

## Vamorolone for Duchenne muscular dystrophy: a summary of evidence so far

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*Reviewed and approved by members of the Corticosteroid Working Group and the Family Focus Group of DMD Care UK ([www.dmdcareuk.org](http://www.dmdcareuk.org))*

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### Introduction

On 10<sup>th</sup> December 2024, vamorolone was approved by the National Institute for Health and Care Excellence (NICE) in England and on 13<sup>th</sup> January 2025 by the Scottish Medicine's Consortium (SMC) in Scotland, to treat people with Duchenne muscular dystrophy (DMD) from age 4 and above:

<https://www.nice.org.uk/guidance/TA1031>

<https://scottishmedicines.org.uk/medicines-advice/vamorolone-agamree-full-smc2721/>

Vamorolone is a type of corticosteroid and could therefore potentially be used in place of other corticosteroids - prednisolone and deflazacort - regularly used in the UK for people with DMD. You may also hear vamorolone referred to as Agamree – this is its brand name.

We have provided here a **summary of what we know so far about vamorolone**, based on information that has been published. This is to make sure that people living with DMD and their families are as informed as possible. A full Family Guide to Corticosteroids in DMD (that will include vamorolone) will be published soon.

*It is important to remember that vamorolone is a relatively new drug, so we don't yet have information about all its benefits and risks or over a long period of time. Vamorolone has not been compared directly with deflazacort in studies.*

## KEY POINTS

- Vamorolone is a **corticosteroid**
- As a corticosteroid, it causes **adrenal suppression**
- So far, vamorolone seems to have **similar effectiveness** to prednisolone
- So far, it seems that vamorolone has **fewer side effects on bone health and growth** than prednisolone and deflazacort
- So far, it seems that vamorolone has **similar side effects on weight gain and adrenal suppression** as prednisolone
- Vamorolone will be available on prescription for patients with DMD, where it is appropriate, from neuromuscular teams from **April 2025**

## What is vamorolone?

Vamorolone is a synthetic (human-made) corticosteroid. It is not a substitute for steroids but instead offers an alternative option to use instead of prednisolone or deflazacort.

Vamorolone is designed to keep the treatment benefits of deflazacort and prednisolone through its anti-inflammatory effects, whilst reducing *some* of the side effects.

## How has vamorolone been tested in DMD?

We have evidence from three studies (trials) that tested *daily* vamorolone's effectiveness and side-effects compared to other steroids and to no steroids at all.

- Phase 2a study (VPB15-003): looked at different doses of vamorolone in 48 boys aged 4-6 years for 24 weeks after a 2-week safety study (VPB15-002).
- Long term extension study (VBP15-LTE): looked at different doses of vamorolone in 46 of the boys who completed the Phase 2a study and continued treatment. Safety and efficacy data for up to 30 months of treatment compared to historical natural history data have been published.
- Phase 2b study (VBP15-004 or **VISION-DMD**): looked at two different doses of vamorolone (2mg/kg/day and 6 mg/kg/day) in 121 boys aged 4-6 years for 48 weeks. During the first 24 weeks, the two vamorolone doses were compared to prednisolone and placebo. After 24 weeks, the boys on placebo or prednisolone were moved onto vamorolone for the remainder of the study.

- Vamorolone was not compared to deflazacort in these studies.
- Results have been published in peer reviewed journals<sup>1-6</sup>.

### What do we know about how effective vamorolone is?

The studies above suggested that vamorolone has similar effectiveness to prednisolone over 6 months. Also, vamorolone showed similar

effectiveness compared to historical natural history data on treatment with different corticosteroid types and regimens for up to 30 months.

### What do we know about the side effects of vamorolone?

- Vamorolone has shown similar side effects to prednisolone on weight gain and adrenal suppression.
- Vamorolone seems to have fewer side effects on growth and on bone health than prednisolone.
- There is some evidence suggesting vamorolone has *possibly* reduced side effects on behaviour compared to prednisolone.
- When switching to vamorolone 6 months from starting corticosteroid treatment with prednisone\*, an improvement in growth rate and markers of bone health were seen.

A summary of side effects based on the evidence available so far is provided in Table 1.

