## Riluzole for patients within adult services

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| **Version** | **Date published** | **Changes since previous version** |
| RDTC v1.0 | 7th December 2023 | Hyperlinks updated. New formulation (orodispersible film) added.  |
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**Local review and adoption**

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| **Local approval** | **Date** |
| Local content added |  |
| Approved for use by xx ICB  |  |
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Clinical content has been reviewed and updated by the RDTC on the date indicated above. Every effort is made to keep the content up to date. These templates are provided to the North West and North East and Yorkshire ICBs for localisation and approval through standard ICB processes. The most recent version is available on the RDTC website at <https://rdtc.nhs.uk/publication-type/shared-care/>.

Information requiring local completion is highlighted.

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**Shared Care Protocol**

## Riluzole for patients within adult services

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| Background | Riluzole is indicated for extending life or the time to mechanical ventilation for patients with the amyotrophic lateral sclerosis (ALS) variant of motor neurone disease (MND). ALS is a progressive neurodegenerative disease that causes the loss of motor neurones resulting in a gradual increase in muscle weakness and muscle wasting.Riluzole is recommended by NICE technology appraisal guidance ([TA20: Guidance on the use of Riluzole (Rilutek) for the treatment of Motor Neurone Disease](https://www.nice.org.uk/guidance/ta20)) as an option for treatment of people with ALS. It should be initiated by a neurological specialist with expertise in the management of MND. Clinical trials have demonstrated that riluzole extends survival for patients with ALS, but only in the early stages of the disease. Further studies have not shown that riluzole is effective in the late stages of ALS. Patients in later stages of disease should be reviewed and given the opportunity to stop riluzole, if they consider it appropriate.**The safety and efficacy of riluzole has only been studied in ALS, therefore riluzole should not be use in any other form of MND.****Riluzole is not recommended for use in children.** |
| Licensed and agreed off-label indications | Licensed indication: to extend life or the time to mechanical ventilation for patients with amyotrophic lateral sclerosis (ALS). |
| Locally agreed indications | National scoping did not identify any additional appropriate off-label indications. |
| Initiation and ongoing dose regime | Transfer of monitoring and prescribing to primary care is normally after at least 12 weeks, and when the patient’s dose has been optimised and with satisfactory investigation results for at least 12 weeks.The duration of treatment & frequency of review will be determined by the specialist, based on clinical response and tolerability.All dose or formulation adjustments will be the responsibility of the initiating specialist unless directions have been discussed and agreed with the primary care clinician.Termination of treatment will be the responsibility of the specialist.Usual dose:50mg twice daily**The initial maintenance dose must be prescribed by the initiating specialist.**Conditions requiring dose adjustment:None |
| Baseline investigations, initial monitoring, and ongoing monitoring to be undertaken by specialist | Monitoring at baseline and during initiation is the responsibility of the specialist; only once the patient is optimised on the chosen medication with no anticipated further changes expected in the immediate future will prescribing and monitoring be transferred to primary care.Baseline investigations:Liver function tests (LFTs), including serum transaminases, bilirubin and/or gamma-glutamyl transferase.Full blood count (FBC) including a differential white cell count (WCC).Urea and electrolytes.Initial monitoring:LFTs, including alanine aminotransferase (ALT), should be measured every month during the first 3 months of treatment, every 3 months during the remainder of the first year, or until transferred to primary care.FBC and WCC every month during the first 3 months of treatment and every 3 months during the remainder of the first year until transferred to primary care.Ongoing monitoring:Routine review to assess effectiveness and ongoing appropriateness of treatment every 6 months, or as clinically indicated.After each review, advise primary care whether treatment should be continued, confirm the ongoing dose, and whether the ongoing monitoring outlined in [section 6](#six_monitoring) remains appropriate. |

## Ongoing monitoring requirements to be undertaken by primary care

If monitoring results are forwarded to the specialist team, please include clear clinical information on the reason for sending, to inform action to be taken by secondary care.

| **Monitoring** | **Frequency** |
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| LFTs, FBC & WCC | Every month during the first 3 months of treatment, then every 3 months for the remainder of the first year. NB: where monthly or quarterly monitoring is performed in secondary care prior to transfer, there is no need to repeat individual tests. Annually after the first year. |

