6	Not to misuse or divert ADHD medication
7	to monitor and record their adverse effects, for example, by using an adverse effect checklist

SUPPORTING INFORMATION

From NHSE document: https://www.england.nhs.uk/wp-content/uploads/2018/03/responsibility-prescribing-between-primary-secondary-care-v2.pdf

CLINICAL INFORMATION

NOTE: The information here is not exhaustive. Please also consult the current Summary of Product Characteristics (SPC) for the individual medicines prior to prescribing for up to date prescribing information, including detailed information on adverse effects, drug interactions, cautions and contraindications (available via www.medicines.org.uk)

Monitoring requirements and responsibilities

Monitoring Required	Methyl - phenidate	Dexam - fetamine	Lisdexam - fetamine	Atomoxetine	Guanfacine (5-17 years only)
Cardiac function and blood pressure Ensure heart rate / pulse and blood pressure are monitored at each dose adjustment and at least every 6 months (3months for guanfacine) (Sustained resting tachycardia (>120bpm), arrhythmia or systolic blood pressure greater than the 95th percentile (or a clinically significant increase) should prompt referral to the secondary care provider) An ECG is only required at ba**seline if there is a clinical indication**	✓	✓	✓	✓	**Every 3 Months**
Weight, Height and Appetite * **Adult** - Ensure **weight** is monitored at each dose adjustment and at least every 6 months **Children** and young people - measure **height** every 6 months in children and young people, measure **weight** every 3 months in children 10 years and under and measure **weight** at 3 and 6 months after starting treatment in children over 10 years and young people, and every 6 months thereafter, or more often if concerns arise. For **Guanfacine** - **BMI** should be done every 3 months for the first year and then 6 monthly thereafter.	✓	✓	✓	✓	✓
New or worsening psychiatric symptoms Monitor at each dose adjustment and at least every 6 months	✓	✓	✓	✓	✓
Onset or exacerbation of motor and verbal tics** Monitor at each dose adjustment and at least every 6 months	✓	✓	✓	✓	**N/A**
Somnolence / Sedation	**N/A**	**N/A**	**N/A**	**N/A**	✓
Sexual Dysfunction	**N/A**	**N/A**	**N/A**	✓	**N/A**
Sleep Pattern (e.g. sleep diary)	✓	✓	✓	✓	✓
Blood tests for liver function If abdominal pain, unexplained nausea, jaundice, darkened urine or malaise. •If an adverse effect is suspected the secondary care provider should be contacted for advice and an urgent assessment •GP to copy in specialist to any blood tests undertaken	**N/A**	**N/A**	**N/A**	✓	✓
Cardiac evaluation If develop symptoms such as exertional chest pain, unexplained syncope, or other symptoms suggestive of cardiac disease during treatment.	✓	✓	✓	✓	✓
BMI If there has been a weight change as a result of their treatment	✓	✓	✓	✓	✓

New or worsening seizures GP to contact specialist immediately for review of treatment. Stop ADHD medication; suspend shared care until reviewed by specialist team	✓	✓	✓	✓	**N/A**
Annual face to face medication review by the secondary care provider to assess the patient for ongoing treatment.	✓	✓	✓	✓	✓

Further monitoring information

Seizures (methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine)

If exacerbated in a young person with epilepsy or de novo seizures emerge, discontinue the drug immediately.

Psychotic symptoms, mania (methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine)
If psychotic or severe affective symptoms emerge discontinue the drug immediately and refer to a psychiatrist for an assessment.

Duration of treatment

Long term treatment may continue as long as required. Patients should have their treatment reviewed at least once a year by a specialist to determine whether continuation is needed.

Criteria for stopping treatment

- If improvement of symptoms is not observed. GP should contact specialist services for advice in such circumstances.
- If there are adverse effects that necessitate stopping the medication
- If ADHD symptoms are judged to have resolved following specialist review
- The drug may be discontinued periodically (e.g. by stopping the drug for up to two weeks) to assess the patient's underlying ADHD symptoms as advised by the consultant/specialist team, but there is no stipulation in NICE guidance to do this on a regular basis, and it should be decided on a case by case basis.