### What DON'T we know about vamorolone?

- We don't yet know about the longer-term benefits and risks of vamorolone compared to prednisolone or deflazacort.
- We don't know if vamorolone has any impact on the heart or respiratory function.
- We don't know if vamorolone causes more, less, or the same Cushingoid features compared to other corticosteroids.
- Because all the data we have is in younger boys, we don't know if vamorolone has any impact on puberty.
- We do not know the effect of vamorolone in older and non-ambulant patients.
- There are several side effects seen after longer exposure to prednisolone or deflazacort (e.g. cataracts, high blood pressure, glucose intolerance) that we don't know about in vamorolone. These are summarised in Table 1.
- We don't know the impact on side effects, in particular on growth and bone health, when switching to vamorolone after a long-term treatment with other corticosteroids.
- We do not know the impact on weight after switching from deflazacort to vamorolone.

## **Will other information about vamorolone become available?**

We expect more evidence on vamorolone from compassionate use, future studies and information collected in countries where vamorolone has already been prescribed to patients.

This will tell us more about how effective it is and the side-effects it causes over a longer period of time and compared to prednisolone and deflazacort. We will update information for patients and families as soon as this is available.

*\*Prednisone is used in some countries, including the US. It is equivalent to prednisolone which is used in the UK.*

## **How can people with DMD access vamorolone?**

Patients who were enrolled in vamorolone studies (trials) have been offered the possibility to continue receiving it at the end of the study through compassionate use in the UK.

Neuromuscular teams will be able to prescribe vamorolone to patients who want it and if it is appropriate from April, 2025.

**Full Standards of Care Guidelines relating to corticosteroids in DMD will be available from DMD Care UK in the first half of 2025.**



**Table 1: Summary of side effects associated with use of corticosteroids in DMD**

Side effects	Comments: what we know about daily vamorolone
<b>Adrenal suppression/adrenal insufficiency</b>	<p>Adrenal suppression is expected with all corticosteroid types and regimens, including vamorolone.</p> <p>All people with DMD taking vamorolone are assumed to have adrenal suppression. They are therefore at risk of adrenal crisis during illness, medical emergencies or significant stress.</p>
<b>Weight gain</b>	<p>Weight gain occurs commonly with all corticosteroids.</p> <p>Vamorolone is associated with similar weight gain to daily prednisolone. It is currently unclear how it compares to weight gain with daily deflazacort.</p> <p>How quickly weight gain happens and how significant it is varies from person to person.</p>
<b>Growth and height</b>	<p>Deflazacort and prednisolone can cause a reduction in growth and result in people being shorter than expected. Boys on vamorolone treated for up to 30 months did not show reduced growth and height.</p> <p>If people change from other corticosteroids to vamorolone, reduced growth seems to reverse. We think this is more likely if they switch early - boys who changed to vamorolone after only 6 months of prednisone* caught up their growth<sup>6</sup>.</p>
<b>Bone health: osteoporosis and fractures</b>	<p>Vamorolone seems to increase the risk of vertebral (spinal) fractures compared to no corticosteroids, but not by as much as <i>daily</i> prednisolone or deflazacort.</p> <p>Vamorolone <i>may</i> increase vertebral fracture risks more than <i>intermittent</i> prednisolone, but this data is not yet published.</p> <p>We don't have evidence yet on the impact of vamorolone on long bone fractures.</p>

<p><b>Behaviour</b></p>	<p>Behavioural issues, including anxiety, depression, temper tantrums, aggressiveness and trouble sleeping can be triggered or made worse by corticosteroids, including vamorolone.</p> <p>However, vamorolone <i>might</i> be associated with fewer of these side-effects than prednisolone (data not published).</p> <p>There is no data available comparing vamorolone to deflazacort in terms of behaviour.</p>
<p><b>Cushingoid features (rounded, puffy face)</b></p>	<p>Cushingoid features are a side effect of long-term corticosteroid use and have also been reported in boys treated with vamorolone.</p> <p>There is no data comparing this between vamorolone and other steroids.</p>
<ul style="list-style-type: none"> <li>• <b>Delayed or no puberty</b></li> <li>• <b>Gastro-intestinal symptoms (including problems with digestion and constipation)</b></li> <li>• <b>Cataracts</b></li> <li>• <b>Immunosuppression/ increased risk of infections</b></li> <li>• <b>Hypertrichosis (excessive hair growth)</b></li> <li>• <b>Hypertension (high-blood pressure)</b></li> <li>• <b>Glucose intolerance (diabetes)</b></li> <li>• <b>Skin fragility</b></li> <li>• <b>Acne and other skin infections</b></li> </ul>	<p>These are other known side effects associated with use of corticosteroids (deflazacort and prednisolone) in DMD where we don't yet have data on vamorolone to compare.</p>

## References

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