



# Therapeutics Today

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## ***What is the value of electronic drug interaction alerts in primary care?***

Computerised prescription order entry systems have been shown to improve patient safety in the acute hospital setting in many countries; however their value in primary care is uncertain. In fact, studies suggest that primary care physicians may override drug interaction and allergy alerts in as many as 90% of cases. A recent US study recruited an expert panel of 5 clinicians (with experience in primary care, pharmacy, medication safety and health administration) to review 120 sample drug-drug interaction alerts. These had been generated over a 9-month period from primary care clinicians in 3 US states, using a specific commercial electronic prescribing system (*Drug Safety 2011; 34: 587-93*). The drug interaction alerts were classified as either high severity (n=80), moderate severity (n=20) or low severity (n=20). The panel members were asked to review these alerts, using their own professional experience, according to the following criteria: the strength of the scientific evidence base (mechanistic, case-reports, clinical studies); the probability that the interaction would result in an adverse drug reaction (ADR) and if so, the likely severity of the ADR; the likelihood that the average primary care physician would already be aware of the potential problem and if they could act on it (e.g. by prescribing a different drug) and finally the overall value of the alert to the primary care physician. **Results** showed that there was a wide inter-rater variability between the panel members. However, in general the panel attributed a greater value to high-severity alerts compared with the other 2 categories. The high-severity alerts were judged to have a stronger scientific basis and a greater likelihood that the interaction would result in a serious ADR. Therefore they felt that **over two-thirds of high-severity alerts were useful to primary care physicians compared with 5-10% of moderate-severity and low-severity alerts**. Of interest, the panel's clinical assessments were strongly associated with the prescribing behaviour of clinicians in the 3 US states, which had been used to identify the drug-drug interactions alerts included in the study. The authors note that many commercial drug interaction alerts appear to be somewhat arbitrary, with relatively little agreement about the scientific basis of specific alerts. They conclude that the value of electronic drug interaction alerts is influenced heavily by the prescribers' judgements about the alert's clinical value, and they state that **the use of expert panel judgements on drug-drug interactions alerts may help to reduce the volume of alerts that have little clinical meaning in electronic prescribing systems**.

[Editor's Note: The NMIC is happy to help with any uncertainties or queries regarding potential drug-drug interactions. Just email or phone us - our contact details are at the bottom of the newsletter!]



## ***2010 Annual Report from the National Poisons Information Centre***

**(NPIC)**. The function of the NPIC is to provide information, rapidly, by phone, to assist in the treatment of poisoning. The 2010 annual report from the NPIC was recently published online. The centre answered 9,330 enquiries about human poisoning during 2010, of which 361 cases (serious or unusual) were followed up to determine the outcome. **Medicines and drugs of abuse constituted the main product group involved and paracetamol remained the**

**most common drug (1302 of products ingested contained paracetamol). The next most common medicine was ibuprofen (454 cases). Other drug classes that the centre received enquiries about include CNS active drugs (such as anxiolytics, hypnotics, antidepressants), NSAIDs and antimicrobial agents. Overall 59% of human cases were suspected accidental poisonings and 25% were cases of intentional self-poisoning or recreational abuse. Household and industrial products (especially cleaning agents), plants/fungi, cosmetics and agrochemical products made up the remainder of the product groups involved in the enquiries. Of the 316 cases that were followed up, the majority of patients recovered completely but 24 suffered sequelae and 12 patients died. There was ongoing uncertainty about causal association in one case but the remainder were all cases of deliberate self-poisoning or drug/substance abuse. The outcome of 34 cases could not be determined and in 8 cases, features were not related to poisoning. Of note, the NPIC provides a 24-hour service: The local centre, based in **Beaumont Hospital in Dublin** operates the answering service from 8AM - 10PM daily with the UK National Poisons Information Service contracted to provide the service between 10PM - 8AM each day. The full report is available to download from: ([http://www.poisons.ie/downloads/2010\\_Annual\\_report.pdf](http://www.poisons.ie/downloads/2010_Annual_report.pdf))**



