

Anticoagulation competence assessment: the Chester experience

Various bodies are working to make the administration of anticoagulants safer, and the provision of properly trained staff to provide a dosing service is a positive contribution to this aim. Here, Rachel Turner-Bone, Virginia Clough and Elaine Norriss explain how their department assesses competence.

Biomedical scientists, nurses and pharmacists are increasingly becoming involved in the dosage of patients on oral anticoagulant therapy (OAT). The recently published *Risk assessment of anticoagulant therapy* by the National Patient Safety Agency (NPSA)¹ recommends that "All healthcare professionals dealing with patients receiving anticoagulation therapy should receive appropriate training." These NPSA safety recommendations have now been published as a British Committee for Standards in Haematology (BCSH) guideline.² This recommendation may seem obvious but has it yet been established?³

Competence can be defined as the expectation of work performance. But how do we know that staff have the necessary competences to perform this task? At the Countess of Chester Hospital NHS Foundation Trust, we have developed, as

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recommended, our own set of competence tools that enable us to train and assess our staff.

We have developed a clinical governance setting, based on the Knowledge and Skills Framework (KSF),⁴ and have tailored it to our local needs so that all healthcare professionals in our dosing team are aware of the tasks they are expected to perform, and have the knowledge and skills to perform them.

The KSF is assigned to an individual's role, and the specific KSF dimension we focused on was HWB8 (Biomedical

investigation and intervention), the competence level being HCS_HM15 (Manage anticoagulation therapy).

CHESTER ANTICOAGULANT SERVICE

The service uses DAWN computer-aided dosing provided by 4S Information Systems.⁵ Currently, there are 1700 patients active on our system, the majority being dosed using the results of venous international normalised ratios (INRs) from the hospital coagulation laboratory. Dosages are printed in standard yellow anticoagulant therapy booklets.

The service runs two types of clinic. Two hospital-based anticoagulant clinics are run each week, led by the consultant haematologist and the anticoagulant nurse practitioner. Patients who are due to start anticoagulation or who have a need for clinical input see the clinic doctor or nurse. In addition, each afternoon a GP patient clinic is held which provides a 'dose and post' service. Venous INR samples are taken at the



Rachel Turner-Bone (far left) with some members of the Chester anticoagulant team.

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GP surgery, as directed by the anticoagulant team. The samples are transported to the hospital laboratory, together with each patient's yellow book. Subsequently, a warfarin dosage is given to a patient in one of two ways: the yellow booklet is posted to the patient if there is no change of dose or if a change is not immediate; or the dosage is telephoned to the patient if immediate action is required.

The service also employs an anticoagulant clerk and a biomedical support worker, who undertake clerical duties, staff the anticoagulant helpline, and process INRs in the laboratory. In a typical afternoon GP dosing clinic, one level 3 staff member and one level 2 staff member work together to dose, print, release results to the post, and deal with all telephone calls for approximately 120 patients. The consultant haematologist of the day, or specialist registrar, is available if clinical advice is needed.

CHESTER'S TEAM

Chester has a multidisciplinary team lead by a consultant haematologist, who is the lead clinician for anticoagulation in the trust. The Chester anticoagulant service works within a written framework or group protocol. This outlines the aims and goals of the service and stipulates four levels of practice, to which each member of the team can progress. Each dosing team member is assigned a level, depending on their experience. The lead clinician has assessed each team member as competent to work at this level (Table 1). All staff involved work either part-time or on shifts and may only dose once a week; hence the importance of competence checks.

ASSESSMENT OF COMPETENCE

The competence of each dosing member of staff is assessed by the lead clinician three times a year, according to their assigned level. This is done by checking the dosing of at least 10 patients from each operator, and giving verbal and written feedback on dosing problems. All our staff have found this exercise to be positive and beneficial, as it has been developed as a learning tool and not a witch hunt!

NEW TRAINING PACKAGE

In May 2006, in order to strengthen the anticoagulant team, it was decided that two experienced biomedical scientists should be trained to dose. The two members of staff

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Table 1. A summary of the written framework for each level and grade of staff.

LEVEL	DESCRIPTION	PERSONNEL
1 Basic dosing	Staff release books to the post when there has been no change of dose, new medication or new clinical information.	• Staff in training
2 Senior dosing	Staff are expected to deal with dose changes when INR is out of range, and amend next appointment date if they feel this is necessary. Staff discuss problems with patients over the telephone, and phone through a dosage in a safe manner.	• Biomedical scientist • Anticoagulant nurse
3 Advanced dosing	Staff authorise complex dose changes where manual intervention is required, or when DAWN AC is unable to calculate a dose (ie >5 or <1.3). They dose when new drug information is received (eg patient to start amiodarone or antibiotics).	• Biomedical scientist • Anticoagulant nurse • Clinical assistant
4 Clinical opinion needed	Dosing is referred to a clinician or a senior anticoagulant practitioner for dosing. This includes induction of anticoagulation, where the INR has been out of target on three successive visits, or where they are known 'problem patients'. Any patient who is bleeding, irrespective of INR, is referred to this level.	• Anticoagulant nurse practitioner • Consultant haematologist • Specialist registrar in haematology

involved work part-time and it was agreed that they would job-share and be trained initially to level 2 competence.