Indication for use, place in therapy, dose and further information

NOTE: *The Information here is* ***not*** *exhaustive.* ***Please consult the current Summary of Product Characteristics (SPC) for up to date prescribing information including detailed information on adverse effects, drug interactions, cautions and contraindications (available via www.medicines.org.uk)***

Drug	Indication	Place in Therapy	Dose and route of administration		Notes
			Preparation	Dose (BNF)	
Methylphenidate hydrochloride **MR preparations are not interchangeable**	Treatment of ADHD, prescribed 'off label' in adults, continuation license for Concerta XL ® Xaggitin XL® Delmisart XL® Medikinet XL ® is licenced for adults and children	Usually first line treatment option in line with NICE guideline.	Ritalin ® tablets Medikinet ® tablets	Initially 5mg 2-3 times daily, increasing every 1-2 weeks in 5mg dosage increments as necessary depending on treatment response and side-effects. Maximum total dosage - 100mg per day **Child 6–17 years:** For standard release formulation: Initially 5 mg 1–2 times daily, increased if necessary at weekly intervals by 5–10 mg daily; licensed max. 60 mg daily in 2–3 divided doses. Discontinue if no response after 1 month. Evening dose: If effect wears off in evening (with rebound hyperactivity) a dose at bedtime may be appropriate (establish need with trial bedtime dose) It is recommended that methylphenidate is de-challenged at least once yearly to assess the child's condition (preferable during school holidays)	Patients started on immediate release (IR) medication may switch to extended release preparations if once daily dosing is preferable. In some cases rebound hyperactivity disorder may occur if the effect of the drug wears off in the evening. An additional dose later in the day may eliminate this difficulty, but may disturb sleep.
			Concerta XL ® tablets Delmosart XL® tablets Matoride XL® tablets Xaggitin XL® tablets Xenidate XL® tablets (dosage released as 22% immediate release, 78% sustained release)	Initially 18mg once daily in the morning increasing every 1-2 weeks in 18mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 54mg* once per day in the morning. *BNF states licensed max. dose is 54 mg once daily, to be increased to higher dose only under direction of specialist max 108mg per day	Total daily dose of 15mg IR medication equivalent to Concerta XL® 18mg once daily. May need additional IR methylphenidate medication in the late afternoon if duration of action is too short – combined Concerta XL® dosage in IR equivalent and IR dosage not to exceed 100mg. Tablet to be swallowed whole – may pass through GI tract unchanged. Not suitable in dysphagia or if GI lumen is restricted.
			Equasym XL ® capsules (dosage released as 30% immediate release, 70% sustained release)	Initially 10mg once daily in the morning increasing every 1-2 weeks in 10mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 100mg per day	In some instances twice daily dosing or the addition of IR methylphenidate may be required if duration of action is too short. Contents of capsule can be sprinkled on a tablespoon of apple sauce then swallowed immediately without chewing.
			Medikinet XL ® capsules (dosage released as 50% immediate release, 50% sustained release)	Initially 5 or 10mg once daily in the morning increasing every 1-2 weeks in 5 or 10mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 100mg per day	In some instances twice daily dosing or the addition of IR methylphenidate may be required if duration of action is too short. Note there is a 5mg capsule where lower starting dose is required. Contents of capsule can be sprinkled on a tablespoon of apple sauce or yoghurt then swallowed immediately without chewing.

