**Letters to the Editor**

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Too many decades or too little joined up thinking?

Sir, Most rheumatologists know—or should know—that this is the Bone and Joint Decade. Those who are leading this initiative have rightly made claims for the importance of improving bone and joint disease awareness and research worldwide. They have also implied some uniqueness of ‘their decade’, and its WHO support, following on from the Decade of the Brain.

I recently became aware of the fact that it was also the Decade of Pain Control and Research. This led me to do a brief Google search to see how many other decades we might be in the middle of. There are a lot. Here is a list of some of the health-related decades we are currently in:

- **First UN Decade for Eradication of Poverty (1997–2006):** a United Nations initiative
- **The Decade of Pain Control and Research (2001–2010):** launched by ex-President Clinton
- **The Bone and Joint Decade (2000–2010):** WHO-sponsored
- **Decade for Health in Aging (2000–2010):** sponsored by a large coalition of US and other agencies
- **The Decade of Behaviour (2000–2010):** ‘rooted in the behavioural and social science community’
- **Decade of Health Information Technology (2004–2013):** launched by the US Department of Health and Health Services

As shown, some of these ‘decades’ last for 10 yr, others for 11. A brief, non-systematic, informal survey of some colleagues suggests that rheumatologists do not know about the pain or behaviour decades, and, similarly, that pain physicians know about ‘their decade’ but are unaware of the fact that it is the Bone and Joint Decade or the Decade of Behaviour. And yet pain, behaviour and bone and joint conditions are all inextricably linked. Furthermore, they are linked to ageing and to poverty, and could be aided by better health information technology. So we are in the midst of at least six different decades, each of them relevant to musculoskeletal problems, but each of which appears to be working in isolation. Imagine the benefits that might accrue if we actually worked together on this. Perhaps it is not too late. Can we have some joined up thinking please?

P. DIEPPE

MRC Health Services Research Collaboration, University of Bristol, Bristol, UK

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Correspondence to: p.dieppe@bristol.ac.uk

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Maximizing the use of scarce resources: vial optimization

Sir, Infliximab is licensed for the treatment of severe rheumatoid arthritis, ankylosing spondylitis and Crohn’s disease. It has been shown to be effective in all three conditions. All biological therapies are costly and all rheumatology units have looked at ways of maximizing the use of these therapies whilst ensuring that eligible patients are treated. We have recently audited our practice in the use of infliximab and have found imaginative ways of reducing wastage of an expensive resource.

At present 160 patients are receiving infliximab in our eight-bedded rheumatology day unit: 134 patients with rheumatoid arthritis, 20 patients with ankylosing spondylitis and six others with conditions as yet unlicensed but in whom infliximab was prescribed on a named patient basis, e.g. amyloidosis. All have had treatment for a minimum of 4 months and are on established regimens of infliximab. Three patients require 5 mg/kg per infusion, one requires 4 mg/kg per infusion and the remainder are on a dose of 3 mg/kg per infusion. It is our normal practice to infuse at least six patients per session with ‘hot bedding’ if necessary to accommodate the high volume of patients seen in the day unit. The day unit is a dedicated rheumatology facility, housed within the department. Activities and procedures undertaken in the unit include infusions of iloprost and cyclophosphamide, multiple lower limb joint injections and epidurals, as well as infliximab infusions. With such a large number of patients and procedures it is essential to maximize the use of every bed.

Data were collected daily from patients attending the day unit for an infliximab infusion over a 12-week period. The interval between infusions ranges between 7 and 12 weeks. Each vial contains infliximab powder, which is mixed with 10 ml sterile water for injection and equates to 100 mg infliximab. The cost per vial is £451.20. The average weight of these patients is 70 kg and the recommended dose for patients who have rheumatoid arthritis is 3 mg/kg per infusion (210 mg). The cost per infusion for one patient using three vials is £1353.60. Applying standard guidelines for RA patients on infusions at intervals of eight weeks without vial optimization, the cost is £8798.40 per year. If only one patient of average weight is infused, three vials are required and 90 mg from the third 100-mg vial would be wasted. The cost of the infusion with vial optimization would reduce to £6158.88 per year simply by ensuring that other patients were infused on the same occasion and excess drug from one patient was used for another patient. It is our policy to ensure that several patients receive infliximab at the same time so that wastage is kept to a minimum.

