IMPACT

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Pharmacy and Medicines Directorate,
Westholme, Woodend
01224 556088
nhsg.pmu@nhs.net

Antibiotic Special Edition

New Antimicrobial Companion App

A groundbreaking new app to help healthcare professionals tackle antibiotic resistance has been launched across Scotland. The Antimicrobial Companion App gives practitioners quick and easy access to clinical guidance and will support decision making on antibiotic prescribing including:

- Antibiotic prescribing guidance for primary care and hospitals.
- Gentamicin and Vancomycin dosage calculators.
- A decision aid to support management of urinary tract infections in older people.
- An audit tool to support boards in gathering data for local/Scottish Government targets.

The app can be accessed from any mobile device and is available to download free from both iTunes and Google Play app stores. *The NHS Grampian version should be chosen* which has been populated with our local guidance and the appropriate Gentamicin and Vancomycin calculators.

While Scotland has already made significant progress in improving antibiotic use and reducing unnecessary prescriptions for antibiotics, the Scottish Government funded app, developed by the Scottish Antimicrobial Prescribing Group (SAPG) within Healthcare Improvement Scotland (HIS) and NHS Education for Scotland (NES), gives clinicians another tool to ensure that antibiotics are used safely and effectively.

Nitrofurantoin - long-term risks

For patients prescribed nitrofurantoin long-term for recurrent urinary tract infections, prescribers are reminded of the following potential adverse effects and the need for regular review since pre-existing conditions may mask adverse reactions. It is important to counsel the patient/carer of the potential benefits and risks before and during treatment and which symptoms should be reported.

Chronic pulmonary reactions (including pulmonary fibrosis and diffuse interstitial pneumonitis) can develop insidiously and may occur commonly in elderly patients (see letter published in BMJ by chest physicians at ARI in 2013 (LINK).

For long-term treatment, monitor closely for signs of hepatitis and pulmonary reactions (especially in the elderly). Discontinue treatment if otherwise unexplained pulmonary, hepatic, haematological or neurological syndromes occur. For the full list of cautions and potential side effects, refer to the BNF or www.medicines.org.uk.

N.B: Antibiotics prescribed for recurrent UTIs allow a period of bladder healing which makes UTI much less likely. There is no evidence they have any additional benefit beyond 6-12 months treatment. Therefore treatment should ideally be discontinued after 6 months. The patient should be counselled at an early stage that antibiotic prophylaxis is not usually a life-long treatment.

Antimicrobial Awareness Week at ARI

Thank you to all the staff at ARI who participated in Antimicrobial Awareness Week 26th – 30th June. Doctors, pharmacists and nursing staff took part in safety briefings, watched a new podcast and collected data for audits. Staff were asked to focus on best practice when prescribing antimicrobials including documenting stop dates/durations for oral antimicrobials and avoiding broad-spectrum antimicrobials where possible. Eight wards returned training logs/audits/improvement plans and Ward 108 won the prize hamper. The podcast 'Key Points for Good Antimicrobial Stewardship' is available for staff to watch on the intranet via 'Departments' then 'Antimicrobial Stewardship' (using Internet Explorer).
http://nhsgintranet.grampian.scot.nhs.uk/depts/AntimicrobialStewardship/Pages/default.aspx

Recurrent Clostridium difficile infection - New Treatment Guide (Second episode)

The *Clostridium difficile* infection (CDI) rate has been increasing in NHS Grampian. The new recurrent CDI treatment guideline has been created as part of a campaign to reduce CDI levels. Recurrence is defined as CDI which re-occurs within eight weeks after onset of a previous episode, provided symptoms from the previous episode resolved after completion of initial treatment, i.e. is due to either reinfection or relapse from germinating spores in the gut.

Fidaxomicin (Dificlir®), a new class of antibiotic, is now considered first line for patients with a second episode of CDI in NHS Grampian. Fidaxomicin has been accepted by the Scottish Medicines Consortium for the treatment of adults with a first CDI recurrence. Fidaxomicin results in less CDI recurrences due to its narrower spectrum of antibacterial activity which means less collateral impact on non-pathogenic gastrointestinal bacteria than occurs with vancomycin. The inhibitory effect of fidaxomicin on *C. difficile* sporulation may also be beneficial in decreasing shedding and transmission.