Indication for use, place in therapy, dose and further information continued

NOTE: 1. The Information here is **not** exhaustive. **Please consult the current Summary of Product Characteristics (SPC) for up to date prescribing information including detailed information on adverse effects, drug interactions, cautions and contraindications (available via www.medicines.org.uk) 2.** Note that although recommended by NICE, use of medicines for treating ADHD is off-label in children aged 5

Drug	Indication	Place in Therapy	Dose and route of administration		Notes
			Preparation	Dose (BNF)	
Atomoxetine hydrochloride	Treatment of ADHD, licensed for adult initiation Off label in children aged 5y and some people aged 6 - 17	To be considered if methylphenidate or dexamfetamine have not been successful or not tolerated, or where substance abuse/ dependence is a concern (in line with NICE guideline).	Strattera ® capsules Strattera ® liquid	Adults Body weight over 70kg – 40mg daily for 7 days, increasing to 80mg daily thereafter if tolerated. Can be increased to 120mg daily (unlicensed) under the direction of a specialist. Adults Body weight under 70kg – 500micrograms per kg daily for 7 days, increased according to response. Usual maintenance dose 1.2mg per kg, but may be increased to 1.8mg/kg (max 120mg daily) under the direction of a specialist. Child 5-17 years body weight ≤ 70kg: Atomoxetine should be initiated at a total daily dose of approximately 0.5mg/kg. The initial dose should be maintained for a minimum of 7 days prior to upward dose titration according to clinical response and tolerability. The recommended maintenance dose is approximately 1.2mg/kg/day. Child 5-17 years body weight ≥ 70kg: Atomoxetine should be initiated at a total daily dose of 40 mg. The initial dose should be maintained for a minimum of 7 days prior to upward dose titration according to clinical response and tolerability. The recommended maintenance dose is 80mg. The maximum recommended total daily dose is 100 mg.	Total daily dose may be given either as a single dose in the morning or as 2 divided doses with last dose no later than early evening. Patients to be informed of the specific cautions with regard emergent hepatic disorder and suicidal ideation – see SPC/BNF for full details. For patients with a known poor metaboliser genotype, or who don't tolerate the usual 40mg starting dose, a lower starting dose and slower up titration of the dose may be considered.
Dexamfetamine sulfate	Treatment of ADHD, prescribed 'off label' in adults Off label in children aged 5y	To be considered if methylphenidate has not been successful/not tolerated, or where patient has previously been maintained on a dexamfetamine based medication (in line with NICE guideline).	Dexamfetamine tablets & liquid	Adults Initially 5mg twice daily, increasing after 1-2 weeks to three times daily if extended duration of action is required, then in 5mg dosage increments as necessary depending on treatment response and side-effects. Maximum total dosage - 60mg per day in 2-3 divided doses. Child 5-17 years: The recommended starting daily dose is 5 mg once or twice daily increasing if necessary by weekly increments of 5 mg in the daily dose. Normally the first increasing dose is given in the morning. The maximum daily dose in children and adolescent usually is 20 mg, although doses of 40 mg may in rare cases be necessary for optimum titration	• Dexamfetamine may be considered **after** methylphenidate where: i. symptoms do not respond to methylphenidate or ii. the person is intolerant to it after an adequate trial (usually about 6 weeks). • It may also be considered for continuation in patients already stabilised on existing amphetamine based therapy, for example patients transitioning from child to adult ADHD services. • It may also be considered where use of a shorter acting agent would be beneficial (for example over a set period of time) but the patient has not responded to or not tolerated immediate release methylphenidate. **Note:** Dexamfetamine is **not supported** for use as a first line agent in the management of adult ADHD.

<table>
<tr>
<td>Lis-dexamfetamine dimesylate</td>
<td>Treatment of ADHD, licensed for adult initiation
Off label in children aged 5y</td>
<td>To be considered if methylphenidate has not been successful/not tolerated, or where patient has previously been maintained on a dexamfetamine based medication</td>
<td>Elvanse® capsules</td>
<td>Adults
Initially 30mg once daily in the morning increasing every 1- 2 weeks in 20mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 70mg per day in the morning.

