Corticosteroids are drugs with immunosuppressive and anti-inflammatory properties. They are widely used in palliative care in an attempt to relieve both specific and non-specific symptoms associated with advanced malignancy. However, their side effect profile makes careful consideration before use and regular review paramount.

**General principles for cortico-steroid use:**

“The lowest effective dose for the least possible time”

- Have a clear indication / objective and consider all alternatives before starting.
- Consider prior steroid use, effectiveness and side effects.
- Clarify the individual risk-benefit ratio:
  - Ensure specified indications/ doses reflect current evidence base/ best practice.
  - Discuss risk factors/incidence of adverse effects with the patient to ‘gain consent’.
- Document a clear steroid plan e.g. indication, expected outcome, predicted time scale of response and date of review in patient’s records/ all medical correspondence – including discharge letters.
- Dexamethasone is the corticosteroid of choice.

Other steroids can be converted using the dose equivalent table below:

<table>
<thead>
<tr>
<th>Corticosteroid</th>
<th>Equivalent Dose (mg)</th>
<th>Duration of action (hrs)</th>
<th>Equivalent Anti-inflammatory potency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocortisone</td>
<td>25</td>
<td>8-12</td>
<td>1</td>
</tr>
<tr>
<td>Prednisolone</td>
<td>6.5</td>
<td>12-36</td>
<td>4</td>
</tr>
<tr>
<td>Methyl - prednisolone</td>
<td>5.5</td>
<td>12-36</td>
<td>5</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td>1</td>
<td>36-54</td>
<td>30</td>
</tr>
</tbody>
</table>

| Specific indications & suggested doses: |

<table>
<thead>
<tr>
<th>Indication</th>
<th>Recommended Dexamethasone Dose*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spinal cord Compression</strong></td>
<td></td>
</tr>
<tr>
<td>- retain/ regain ambulation</td>
<td>12-16mg daily (po or s/c) until RT complete then taper over 3 weeks.</td>
</tr>
<tr>
<td>- There is good evidence to support the use of high dose dexamethasone (96mg /day) but the side effect profile is much higher hence not advised.</td>
<td></td>
</tr>
</tbody>
</table>

| Cerebral metastases / raised ICP                |                                 |
| - improve neurological function/ reduce headache| 12-16mg daily (po or s/c) until RT complete then taper. |
| - If no RT, taper dose according to symptom response |
| - There is evidence suggesting 4mg daily dose gives same degree of improvement as 16mg daily after 7 days, but inadequate reporting in clinical trials has resulted in a lack of clear guidance for dosing. |

| Malignant Bowel Obstruction                     |                                 |
| - reduce peri-tumour oedema and over come obstruction | 8mg daily s/c Bolus as a 5 day trial then review. |
| - Ensure surgery is not an option before starting |

| Superior Vena Cava Obstruction                  |                                 |
| 12-16mg (po or s/c) daily until RT then taper   | Stop/ taper much faster if stented successfully |
| - No study to date has showed steroid effectiveness in SVCO. |

| Lymphangitis Carcinomatosis                     |                                 |
| 8-12mg (po or s/c) and taper according to response | No study to date has showed steroid effectiveness in lymphangitis |

| Appetite / Strength                             |                                 |
| 4mg daily trial for 2-4weeks                     | -Trail only showed steroid effectiveness after 4 weeks, not 2 so objectively assess response and taper if ineffective |

Guideline: Use of Steroids in Palliative Care
Nerve compression pain
Liver capsule pain
Anti-emetic
Post RT inflammation

Pragmatic approach: 4-8mg for 5-7 days and assess response
“The lowest effective dose for the least possible time”

*Consider doubling these doses for patients on Phenytoin, Carbamazepine or Valproate*

