



## Working together to improve safety with warfarin

Anticoagulants are one of the classes of medicines most frequently identified as causing preventable harm and admission to hospital. Managing the risks associated with anticoagulants can reduce the chance of patients being harmed in the future.

This bulletin will enable information to be cascaded to healthcare professionals across Plymouth. It is hoped that through highlighting best practice and having consistent procedures and processes in place, the potential for errors will be reduced, resulting in improved safety for our patients.

The information has been put together following discussions at a multidisciplinary group. The group included GPs, consultant haematologists, community pharmacists, specialist pharmacists, district nurses, practice managers, phlebotomists and representatives from Combined Laboratories at Derriford.

## Interactions with warfarin - request extra INR

Almost any drug may affect the action of warfarin. A patient's INR should be monitored closely whenever any drug is started, discontinued or the dose changed. It is recommended that whenever a change is made to a patient's medication an INR should be requested within 3-5 days with dosage adjustment and further testing as necessary.

Drugs that induce cytochrome P450 liver enzymes may be responsible for an interaction (increased clearance of anticoagulant; reduced INR) that may take up to 2 or 3 weeks to take effect and so additional INRs must be requested. Stopping or reducing the dose of any of these drugs may also take 2-3 weeks to have an effect on INR.

Derriford Hospital reviewed the notes of 17 patients with an INR over 6. The results indicated that drug interactions were the likely cause of the high INR levels in 9 of these patients with antibiotics being the most commonly implicated group of drugs.

The results starkly illustrate that warfarin has a significant number of common and frequent interactions which are major enough to put a patient at risk of severe harm.

**Key Message:**  
**Changing medication?**  
**Then request INR**

### Drugs that enhance the effect of warfarin (increased INR)

Amiodarone, most antibiotics (particularly erythromycin, clarithromycin, levofloxacin), phenytoin, azole antifungals (e.g. fluconazole, itraconazole, ketoconazole, voriconazole).

### Drugs that reduce the effect of warfarin (decreased INR)

Barbiturates, carbamazepine, rifampicin, oral contraceptive pills, St John's wort.

### Drugs that can have an enhancing or reducing effect

Phenytoin, corticosteroids, colestyramine.

## Separate out your INR samples please!

It is essential that INR results are received by practices in a timely manner and, on receipt of a batch of samples, Derriford Combined Labs process INRs as a priority.

Practices can support the labs by:

- Separating INR samples from other blood tests either by putting in a separate plastic bag or securing them together with a rubber band. These will then be identified as a priority.
- Always checking the computer records before phoning the lab for results. Practices can manually dial in to update information with any completed test results between the scheduled automatic updates. The lab spends a lot of time answering the phone to give results that are already on the pathology links system. The lab will always phone the practice with an abnormal result. Abnormal results analysed after 6pm are phoned to Devon Doctors and followed up with a phone call to the practice the following morning.

### Do you need to prescribe all strengths of warfarin?

Warfarin tablets are available in four different strengths: 500microgram, 1mg, 3mg and 5mg. Errors have occurred at prescribing, dispensing and administration where 5mg have been given instead of 500microgram (0.5mg) or vice versa resulting in serious adverse events.



An analysis of warfarin tablets used in Plymouth in 2009/2010 showed that:

- 10% of warfarin prescribed was for 500microgram tablets
- 39% of warfarin prescribed was for 1mg tablets
- 35% of warfarin prescribed was for 3mg tablets
- 17% of warfarin prescribed was for 5mg tablets

It is common for patients to have all strengths of warfarin on their repeat medication list. To reduce the risk of errors we would ask GPs to review whether patients really need all strengths on their repeat medication list.

On discharge, to reduce the risk of confusion, Derriford will not routinely give patients all strengths of warfarin and only issue those strengths that are required.

### Keep the “yellow books” up-to-date!



The “Yellow Book” pack provides vital information and an invaluable historic record of the patients anticoagulant doses and INR results. The pack includes the Oral anticoagulant therapy patient information booklet, the Oral anticoagulant therapy record book and an alert card.

It is important the following points are always carried out at initiation of therapy:

- The purpose of each booklet and the alert card is explained clearly to the patient.
- The anticoagulant alert card must be completed and the patient should be asked to place the card in their wallet or purse before they leave.
- The details on the first four pages of the both the information book and the therapy record book must be completed fully by the healthcare professional.
- It is important to note the length of treatment; if a patient is on warfarin lifelong then this must specified rather than left blank.
- On the fifth page of the oral anticoagulant therapy record book, the date, last two INR results and daily dose fields must completed and the entries signed.
- You may also wish to write the date of the next clinic appointment in the comments column.

It has been agreed locally that the healthcare professional caring for the patient has a responsibility to ensure the oral anticoagulant therapy record book continues to be kept updated throughout treatment following any INR blood tests or dose adjustments for the patient’s safety as follows:

#### GP practices:

- Should ensure the yellow book is kept up to date or provide the patient with the computer generated INR result and dose information to be kept with the yellow book.
- If computer generated sheets are provided it is important that there are sufficient sheets kept with the yellow book to allow a historical picture (the last 3 readings are not sufficient).
- When the therapy record book has been filled a new one should be issued to the patient and all the details on the first four pages completed.

#### Hospital on discharge:

- It is the responsibility of the discharging health care professional to ensure the yellow book is up to date before the patient is discharged.

#### Care Home:

- Where a patient is in a care home it is the responsibility of the care home staff to ensure the yellow book is kept up to date throughout the patient’s stay.