## Pharmaceutical aspects

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| Route of administration: | Oral |
| Formulation: | 50mg tablets5mg/mL oral suspension50mg orodispersible film  |
| Administration details: | Riluzole tablets can be crushed and dispersed in water for enteral tube administration or mixed with soft food e.g. yoghurt or puree. Give immediately or within 15 minutes. Riluzole may block enteral feeding tubes, so ensure that the tube is flushed well after each dose. Crushed tablets may have a local anaesthetic effect in the mouth. Crushing or splitting riluzole tablets is unlicensed.The oral suspension is suitable for administration via enteral feeding tubes. The suspension must be manually gently shaken for at least 30 seconds by rotating the bottle by 180° and the homogeneity should be visually verified.Orodispersible film should only be handled with clean dry hands, and should not be folded. Orodispersible film should not be taken with liquids, or chewed. Patients should not talk while the film dissolves and food should be taken with caution after administration due to local anaesthetic effect. Wash hands after administration.  |
| Other important information:  | Patients should be warned about the potential for dizziness or vertigo, and advised not to drive or operate machinery if these symptoms occur. |

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| Cautions and contraindications | This information does not replace the Summary of Product Characteristics (SPC), and should be read in conjunction with it. Please see [BNF](https://bnf.nice.org.uk/drugs/riluzole/) & [SPC](https://www.medicines.org.uk/emc/search?q=riluzole) for comprehensive information.Contraindications:* Hypersensitivity to the active substance or to any of the excipients.
* Hepatic disease or baseline transaminases greater than 3 times the upper limit of normal (ULN).
* Pregnancy or breast-feeding.
* Acute porphyrias.

Cautions:* Liver impairment: riluzole should be prescribed with care in patients with:
	+ a history of abnormal liver function.
	+ slightly elevated serum transaminases (up to 3 times ULN), bilirubin and/or gamma-glutamyl transferase (GGT) levels.
	+ baseline elevations of several liver function tests (especially elevated bilirubin) should preclude the use of riluzole.
* Interstitial lung disease has been reported in patients treated with riluzole.
* Neutropenia or febrile illness.
* Renal Impairment (due to lack of data).
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| Significant drug interactions | The following list is not exhaustive. Please see [BNF](https://bnf.nice.org.uk/drugs/riluzole/) & [SPC](https://www.medicines.org.uk/emc/search?q=riluzole) for comprehensive information and recommended management.Riluzole is metabolised by cytochrome P450 isoform 1A2 (CYP1A2), and has the potential to interact with drugs which inhibit or induce CYP1A2. The clinical relevance of these interactions has not been established, and some of these medicines are frequently used with riluzole without incident. Discuss with specialist team if there are any concerns. * CYP1A2 inhibitors include caffeine, diclofenac, diazepam, clomipramine, imipramine, fluvoxamine, phenacetin, theophylline, amitriptyline, quinolones (e.g. ciprofloxacin), mexiletine, nicergoline, rucaparib, vemurafenib, combined hormonal contraceptives
* CYP1A2 inducers include cigarette smoke, charcoal-grilled food, rifampicin, omeprazole
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## Adverse effects and management

As well as responding to absolute values in laboratory tests, a rapid change or a consistent trend in any value should prompt caution and extra vigilance**.** For information on incidence of ADRs see relevant SPCs.

**Any serious adverse reactions should be reported to the MHRA via the Yellow Card scheme. Visit** [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard).

Advice based on shared care guidelines published by NHS England, and checked against current guidance.

| **Adverse effect** | **Management** |
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| **Altered LFTs**Elevated LFTs up to 5 times ULN | Continue riluzole and discuss with specialist. Increase monitoring frequency if ALT is elevated.  |
| ALT rises to 5 times ULN | Stop riluzole and inform specialist. Riluzole should not normally be re-started. |
| **Respiratory function**Dry cough or dyspnoea | Order chest x-ray. Stop riluzole immediately if findings are suggestive of interstitial lung disease. Inform specialist of findings.  |
| **Haematological parameters**Febrile illness | Check WCC. Treat febrile illness according to local pathways. Arrange for immediate hospital assessment if neutropenic sepsis is suspected. |
| **Confirmed neutropenia**  | Stop riluzole and inform specialist. Review patient for signs and symptoms of infection and treat or refer according to local pathways, as appropriate. Arrange for immediate hospital assessment if neutropenic sepsis is suspected. |
| **Decreased WCC to below lower limit of local reference range** | If clinical evidence of febrile illness/neutropenia, stop riluzole and treat or refer according to local pathways, as appropriate. Arrange for immediate hospital assessment if neutropenic sepsis is suspected.In the absence of febrile illness or clinical signs of neutropenia, seek advice from specialist. |

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| Advice to patients and carersThe specialist will counsel the patient with regard to the benefits and risks of treatment and will provide the patient with any relevant information and advice, including patient information leaflets on individual drugs. | The patient should be advised to report any of the following signs or symptoms to their primary care prescriber without delay: * Signs or symptoms of infection, such as fever, chills or shivering, flu-like symptoms, sore throat, rashes, or mouth ulcers.
* Dry cough and/or dyspnoea.
* Signs or symptoms of liver problems, such as yellow skin or eyes (jaundice), itching all over, nausea or vomiting.