**Starting considerations:**

- Consider a short pulse e.g. 5-7 days rather than a prolonged course and regularly assess and document response.
- Prescribe total dose in the first half of the day to avoid sleep disturbance i.e. as a single morning dose or split into 2 morning doses if numerous tablets required.
- Always consider prescribing prophylactic gastric protection e.g. proton pump inhibitor even if no history of peptic ulcer disease / NSAID use.
- Consider prophylactic anti-fungal e.g. Nystatin (100000 units) 1ml qds
- Give the patient a HITW steroid treatment Card (see Appendix 1)
- Be aware of interactions with concurrent medications in table below:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSAIDS/ Aspirin/ Anticoagulants</td>
<td>Increase Risk of GI bleeding / ulceration</td>
</tr>
<tr>
<td>Oral Hypoglycaemins</td>
<td>Antagonise hypoglycaemic effects so monitor blood sugars</td>
</tr>
<tr>
<td>Anti-epileptics</td>
<td>Accelerates metabolism of steroids (reduces effect) so consider increasing steroid dose as above</td>
</tr>
</tbody>
</table>

**Effect / Length of Rx**

- Continually evaluate: if no effect of steroid trial up to 7 days, stop abruptly.
  If response is equivocal (usually maximal between 3-7 days) consider a trial of up to 3 weeks.
- If the steroids are felt to be effective after the first week of treatment, continue at that dose for 2-4 weeks maximum and plan to taper.
- Taper the steroids to the lowest dose required clinically. Even when benefit is seen a long term maintenance dose should be avoided if possible. It may be necessary for a patient to remain on a particular dose for a couple of weeks as part of an overall tapering regime.
- Consider additional doses for physiological stressors e.g. pain, infection, trauma. This also applies to patients who have recently discontinued steroids.
- Involve the patient / carers and all health care professionals e.g. GP in the on-going steroid plan. All patients need to be aware of the following precautions:
  - Side effects of steroids & the need for short courses
  - Advice against stopping abruptly and indications for additional doses
  - Symptoms to watch for during dose reduction
  - The need to seek medical help if more unwell while on steroids, or if they come into contact with infectious diseases particularly chicken-pox
  - The need to carry a steroid card (see Appendix 1) and possibly a Medic-Alert bracelet to inform anyone treating them that they are on steroids (and for one year after stopping them)

**Stopping Steroids**

- Systemic corticosteroids may be stopped abruptly in those whose symptoms are not likely to relapse and who have received treatment for <3 weeks and who are not in the categories below.
- Gradual withdrawal of systemic corticosteroids is advisable in patients who:
  - have received more than 3 weeks treatment
  - have received Prednisolone >40mg daily or equivalent (e.g. dexamethasone 6mg) for any length of time
• Reduce dose gradually until nearing physiological doses i.e. Dexamethasone 1-2mg daily – see below:

<table>
<thead>
<tr>
<th>Dexamethasone daily dose</th>
<th>Empirical dose reductions¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 2mg</td>
<td>Reduce by 2-4mg every 5-7 days (and check for symptoms before next dose reduction), until reaching 2mg. (From higher doses e.g.16mg dexamethasone) it is reasonable to halve the doses every few days until nearing physiological doses¹¹</td>
</tr>
<tr>
<td>2mg or less</td>
<td>Reduce by 0.5-1mg every 5-7 days, or on alternate days for a more conservative approach</td>
</tr>
</tbody>
</table>

Staged withdrawal of corticosteroids is important to avoid a hypo-adrenal crisis – malaise, profound weakness, hypotension, nausea and vomiting etc.

**Common Side Effects of Corticosteroids**

• **Steroid induced diabetes**
  - Direct dose related effect
  - If on 4mg dexamethasone or above, check a random blood glucose during the first 1-2 weeks of treatment or if symptoms of hyperglycaemia
  - If pre-existing diabetes consider checking blood glucose more regularly

• **Proximal myopathy**
  If this occurs, reduce the dose and consider switching to prednisolone, aiming for <30mg per day. Weakness should improve in 3-4 weeks post steroid withdrawal¹²

• **Steroid induced psychosis**
  Stop steroid if possible or reduce dose and manage with anti-psychotics such as haloperidol 5-10mg nocté or risperidone 1-2mg nocté (see HITW psychosis guidelines)

• **Osteoporosis**
  - The risk of osteoporosis is higher after 3 months of steroid treatment and proportional to the steroid dose.
  - However the only treatment is prevention and so prophylactic alendronate or ibandronate should be considered for those requiring a prolonged course.