In the past, staff training consisted of on-the-job experience with 10 books checked by the lead clinician when the named trainer deemed this appropriate. In addition, laboratory-based competence checklists were used to ensure all areas of work in the anticoagulation service were covered.

The risk assessment and draft patient safety alert¹ published by the NPSA in January 2006 inspired the team to think about how training could be improved. We were good at training staff how to use the dosing software system, but were not so good at providing biomedical scientists with the necessary clinical knowledge about anticoagulation and the skills required to communicate with patients over the telephone.

Therefore, we redesigned and improved our training pack with these shortcomings in mind. The new training pack contains:

- a written guide to working in the anticoagulant service
- competence checklists covering the use of the dosing software, the dosing procedure and clerical tasks in the anticoagulant clinic
- local relevant guidelines such as our

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protocol for managing patients with a high INR and our protocol for the management of patients requiring dental extraction

- a reading list devised by the lead clinician to provide a sound clinical knowledge base, including relevant BCSH guidelines.^{6,7}

Each trainee was assigned a named trainer, and the training schedule was designed to ensure that trainees were able to:

- learn how to use the dosing software, and the day-to-day running of the service
- learn basic warfarin pharmacokinetics and clinical indications for OAT with the aid of structured background reading
- observe the trainer dosing
- dose appropriate patients with the trainer observing

Table 2. The following list must be completed in order to dose at level 2.

TASK	DATE COMPLETED
Completed dosing protocol competence checklist	
Has an understanding of BCSH guidelines	
Has an understanding of the bi-annual benchmarking report	
Completed session with DVT nurse	
Has an understanding of the group protocol	
Passed operator proficiency check to level 2	
Has developed a comprehensive clinical knowledge base (assessed at the training seminar)	

- dose independently with the trainer checking books before releasing them
- dose independently with the lead clinician checking books before releasing them
- be able to communicate clearly and safely with patients – this includes telephoning a dose change, and asking a set of clinical questions
- have a training seminar with the lead clinician to ensure the trainee has reached the standard required.

In order to dose at level 2 the list reproduced in Table 2 must be completed.

It took one trainee three months to complete her training, while the other trainee took four months, due to her reduced working hours. Both members of staff enjoyed the experience and have settled into their new role with enthusiasm. They understood that their training had a clear endpoint goal, after which they would work independently. As trainers, we felt it important to give positive feedback and clear recognition of their competence, which included a

**Congratulations!
Authorised Level 2 Doser**

Fig 2. A 'congratulations' insert was added to the end of each trainee's training pack.

'The Chester experience shows that a multidisciplinary anticoagulant team can use its combined skills and experience to provide a robust training framework'

'congratulations' insert (Fig 2) at the end of their own training pack!

THE FUTURE

Using the framework outlined here, several members of the team have progressed to the next level of competence and have felt motivated to do so.

The NPSA is working to make the administration of anticoagulants safer, and the provision of properly trained staff to provide an anticoagulant dosing services can only make a positive contribution to this aim.

The Chester experience shows that a multidisciplinary anticoagulant team can use its combined skills and experience to provide a robust training framework. ■

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REFERENCES

- 1 National Patient Safety Agency. *Risk assessment of anticoagulant therapy*. London: NPSA, 2006.
- 2 Baglin TP, Cousins D, Keeling DM, Perry DJ, Watson HG. Recommendations from the British Committee for Standards in Haematology and National Patient Safety Agency. *Br J Haematol* 2007; **136** (1): 26–9.
- 3 Training for anticoagulation management. *Thrombus* 2006; **10**: 2.
- 4 Skills for Health competence database. Manage anticoagulation therapy. HCS_HM15. www.skillsforhealth.org.uk.
- 5 4S Information Systems. 4S Dawn Clinical Software. 4S, The Square, Milnthorpe, Cumbria LA7 7QJ.
- 6 Guidelines on oral anticoagulation 3rd edn. *Br J Haematol* 1998; **101**: 374–87.
- 7 Guidelines on oral anticoagulation 3rd edn (update). *Br J Haematol* 2005; **132**: 277–85.

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