**Interpreting asymptomatic bacteriuria.** Asymptomatic bacteriuria refers to bacteria in the urine at levels often regarded as clinically significant (>100,000 colony forming units/mL of urine) in patients with no symptoms suggestive of urinary tract infection. A recent practice article discussed the rational testing for, and treatment of, bacteriuria in patients. (*BMJ 2011;343:d4780*). Asymptomatic bacteriuria is present in about 1% of schoolgirls, rising in frequency with age to >20% of healthy women aged >80 years and up to 15% of men >75 years. The article notes that **testing of urine for evidence of infection may be appropriate in the following situations:** when clinical features suggest urinary tract infection (UTI), when features of systemic sepsis are present, or when there are other specific indications such as in

the case of pregnant women [evidence suggests that the treatment of bacteriuria in pregnancy reduces the incidence of pyelonephritis later in pregnancy] or when investigating patients presenting with acute renal failure before major urological procedures. **Testing for bacteriuria should generally be avoided** in patients who do not have specific features suggesting UTI (including children, non-pregnant adults, diabetic patients or patients with indwelling catheters who lack specific symptoms of UTI or systemic infection) and in patients with stable stress incontinence. It would however be important to culture urine in infants and children presenting with fever when there are no clinical features pointing to another focus of infection.

**What tests for bacteriuria are available?** Tests that may be considered include **urine dipstick analysis and microscopy and culture (M&C)** of urine. Urine dipstick analysis provides immediate results to help decision making in evaluating whether the patient has other medical conditions such as diabetes or glomerulonephritis. Reported positive and negative predictive values of dipstick testing vary considerably between studies. A recent study in patients, with symptoms suggestive of UTI, found that a positive result for either nitrite (indicative of bacteriuria) or leucocyte esterase (indicative of pyuria) was associated with an increased probability of UTI. A positive result both for nitrite and for either leucocyte esterase or red cells had a positive predictive value of 92% while a negative test for all three parameters had a negative predictive value of 73%. However dipstick analysis does not give a specific microbiological diagnosis or guide selection of targeted antimicrobial treatment as is the case with laboratory M&C. For urines sent for M&C, some laboratories may perform initial microscopy on all samples and may not proceed on urine samples in which pyuria and/or bacteriuria are not observed on microscopy. Semiquantitative urine culture (to determine the species of bacteria present, estimate the numbers present and perform susceptibility testing if appropriate) remains a standard method of evaluation for UTI.

**Problems of testing and treatment.** In clinical practice it can be difficult to decide whether to test for and treat bacteriuria in an individual patient with non-specific symptoms, especially if the patient is convinced he/she has chronic UTI. The authors suggest that, if testing and a trial of treatment of asymptomatic bacteriuria is being considered, laboratory M&C is the most likely test to be useful for a non-pregnant patient with symptoms that are not clearly related to a UTI. If bacteriuria is present, it may be appropriate to do a repeat M&C, particularly in women, to determine if the bacteriuria is persistent. If a decision to treat is made, the susceptibility tests should be used to guide the selection of a safe and narrow spectrum agent. The authors note that it is important to explain the uncertainty of benefit to the patient of such treatment and to critically assess the clinical and microbiological response to treatment.



**Respiratory disease and air travel: BTS recommendations.** The British Thoracic Society (BTS) recently updated its recommendations for the management of passengers with stable respiratory disease planning air travel (<http://www.brit-thoracic.org.uk/guidelines/air-travel-guideline.aspx>). Although the guidance aims to provide practical advice specifically for secondary care physicians, it also serves as a valuable reference for other healthcare professionals managing these patients. It provides useful background information to the potential problems associated with the lower cabin pressure and also outlines helpful reminder tips for the respiratory disease patient intending to travel, including the need to ensure adequate supplies of medication, the need for a doctor's note if carrying liquid medicines on board, the need to keep well hydrated and mobile during the flight and to

avoid / minimise the use of alcohol and sedatives while flying. An easy-to-read patient leaflet on air travel with a lung condition is available to download at: <http://www.brit-thoracic.org.uk/patient-carer-information/patient-information-air-travel.aspx>

Every effort has been made to ensure that this information is correct and is prepared from the best available resources at our disposal at the time of issue. References are available on request. This newsletter is produced by the National Medicines Information Centre, St. James's Hospital (SJH) Dublin 8 and Dept of Therapeutics Trinity College, Trinity Centre, SJH. Tel: Direct Line (01) 473 0589 or 1850 727 727 Fax: (01) 473 0596 Email: [nmic@stjames.ie](mailto:nmic@stjames.ie)