Child 5–17 years:
The starting dose is 30 mg taken once daily in the morning. When in the judgment of the clinician a lower initial dose is appropriate, patients may begin treatment with 20 mg once daily in the morning.
The dose may be increased by 10 or 20 mg increments, at approximately weekly intervals.
The maximum recommended dose is 70 mg/day.
In patients with severe renal insufficiency (CrCl <30 mL/min) the maximum dose should not exceed 50 mg/day. Further dosage reduction should be considered in patients undergoing dialysis.
Discontinue if response insufficient after 1 month</td>
<td>Swallow capsule whole or mix contents of capsule in yoghurt or a glass of water or orange juice; contents should be dispersed completely and consumed immediately.
• Lisdexamfetamine may be considered after methylphenidate where:
i. symptoms do not respond to methylphenidate or
ii. the person is intolerant to it after an adequate trial (usually about 6 weeks).
• It may also be considered for continuation in patients already stabilised on existing amphetamine based therapy, for example patients transitioning from child to adult ADHD services.
• Lisdexamfetamine may be preferable to dexamfetamine as it is licensed for use in adult ADHD and is taken once daily.
Note: Lisdexamfetamine is not supported for use as a first line agent of adult ADHD.</td>
</tr>
<tr>
<td>Guanfacine</td>
<td>(ADHD) in children and adolescents 6-17 years old.
Off label in children aged 5y and ADULTS</td>
<td>To be considered if stimulants are not suitable, not tolerated or have been shown to be ineffective for 5-17y in line with NICE Guidance</td>
<td>Intuniv</td>
<td>Adults: Not Applicable
Child 5-17 years:
The recommended starting dose is 1 mg, taken orally once a day. The dose may be adjusted in increments of not more than 1 mg per week. Dose should be individualised according to the patient's response and tolerability.
The recommended maintenance dose range is 0.05-0.12 mg/kg/day
The recommended dose titration for children and adolescents is provided below. Dose adjustments (increase or decrease) to a maximum tolerated dose within the recommended optimal weight-adjusted dose range based upon clinical judgement of response and tolerability may occur at any weekly interval after the initial dose.

Dose Titration Schedule for Children Aged 5-12 years *
<table>
<tr><td>Weight group</td><td>Week 1</td><td>Week 2</td><td>Week 3</td><td>Week 4</td></tr>
<tr><td>25kg and up
Max dose = 4mg</td><td>1mg</td><td>2mg</td><td>3mg</td><td>4mg</td></tr>
</table>
Dose Titration Schedule for Adolescents Aged 13-17 Years[a]
<table>
<tr><td>Weight group[a]</td><td>Week 1</td><td>Week 2</td><td>Week 3</td><td>Week 4</td><td>Week 5</td><td>Week 6</td><td>Week 7</td></tr>
<tr><td>34 – 41.4kg</td><td>1mg</td><td>2mg</td><td>3mg</td><td>4mg</td><td></td><td></td><td></td></tr>
<tr><td>41.5 – 49.4kg</td><td>1mg</td><td>2mg</td><td>3mg</td><td>4mg</td><td>5mg</td><td></td><td></td></tr>
<tr><td>49.5 – 58.4kg</td><td>1mg</td><td>2mg</td><td>3mg</td><td>4mg</td><td>5mg</td><td>6mg</td><td></td></tr>
<tr><td>58.5kg and above[b]
max=7mg</td><td>1mg</td><td>2mg</td><td>3mg</td><td>4mg</td><td>5mg</td><td>6mg</td><td>7mg</td></tr>
</table>
</td>
<td>a)Adolescent subjects must weigh at least 34 kg.
b)Adolescents weighing 58.5 kg and above may be titrated to a 7 mg/day dose after the service user has completed a minimum of 1 week of therapy on a 6 mg/day dose and the physician has performed a thorough review of the service users tolerability and efficacy.
Patients/caregivers should be instructed not to discontinue guanfacine without consulting their physician.