• **Gastric irritation**
  - The risk of gastric irritation increases slightly for patients taking corticosteroids but patients concurrently receiving corticosteroids and NSAIDs have a 15 times greater risk for peptic ulcer disease than that of nonusers of either drug¹³

**Terminal Phase**

• There is unlikely to be any benefit from stopping steroids in the terminal phase (1-2 weeks prognosis)¹⁴
• Once the oral route is lost, steroids prescribed for specific reasons e.g. raised ICP, SCC, bowel obstruction should be continued as a once daily sc injection or a CSCI
• Patients prescribed steroids for non-specific indications e.g. anorexia, general wellbeing should stop steroids when no longer able to swallow
References:

3. Graham P et al. A pilot randomised comparison of dexamethasone 96mg vs 16mg per day for malignant spinal cord compression treated by radiotherapy: TROG 01.05 Superdex study. *Clinical Oncology* 2006; 18: 70-76
11. Palliative Care Formulary. 3rd Edition. Twycross and Wilcock pg 367

This guideline is endorsed by the Board of Trustees via the Hospice Clinical Governance Committee

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**Date Originated:** May 2009  
**Original Author:** Nicholas Gough, Specialist Registrar  
**Date of Review:** June 2011  
**Reviewed By:** Dr Georgina Parker, Consultant in Palliative Care  
**Next Review Due:** June 2013  
**Issuing Authority:** Dr Helen McGee, Medical Director
Appendix 1

**STEROID TREATMENT CARD**

| Patient Name: | .................................................. |
| Patient Telephone number: | .................................................. |
| Clinical Nurse Specialist: | .................................................. |
| Clinical Nurse Specialist Telephone number: | ... 01892 820500 .......... |
| General Practitioner: | .................................................. |
| General Practitioner Telephone number: | .................................................. |

**CAUTIONS:**

- Carry the card with you at all times
- Show the steroid card to all professionals involved in your care
- Do not stop steroids suddenly or without medical advice
- Have you experienced any of the following symptoms?
  - Thirst/passing more urine than normal
  - Dry or sore mouth
  - Indigestion or heartburn

If so, please contact either your Clinical Nurse Specialist on the front of the card or your General Practitioner

<table>
<thead>
<tr>
<th>Date</th>
<th>Dose Type of steroid</th>
<th>Change in dose</th>
<th>Indication for change</th>
<th>Review date</th>
<th>Comments</th>
<th>Name/signature of Health Professional</th>
</tr>
</thead>
<tbody>
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Appendix 2

**Suggested flow-chart for the use of steroids:**

1. **Considering Steroids?**
   - Specific / non-specific Indication
   - Considered Alternative drug?
2. **Relative contra-indications?**
   - e.g. Peptic ulcer/GI bleed history
   - NSAID use, Drug interactions, DM
   - YES
   - NO
3. **Document Steroid Plan**
   - Indication / objective / review date in all medical correspondence
   - Verbally consent patient
4. **Prescribe Steroid**
   - Total dose mane, clear review date
5. **Prescribe Gastric Protection**
   - e.g. Proton Pump inhibitor
6. **Consider prophylactic Antifungal**
   - e.g. Nystatin
7. **Clinical Effect after 5-7 day trial?**
   - YES
   - NO
   - Stop steroids abruptly
8. **Prescribe Steroid Card and patient education**
9. **YES
   - Weigh up individual risk-benefit ratio
10. **NO
    - Continue current dose for 2-4 weeks before tapering to lowest effective dose
11. **Monitor blood glucose
12. **Ensure patient & all health professionals e.g. GP/Oncologists are aware of suggested tapering regime**