Fidaxomicin can be prescribed by GPs for recurrent CDI in accordance with the treatment guide). Community pharmacists will not routinely stock this product so it would be prudent to communicate, at the earliest opportunity, with the patient's regular pharmacy regarding prompt ordering of a supply. The cost of a course of fidaxomicin is in the region of £1350 in primary care but is considered cost-effective for recurrent CDI as it may prevent one or more hospital admissions.

Alert Antimicrobial Policy changes affecting Primary Care – Fosfomycin & Pivmecillinam

The requirement for authorisation from medical microbiology or infectious diseases has been removed for fosfomycin oral sachets and pivmecillinam tablets. Microbiology now routinely test and report sensitivity results for fosfomycin on urine cultures from the community. Pivmecillinam is only tested and reported for organisms that are resistant to first line options. Empirical treatment of urinary tract infections (UTIs) should be guided by NHS Grampian Staff Prescribing Guidance for the Empirical Treatment of Infection in Primary Care (LINK). For patients with UTIs that do not respond, or are resistant, to the first line options microbiology laboratory reports should be used to guide treatment. Antibiotics with a higher risk for causing CDI, i.e. ciprofloxacin, co-amoxiclav and cephalexin should be avoided where possible.

Fosfomycin and pivmecillinam should be reserved for patients who are resistant to routinely used antibiotics, e.g. amoxicillin, co-trimoxazole, cephalexin, tetracycline, co-amoxiclav or ciprofloxacin. For patients with a higher risk of CDI (e.g. >65 years, care home resident, multiple antibiotics in last 6 months) fosfomycin or pivmecillinam can be prescribed in preference to a higher risk for CDI antibiotic. However, for patients with a lower risk of CDI fosfomycin and pivmecillinam should only be prescribed as a last resort. It is important we still restrict use of fosfomycin and pivmecillinam to limit the development of resistance.

Dosing for Acute Uncomplicated Urinary Tract Infections	
Fosfomycin Dose: Females: 3g sachet once only Males: 3g sachet, repeated after 72h	**Pivmecillinam** Dose: 400mg stat then 200mg 8 hourly for 3 days (females) or 7 days (males)

Most community pharmacies are unlikely to stock fosfomycin or pivmecillinam routinely so it is recommended the patient's regular community pharmacy be contacted at the earliest opportunity to organise a supply. Removing the need for authorisation should improve access to fosfomycin and pivmecillinam for patients that require them by reducing the time required by GPs to contact microbiology and also help improve the efficiency of the medical microbiology service.

Clozapine treatment during infection and antibiotic use

For patients on clozapine who suffer an infection and/or need to be treated with antibiotics it is important to be aware that infection and antibiotic use can affect clozapine plasma levels. Inflammation as a result of bacterial or viral infections has been reported to increase plasma clozapine levels. This can potentially cause symptoms normally associated with an acute clozapine overdose, such as drowsiness, sedation, lethargy, confusion, agitation, tachycardia, hypotension, respiratory depression and also seizures. Hospitalisation may further increase the risk of clozapine toxicity due to a temporary reduction of, or abstinence from smoking.

Additionally, certain antibiotics, such as ciprofloxacin, erythromycin and isoniazid increase clozapine plasma levels due to liver enzyme inhibition, whereas rifampicin reduces clozapine plasma levels due to liver enzyme induction. Caution should be observed if clozapine is used concomitantly with these substances and dosage adjustments of clozapine and/or other drugs may be necessary. Concomitant use of antibiotics with bone marrow suppressing capacities also carries an additional risk of developing leucopenia/neutropenia. Antibiotics **less** likely to cause neutropenia should be used first line where possible: e.g. penicillins (all except benzylpenicillin), all tetracyclines, aminoglycosides. Antibiotics **more** likely to cause leucopenia and/or neutropenia should be used with caution: cephalosporins, clindamycin, some anti-TBs (isoniazid, rifampicin), metronidazole, tinidazole, nitrofurantoin, vancomycin, teicoplanin and quinolones (ciprofloxacin, etc). Chloramphenicol and sulphonamides (e.g. co-trimoxazole) have the highest risk of neutropenia/leucopenia and are contraindicated.

For further advice about interactions contact Medicines Information on 01224 (5)52316/grampian.medinfo@nhs.net.