When stopping Guanfacine, the dose must be tapered with decrements of no more than 1 mg every 3 to 7 days, and blood pressure and pulse should be monitored in order to minimise potential withdrawal effects, in particular increases in blood pressure and heart rate.</td>
</tr>
</table>

Side effects/interactions (from SPCs):

Note: Management advice is based on expert clinical opinion

ADHD agent and adverse effect	Frequency	SPC link & Possible Management
METHYLPHENIDATE		Concerta XL https://www.medicines.org.uk/emc/medicine/30451 Equasym https://www.medicines.org.uk/emc/medicine/15804 Medikinet https://www.medicines.org.uk/emc/medicine/19664 Medikinet XL https://www.medicines.org.uk/emc/medicine/19510 Ritalin https://www.medicines.org.uk/emc/medicine/1316
Nervousness and insomnia	>10%	Review dose and/or omit afternoon/evening dose if using TDS regime - refer to consultant for advice.
Decreased appetite	1-10%	Usually transient. Try taking medicine with food if it persists. Refer to consultant for advice if becomes problematic
Headache, drowsiness, dizziness	1-10%	Refer to consultant for advice if continues
Abdominal pain, diarrhoea, nausea & vomiting, dry mouth, dyspepsia	1-10%	Occurs at initiation. May be alleviated by concomitant food intake. Refer to consultant for advice if continues
Tachycardia, arrhythmia, palpitations, hypertension	1-10%	Monitor. Discontinue if significant & refer back to ADHD consultant & specialist cardiologist if indicated.
Tics, aggression, anxiety, irritability	1-10%	Discontinue if tics develop. Refer back to consultant.
Drug induced psychosis (e.g. hallucinations, restlessness) depression, mood swings	< 1%	Discontinue. Refer back to consultant.
DEXAMFETAMINE		Tablets: https://www.medicines.org.uk/emc/medicine/31211 Liquid: https://www.medicines.org.uk/emc/medicine/29014
Aggressive behaviour, anxiety, confusion, delirium, depression, euphoria, insomnia, irritability, tics, night tremors	Not stated	Reduce dose & ensure not given too near bedtime. Discontinue if tics develop. Refer back to consultant.
Paranoia, psychosis	Not stated	Discontinue. Refer back to consultant.
Palpitations, tachycardia, change in blood pressure, cardiomyopathy, chest pain.	Not stated	Monitor. Check pulse after every dose change. ECG if necessary. Discontinue if significant & refer back to ADHD consultant & specialist cardiologist if indicated.
LISDEXAMFETAMINE ▼(adults)		Lisdexamfetamine capsules https://www.medicines.org.uk/emc/medicine/31543
Insomnia	>10%	Review dose - ensure taken in morning – refer to consultant for advise
Decreased appetite (weight decreased)	>10% (1-10%)	Try taking medicine with food if it persists. Refer to consultant for advice if becomes problematic
Headache, dry mouth	>10%	Refer to consultant for advice if continues
Anorexia, diarrhoea, upper abdominal pain, nausea	1-10%	May be alleviated by concomitant food intake. Refer to consultant for advice if continues
Anxiety, agitation, libido decreased, erectile dysfunction, dizziness, restlessness, tremor, irritability, fatigue, feeling jittery, hyperhidrosis	1-10%	Refer back to consultant.

Side effects/interactions (from SPCs):
Note: Management advice is based on expert clinical opinion

ADHD agent ADHD agent and adverse effect	Frequency	SPC link & Possible Management
LISDEXAMFETAMINE continued		Lisdexamfetamine capsules https://www.medicines.org.uk/emc/medicine/31543
Tachycardia, palpitations, blood pressure increased	1-10%	Monitor. Discontinue if significant & refer back to ADHD consultant & specialist cardiologist if indicated.
Depression, tics, affect lability, dysphoria, euphoria, mania	0.1-1%	Discontinue if tics develop. Refer back to consultant.
Blurred vision, vomiting, urticaria, rash, pyrexia	0.1-1%	Discontinue. Refer back to consultant.
Psychotic episodes, hallucinations, aggression, seizure	Not known	Discontinue. Refer back to consultant
ATOMOXETINE		Capsules: https://www.medicines.org.uk/emc/medicine/14482 Liquid: https://www.medicines.org.uk/emc/medicine/30371
Appetite decreased, dry mouth, nausea	>10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Headache, somnolence, insomnia	>10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Increased BP and heart rate	>10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant and cardiologist if indicated.
Abdominal pain, constipation, dyspepsia, flatulence, vomiting	1-10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Weight decrease	1-10%	Usually settles after initial weight loss. Refer to consultant for advice if becomes problematic
Palpitations, tachycardia	1-10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant and cardiologist if indicated.
Libido decreased, sleep disorder, dizziness, sinus headache, tremor, fatigue, lethargy, agitation	1-10%	Refer back to consultant
Dysuria, urinary hesitation, urinary retention	1-10%	Refer back to consultant
Dysmenorrhoea, irregular menstruation, ejaculation disorder, erectile dysfunction, male genital pain	1-10%	Refer back to consultant
GUANFACINE		Guanfacine Tablets https://www.medicines.org.uk/emc/product/5099
Decreased appetite (>10%), Vomiting, diarrhoea, nausea, constipation, abdominal/stomach discomfort	1-10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Depression, anxiety, affect lability, insomnia, middle insomnia, nightmares, irritability	1-10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant if indicated.
Somnolence, headache	1-10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Sedation, dizziness, lethargy	1-10%	Refer back to consultant
Bradycardia. Hypotension, orthostatic hypotension	1-10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant and cardiologist if indicated.
Rash, enuresis	1-10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant if indicated.