The patient should be advised:* Not to stop taking riluzole without talking to their doctor and not to share their medicines with anyone else.
* Tell their prescriber if their smoking status changes, since this may affect their medicine
* Not to drive or operate machines if riluzole affects their ability to do so safely, e.g. by causing dizziness or drowsiness, and to inform the DVLA if their ability to drive safely is affected. See https://www.gov.uk/driving-medical-conditions and https://www.gov.uk/motor-neurone-disease-and-driving.

Patient information* [MND association riluzole information leaflet](https://www.mndassociation.org/app/uploads/2015/07/5A-Riluzole.pdf)
* [NHS.uk. Low white blood cell count](https://www.nhs.uk/conditions/low-white-blood-cell-count/)

[Patient information leaflets are also available from the eMC](https://www.medicines.org.uk/emc/search?q=riluzole).  |
| Pregnancy, paternal exposure and breastfeeding | Pregnancy:Riluzole is contraindicated in pregnancy.Breastfeeding:Riluzole is contraindicated in breast-feeding women. Very limited published evidence indicates low levels in breast milk. The UK Drugs in Lactation Advisory Service recommends caution if used, and infants should be monitored for adverse effects associated with adult use. Information for healthcare professionals: [UK Drugs in Lactation Advisory Service](https://www.sps.nhs.uk/medicines/riluzole/%20)Paternal exposure:Fertility studies in rats indicate slight impairment of reproductive performance and fertility at doses of 15 mg/kg/day (which is higher than the therapeutic dose), probably due to sedation and lethargy. The relevance of this to human fertility is not known.  |
| Specialist contact information and arrangements for referral | *To be completed locally* |
| Additional information | Where patient care is transferred from one specialist service or GP practice to another, a new shared care agreement must be completed. Ensure that the specialist is informed in writing of any changes to the patient’s GP or their contact details. |
| References | 1. MND Association accessed via: <https://www.mndassociation.org/about-mnd/what-is-mnd/basic-facts-about-mnd/> on 12/10/23.
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3. British National Formulary. Riluzole. Accessed via <https://bnf.nice.org.uk/drug/riluzole.html> on 12/10/23.
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5. NICE NG42: Motor neurone disease: assessment and management. Last updated July 2019. Accessed via <https://www.nice.org.uk/guidance/ng42> on 12/10/23.
6. Rilutek 50 mg film-coated tablets. Sanofi. Date of revision of the text 12/04/23. Accessed via <https://www.medicines.org.uk/emc/product/1101/smpc> on 12/10/23.
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12. NEWT Guidelines. Riluzole. Last updated October 2020. Accessed via <https://access.newtguidelines.com/R/Riluzole.html> on 12/10/23.
13. Specialist Pharmacy Service. Riluzole Lactation Safety Information. Last updated 3 August 2020. Accessed via <https://www.sps.nhs.uk/medicines/riluzole/> on 12/10/23.

NICE Clinical Knowledge Summaries. Neutropenic sepsis: management. Last revised March 2020. Accessed via <https://cks.nice.org.uk/topics/neutropenic-sepsis/management/management/> on 12/10/23. |
| To be read in conjunction with the following documents | * Shared Care for Medicines Guidance – A Standard Approach (RMOC). Available from <https://www.sps.nhs.uk/articles/rmoc-shared-care-guidance/>
* NHSE guidance – Responsibility for prescribing between primary & secondary/tertiary care. Available from <https://www.england.nhs.uk/publication/responsibility-for-prescribing-between-primary-and-secondary-tertiary-care/>
* General Medical Council. Good practice in prescribing and managing medicines and devices. Shared care. Available from <https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-practice-in-prescribing-and-managing-medicines-and-devices/shared-care>
* NICE NG197: Shared decision making. Last updated June 2021. <https://www.nice.org.uk/guidance/ng197/>.
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