



Ministry of  
Health Malaysia

# Diabetic Macular Edema Consensus Guidelines 2021

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## Treatment Options For Diabetic Macular Edema

### 1. Anti-vascular endothelial growth factor (anti-VEGF)

ADMINISTRATION	SAFETY ISSUES/SIDE EFFECTS
<p><b>i. Indicated as first line in</b></p> <ul style="list-style-type: none"> <li>• Symptomatic centre involving DME (Defined as edema within 100 <math>\mu\text{M}</math> of the centre of fovea)</li> <li>• Phakic patients: &lt;60 years old</li> <li>• Patients with glaucoma</li> </ul> <p><b>ii. Recommended loading dose</b></p> <p>Ideally early intensive treatment with at least 5 to 6 initial monthly doses and a total of up to 8-9 injections in the first year.</p> <p><b>iii. Follow-up strategy</b></p> <p>If DME is stable post 3 to 6 injections [<i>'Stable' referred as - no change in VA. Less than 10% change in central macular thickness on OCT after 2 consecutive injections</i>], treat and extend regime may be considered.</p> <p>Monthly, <i>pro re nata</i> (prn) and treat-and-extend injection protocols can each achieve significant VA improvement.</p> <p><b>iv. Switching to other treatments</b></p> <p>If no response after 5 to 6 injections, consider switching to steroid (dexamethasone) especially in case of pseudophakic patients.</p>	<p><b>Cardiovascular risks</b></p> <p>There is potential risk of arterial thromboembolic events (ATEs) following intravitreal use of anti-VEGFs. ATEs are defined as nonfatal stroke, nonfatal myocardial infarction or vascular death.</p> <p>Increase in potential for cerebrovascular accidents and risk of death was observed in a two-year intensive monthly anti-VEGF (aflibercept or ranibizumab) treatment indicating the risk maybe related to cumulative drug exposure.</p> <p>Ranibizumab is also associated with risk of ATE, myocardial infarction, stroke or transient ischemic attack, and vascular death.</p> <p>Bevacizumab is associated with incidence of systemic adverse events most of which are described as small, uncontrolled and retrospective.</p>

### 2. Steroid implant

ADMINISTRATION	SAFETY ISSUES/SIDE EFFECTS
<p><b>i. Indicated as first line</b></p> <ul style="list-style-type: none"> <li>• Patients with high risk cardiovascular disease.</li> </ul> <p><b>RELATIVE INDICATIONS</b></p> <ul style="list-style-type: none"> <li>• Patients with poor compliance</li> <li>• Severe edema (more than 500 <math>\mu\text{M}</math>)</li> <li>• Pseudophakic patients [<i>*steroid implant is contraindicated in patient with Anterior chamber Intraocular lens (ACIOL)</i>]</li> <li>• Patients scheduled to undergo cataract surgery</li> </ul>	<p><b>i. Raised intraocular pressure</b></p> <ul style="list-style-type: none"> <li>• DME patients treated with dexamethasone resulted in an IOP increase of 10 mmHg to &gt;35 mmHg requiring IOP-lowering medication. Surgical intervention is generally not required.</li> <li>• Other mild complications can include retinal/vitreous/subconjunctival haemorrhage.</li> </ul>

- Patients with a history of vitrectomy

## ii. Dosing schedule & monitoring

- IOP checks should be carried out in routine, uncomplicated patients with no other ocular co-morbidities at 6 weeks post-injection and subsequently, followed-up at months 2-3 post-treatment. Depending on the response, retreatment may be considered on a 4-6 monthly basis.
- Continued assessment and treatment at 4-6 monthly intervals may be considered if the response is adequate while monitoring side effects and contraindications. Switch to another anti-VEGF agent, if response is inadequate or no response.

## ii. Cataract

- Cataract-related complications predominantly observed in phakic patients. Improvement in vision is restored after cataract surgery.

### 3. Focal/grid laser

INDICATION	SIDE EFFECTS OF LASER
<p>i. For non-centre involving DME (defined as edema outside 100 <math>\mu</math>m diameter of the centre of fovea and/or meeting Early Treatment Diabetic Retinopathy Study – Clinically Significant Macular Edema (ETDRS CSME) definition.</p> <p>ii. As rescue laser for Centre-Involving DME following at least 6 months of treatment with anti-VEGF.</p> <p>Other indications are eyes affected by DME with CRT &lt;300 <math>\mu</math>m.</p> <p>Deferring focal/grid laser treatment is recommended at &gt; 24 weeks.</p> <p><b>TECHNIQUE</b></p> <ul style="list-style-type: none"> <li>• Ideally, focal laser should be applied to leaking microaneurysm in combination with grid laser to areas with diffuse macular leakage and non-perfusion in thickened retinas.</li> <li>• Focal/grid laser generally should be repeated as often as every 3-4 months. If edema persists or is not improving while giving anti-VEGF therapy (if available) (as long as it is believed that additional laser may be of benefit).</li> </ul>	<p>Complications of laser include enlargement of laser scars (atropic creep), secondary CNV, central scotoma, colour vision, night vision and contrast sensitivity impairment along with subretinal fibrosis and visual-field sensitivity deterioration.</p>