This list is not exhaustive. The manufacturer's summary of product characteristics (SPC) and the most current edition of the British National Formulary should be consulted for full information on contra-indications, warnings, side-effects and drug interactions.

Drug costs

Methylphenidate brand	**Cost per 30 tablets**				
	18mg	**27mg**	**36mg**	**54mg**	
Concerta XL tab	£31.19	**36.81**	**42.45**	**73.62**	Matoride XL tablets, Xenidate XL tablets, Delmosart XL tablets and Xaggitin XL tablets have all been granted marketing authorisation on the bioequivalence to Concerta XL tablets as the licensed reference product as opposed to clinical studies. Matoride XL tablets and Xenidate XL are presented as biconvex round tablets whereas Concerta XL, Delmosart XL and Xaggitin XL are capsule shaped tablets of a similar size to the bioequivalent products.
Delmosart tab	£15.57	**18.39**	**21.21**	**36.79**	
Xaggitin XL tab	£15.58	**18.40**	**21.22**	**36.80**	
Xenidate XL tab	£18.39	**18.39**	**21.21**	**36.79**	
Matoride XL tab	£15.58	**-**	**21.22**	**36.80**	

Methylphenidate Brand	strength	Price/30 days	Comments
Equasym XL capsule	10mg 20mg 30mg	£25 £30 £30	Info from SPS website https://www.sps.nhs.uk/articles/extended-release-methylphenidate-a-review-of-the-pharmacokinetic-profiles-of-available-preparations/
Medikinet XL capsule	5mg 10mg 20mg 30mg 40mg 50mg 60mg	£24.04 £24.04 £28.86 £33.66 £57.72 £62.52 £67.32	Licenced for ADHD in children aged 6 years of age and over and adults
Strattera (atomoxetine) capsules	10mg	£53.09	
Elvanse (lisdexamfetamine) capsules	30mg	£58.24	
Dexamfetamine tablets	5mg	£24.65	All solid dose strengths are the same cost
Intuniv (Guanfacine) MR tablets	1mg	£56	

Updated By	Medicines Management Mental Health Group	**Date** July 2019

Approved By	Dorset Medicines Advisory Group	Date June 2020
Date of next review	June 2022 *or before, in light of new evidence or information*	

References

1. NICE Technology Appraisal Number 98 Methylphenidate, atomoxetine and dexamfetamine for attention deficit hyperactivity disorder (ADHD) in children and adolescents. March 2006 www.nice.org.uk superseded by NG87
2. NICE. Guideline 87: Attention deficit hyperactivity disorder: Diagnosis and management Accessed via https://www.nice.org.uk/guidance/ng87
3. British National Formulary July 2019 Online (last Accessed July 2019)
4. Shared Care Agreement for ADHD Adults Oct 2016. South East London Area Prescribing Committee.
5. Shared Care Guideline Combined Adult and Child ADHD Share Care Guideline Version 1.0 (combined) Lancashire Medicines Management Group
6. Extended release methylphenidate – a review of the pharmacokinetic profiles of available preparations. SPS accessed via https://www.sps.nhs.uk/articles/extended-release-methylphenidate-a-review-of-the-pharmacokinetic-profiles-of-available-preparations/ June 2018

