1. Introduction and Who Guideline Applies To

Antimicrobial drugs are widely used in dermatology practice for the treatment of infections but also for their anti-inflammatory or immunomodulatory action. Antimicrobials are often used to treat inflammatory conditions that would otherwise require treatment with potentially more toxic and/or immunosuppressive drugs, therefore the risks and benefits for the individual patient must be weighed against the risk of antibiotic resistance to the patient and wider community

The use of antimicrobial drugs for non-infective indications differs in practice, particularly in duration of prescription. National guidelines are not always available for these indications, despite evidence supporting efficacy and safety.

1.1. Scope

This guideline aims to promote antibiotic stewardship and safe and effective treatment by setting standards for prescribing antimicrobial drugs in UHL **for non-infective skin disorders**.

This guideline does not cover the management of acute or active infections of the skin or skin-structures, which are covered in other guidelines.

The specific management of **acne vulgaris** is also subject to a separate, joint Primary and Secondary Care guideline being developed to harmonise treatment across both settings. The current Primary Care LLR Acne Algorithm is available here: https://bit.ly/3cMFRZj. However, the general principles (Section 2.1) apply to the prescribing of antimicrobials in acne.

This guideline applies to prescribers of antimicrobial drugs for patients (inpatient and outpatient) under the care of dermatology at UHL. This guideline also applies to pharmacists, pharmacy technicians and nurses who are involved in reviewing and administering antimicrobial therapy for these patients. All staff are expected to comply with the overarching UHL Antimicrobial Prescribing Policy: http://bit.ly/UHLAbxPolicy

2. Guideline Standards and Procedures

2.1. General Principles

When prescribing or recommending antimicrobials for Inflammatory Disorders of the Skin:

- **Document the exact clinical indication** (and disease severity if appropriate) on the prescription AND in the case notes. Do not write “as per dermatology” or “skin infection”
- **Document the stop OR review date** on the prescription AND in the case notes. This should also be done for patients already taking antimicrobials for these conditions on admission.
- Ensure the generic drug name, dose and route are also documented in the case notes.
- Antimicrobials prescribed outside of these guidelines will still be subject to the UHL Antimicrobial Prescribing Policy and the List of Restricted Antimicrobials.

2.2. Prescribing for Inflammatory Disorders of the Skin

2.2.1. Rosacea

Rosacea is distinct from acne in pathogenesis. There is evidence that the papulo-pustular features that affect some patients with rosacea may benefit from systemic antimicrobial treatment. Duration of therapy is less well defined than in acne and a lack of alternative suitable systemic therapies (isotretinoin is not as predictably effective) may necessitate indefinite antimicrobial therapy in some patients.

When prescribing or recommending antimicrobials for rosacea:

- Provide the patient with self-care advice and the Rosacea information leaflet available from the British Association of Dermatologists: available here: https://www.bad.org.uk/shared/get-file.ashx?id=229&itemtype=document

- Review efficacy of treatment by12 weeks.
    - If there is no response, treatment should be stopped and a second-line antimicrobial or other systemic therapy considered.
    - If there is response, continue therapy for up to 3 months, followed by maintenance therapy with topical ivermectin or azelaic acid.
- If rosacea recurs on cessation of antimicrobial therapy despite topical maintenance treatment, consider a systemic retinoid if rapid relapse, or intermittent 3 month courses of systemic antimicrobial if a longer remission was achieved.
- Reserve continuous long-term antimicrobial therapy only for patients who do not respond to, cannot tolerate, or have contraindications to systemic retinoids **and** whose skin disorder relapses rapidly on cessation despite continuation of topical therapy.
    - For patients on continuous long-term antimicrobials, consider a break in therapy after 6 to 12 months of continual therapy to determine whether remission is sustained, or whether life-long therapy is warranted.

The choice of antimicrobial systemic therapy should be as below:

- 1st line: Oral lymecycline 408 mg once daily
- 2nd line: Oral doxycycline 100mg once daily
- 3rd line, if contraindication to tetracyclines: Oral erythromycin 500mg twice daily

2.2.2. Hidradenitis Suppurativa

Hidradenitis suppurativa (HS) is a disorder that affects the apocrine glands in the intertriginous axillary, groin, perianal, perineal, and inframammary skin. Its clinical presentation is variable and can range from mild recurrent papules, pustules, and nodules to severe deep fluctuant abscesses, sinuses, and scarring.

When prescribing or recommending antimicrobials for hidradenitis suppurativa:

- Provide the patient with self-care advice and the HS information leaflet available from the British Association of Dermatologists available here: https://www.bad.org.uk/shared/get-file.ashx?id=88&itemtype=document
- Review treatment at 12 weeks

The choice of antimicrobial systemic therapy should be as below:

Initially:

- Oral doxycycline 100mg or lymecycline 408mg once or twice daily for 12 weeks
- After 12 weeks, consider treatment break to assess need for ongoing therapy
- In Hurley Stage III disease, consider immediate rifampicin and clindamycin therapy (see below).

People with HS who are unresponsive (or have contraindications) to oral tetracyclines:

- Offer combination treatment with oral clindamycin 300 mg twice daily and rifampicin 300 mg twice daily for 12 weeks.
- In patients where other treatment options e.g. adalimumab are not available, there is evidence that clindamycin and rifampicin can be continued safely beyond 12 weeks if remission is achieved but relapse occurs rapidly on cessation of treatment.