## 4. PPV + Membrane peeling

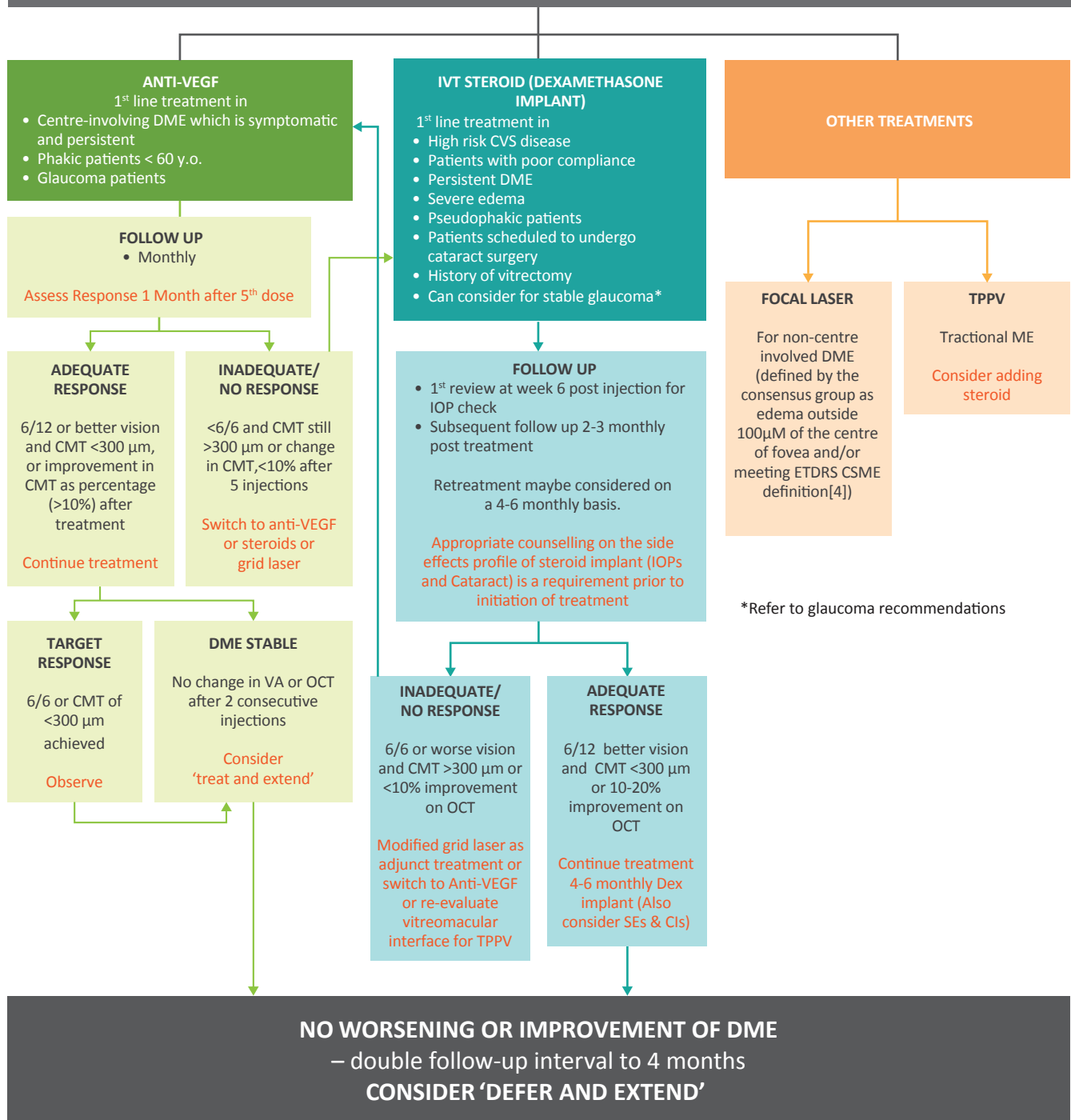
## INDICATION

- With or without adjunctive intravitreal steroid treatment - In cases of tractional macular edema.

## TREATMENT ALGORITHM FOR DME

DME (CMT>300  $\mu\text{m}$ ; < 6/6 on Snellen)

Classify patients into proliferative/non-proliferative diabetic retinopathy or ischaemic/non-ischaemic diabetic maculopathy prior to deciding on treatment options.



\*Follow-up duration can be doubled to 4 months and a 'defer and extend' approach can be considered, if there is no worsening and/improvement observed in DME after anti-VEGF or Steroid treatments.