Summary of Product Characteristics – access via www.medicines.org.uk

1. Ritalin® - (Last accessed July 2019)
2. Equasym XL® - (Last accessed July 2019)
3. Medikinet® - (Last accessed July 2019)
4. Medikinet XL® - (Last accessed July 2019)
5. Concerta XL® - (Last accessed July 2019)
6. Strattera® - (Last accessed July 2019)
7. Elvanse ® - (Last accessed July 2019)
8. Delmosart MR® - (Last accessed July 2019)
9. Xaggitin XL® - (Last accessed July 2019)
10. Xenidate XL® - (Last accessed July 2019)

ADHD Treatment Pathway for CAMHS

Patients diagnosed with ADHD by CAMHS or Paediatric Services
Pre-treatment investigations, baseline BP, pulse, height, weight and ECG

Methylphenidate
(Immediate release or XL*).

Effective Treatment:
- Symptoms of ADHD stabilised, no deterioration in appetite, no sleep concerns reported.
- Feedback from School (repeat Conners).

Switch if:
- Symptoms of ADHD worsen or remain the same.
- Tachycardia observed, blood pressure raised and sustained above 91st centile.
- Appetite suppression with clear evidence of ongoing weight loss.
- Significant deterioration in sleep (rebound ADHD symptoms).
- Concerns regarding potential black market deviation (history of parental substance misuse).
- Symptoms have not responded to a 6-week trial of methylphenidate

*Consider XL methylphenidate for:
- Convenience;
- Improving adherence;
- Reducing stigma
- Minimising stimulant abuse and diversion
- Pharmacokinetic profile benefits

Atomoxetine
As stand - alone or to augment stimulant therapy

- Use where stimulants are not tolerated.
- Pre-treatment investigations, baseline BP, pulse, height, weight and ECG.
- Dose titration over a six to eight week period. Minimum 12 week treatment trial.
- Can be used to augment stimulant regime where there are pre-existing concerns on mood and anxiety.
- Used with caution for patients with co-morbid ASC diagnosis.
- If causes agitation/irritability; sleep disturbance, gastro intestinal disturbance then discontinue.
- Ongoing monitoring at three to six monthly intervals.

Lisdexamfetamine or Dexamphetamine Sulphate

Lisdexamfetamine
- Pre-treatment investigations, baseline BP, pulse, height, weight and ECG.
- Indicated for young people where multiple dosing over the day is problematic.
- Ongoing monitoring at three to six monthly intervals.

Dexamfetamine
- Very rarely considered due to high risk of black market deviation
- Only used within DHC for patients with a diagnosis of comorbid epilepsy as has a limited effect on seizure thresholds.
- Ongoing monitoring at three to six monthly intervals.

Guanfacine

Guanfacine
- Indicated where stimulant therapy and Atomoxetine has not impacted symptoms. Peer evidence of benefit for ODD.
- Contraindicated where history or existing depression; bradycardia; hypotension.
- Helpful with comorbid Gille's de la Tourette
- Weekly BP/pulse monitoring during titration.
- Requires once daily dosing due to sustained therapeutic action.
- Ongoing monitoring three monthly intervals once stable dose achieved.

Standard paragraph to be included in discharge letters from Paeds/CAMHS

Dear Doctor,

I have reviewed this 17 years old with ADHD in clinic today and would recommend that they continue on treatment……...and would be grateful for your ongoing prescribing.

Patients with ADHD require yearly specialist reviews for the need for ongoing treatment. To arrange that in about 12 months please refer Mr/Miss……..…to ……..CMHT (address, phone number, referrals email).

If Mr/Miss……..… needs a review prior to their annual appointment please do not hesitate to refer to the above CMHT sooner.

cc Patient
CMHT