2.2.3. Immunobullous Disorders

This generally includes management of bullous pemphigoid and pemphigus vulgaris. However, the guidance can also be used for other immunobulous disorders such as mucous membrane pemphigoid. Tetracycline antimicrobials are utilised to reduce blistering and as steroid sparing agents, or to avoid use of steroids entirely.

When prescribing or recommending antimicrobials for immunobullous disorders:

- Provide the patient with self-care advice and an information leaflet available from the British Association of Dermatologists:
    - Pemphigoid leaflet available here: https://www.bad.org.uk/shared/get-file.ashx?id=173&itemtype=document
    - Pemphigus vulgaris available here: https://www.bad.org.uk/shared/get-file.ashx?id=114&itemtype=document
    - Mucous membrane pemphigoid available here: https://www.bad.org.uk/shared/get-file.ashx?id=3421&itemtype=document

The choice of antimicrobial systemic therapy should be as below:

- Offer doxycycline 200mg once daily for at least 12 months.
- Discontinue only if not tolerated or disease is in established remission after 12 months of treatment.

2.2.4. Neutrophilic Dermatoses and Other Disorders Involving Neutrophilic Inflammation

Dapsone can be used for multiple skin disorders driven by neutrophilic inflammation, such as:

- Dermatitis herpetiformis
- Linear IgA disease
- Cutaneous vasculitis
- Pyoderma gangrenosum
- Neutrophilic dermatoses e.g. Sweet's syndrome, neutrophilic dermatosis of the hands

Dapsone should be started at a dose of 50 mg once daily, titrated gradually according to response, up to a maximum of 200 mg once daily if tolerated.

When prescribing antimicrobials for neutrophilic dermatoses, ensure self-care advice is given and an information leaflet (if available) from the British Association of Dermatologists is provided: https://www.bad.org.uk/for-the-public/patient-information-leaflets

2.3. Advice Regarding Specific Antimicrobials

Prescribers must be familiar with the drugs they are prescribing and are advised to consult the BNF and/or the Summary of Product characteristics for general advice. The advice given below is in addition to that provided in product literature and should be followed by UHL health professionals.

Trimethoprim

- Patients with impaired renal function (including older age or diabetes) or taking medicines that can increase serum potassium (e.g. ACE inhibitors, angiotensin receptor blockers, and spironolactone) may be at increased risk of hyperkalaemia when taking trimethoprim.
    - Obtain baseline U+Es before prescribing
    - Take serum U+Es one-week and one-month after commencing trimethoprim

Rifampicin

- Transient elevations in liver enzymes is common, but rifampicin may also cause liver dysfunction.
    - LFTs, FBCs, and U+Es should be taken before prescribing
    - If there is evidence of liver dysfunction at baseline: Monitor LFTs weekly for two weeks, then every 2 weeks for the next six week, then monitor monthly thereafter.
    - If there is no evidence of liver dysfunction at baseline, routine monitoring of low risk patients is not recommended. Consider LFTs at 6 weeks if normal at baseline but other risk factors present such as co-prescribed potentially hepatotoxic drugs.
    - All patients should be advised on the signs of liver damage and dysfunction, advised to stop taking rifampicin if these occur, and seek urgent medical advice.

Metronidazole (used in rare indications e.g. cutaneous Crohn's disease)

- Patients taking metronidazole for longer than 4 weeks should be advised on the signs and symptoms of peripheral neuropathy. Patients experiencing peripheral neuropathy should stop treatment early for the best chance of reversing this effect.

Dapsone

- Patients should be given the patient information leaflet from the British Association of Dermatologists: http://www.bad.org.uk/shared/get-file.ashx?id=290&itemtype=document
- Dapsone can cause disorders of blood cells.
    - FBCs should be taken prior to commencing, weekly for the first month, then monthly for the next 3 months, then every 3 months thereafter.
    - Patients should be advised of the signs of agranulocytosis, haemolysis and haemolytic anaemia.
    - Patients should stop taking dapsone and seek medical advice (from clinic or GP) if they experience mouth ulcers, fevers, sore throat, bruise easily, or have new rashes.

3. Education and Training
None

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Prescribing in line with the guideline above.	Departmental audit	Dr Matthew Scorer	Biennial	To CMG

5. Supporting References

1. European evidence-based (S3) guideline for the treatment of acne - update 2016 - short version - Nast A, et al.. J Eur Acad Dermatol Venereol. 2016 Aug;30(8):1261-8. doi: 10.1111/jdv.13776.
2. British Association of Dermatologists guidelines for the management of hidradenitis suppurativa (acne inversa) 2018 - Ingram JR, et al., Br J Dermatol. 2019 May;180(5):1009-1017. doi: 10.1111/bjd.17537.
3. British Association of Dermatologists' guidelines for the management of bullous pemphigoid 2012 – Venning VA, et al., Br J Dermatol. 2012. 167 (6):1200-1214. Doi https://doi.org/10.1111/bjd.12072
4. British Association of Dermatologists' guidelines for the management of pemphigus vulgaris 2017 – Harman KE, et al. Br J Dermatol. 2017. 177 (5): 1170-1201

6. Key Words
Dermatology
Dermatoses
Antimicrobials
Antibiotics
Inflammatory disorders

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