Infliximab infusions are set up by highly trained nurses. All have specialist training in the preparation of infusions using a non-touch technique to reconstitute the infliximab prior to adding the specific dose to 250 ml of normal saline. Infusions are given over a 1-h period after the fourth visit if there is no reaction.

The safety measures we use are as follows. The patient’s drug chart states the dose in terms of milligrams and body weight; the vials of infliximab are in powdered form; vials of sterile water (10 ml) are used to reconstitute the infliximab powder; 250-ml bags of normal saline are used for infusion; 10-ml syringes and needles are used; 1-ml syringes are used to withdraw small amounts of infliximab accurately; and the serial number is identified and noted on the patient’s drug chart.

We have been able to show that, by ensuring that several patients are infused at the same time, we can reduce the number of vials required overall. Instead of discarding the portion of the vial not required, it can be used for another patient being infused at the same time. The more patients infused at the same time, the greater the reduction of wastage. Six patients infused gives the maximum saving.

Using audit results for the Norfolk and Norwich University Hospital, for 160 patients the annual cost of infliximab without optimization would be £1 387 708.00, the annual cost using vial optimization techniques would be £1 133 599.00; the annual reduction in wastage would then be £254 109.00.
It appears, in theory, that we are making substantial savings by adopting this practice. The reality is that there are no cost savings but significant benefits to patients as we are able to treat more patients within the same budget constraints. We are also able to demonstrate to our funding partners effective, appropriate and cost-effective use of scarce resources.

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M. SOMERVILLE, A. BROOKSBY, D. G. I. SCOTT

Rheumatology Unit, Norfolk and Norwich University Hospital, Colney Lane, Norwich, Norfolk NR4 7UY, UK
Accepted 28 October 2005
Correspondence to: M. Somerville.
E-mail: margaret.somerville@nnuh.nhs.uk

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The impact of Picture Archiving and Communication Systems (PACS) implementation in rheumatology

Sir, Radiology plays an important role in the decision-making processes of rheumatologists. Therefore, the implementation of Picture Archiving and Communication Systems (PACS) as part of the National Programme for Information Technology (NPIT) is an agenda that affects us all. PACS is a filmless digital storage system of X-ray images that allows images to be viewed on a workstation or PC. At our Trust, hard copies are no longer routinely available. Some hospitals already have PACS, with the intention that PACS will be fully available nationally by March 2007 [1]. Although concerns exist about the timetable for implementation [2], eventual widespread use of PACS with integration into an electronic patient record is inevitable.

The benefits of a fully digital X-ray storing and reporting system are fairly obvious: images should be quick and easy to retrieve; comparison with old films should be easily facilitated; digital manipulation may aid interpretation (for example, by zooming in), images can be easily shown to colleagues at other hospitals or sites; films should not be lost; images can easily be accessed for use as teaching aids; and there are theoretical beneficial long-term cost implications.

We performed a survey across four different NHS Trusts where PACS had already been implemented to assess users’ views of using PACS in rheumatology. The aims of this project were to gather structured feedback to present to the local radiology department; to collect information that may be of interest to other rheumatologists not yet using PACS; and to establish local standards for use in a future cross-speciality audit planned within our Trust.

We designed a questionnaire that included a five-point Likert scale to assess users’ views on a number of areas, particularly concerning quality of images, usability, reliability of retrieval and overall perceptions. A record of the software used at the different NHS Trusts was also recorded. For reference purposes, the questionnaire is included as supplementary data at Rheumatology Online.

The questionnaires were distributed to each rheumatology department involved and participants were asked to complete the questionnaire once, based on their overall experience of using PACS. Twenty questionnaires were returned. Each Trust used a different software system. Ten (50%) of the respondents had not been trained on PACS; of these, six (60%) had not been offered training. Mixed views were obtained relating to quality and usability, which are summarized in Table 1. Specifically, there was no clear consensus about digitized films compared with hard films for viewing erosions or periarticular osteopenia. Eighty-five per cent (17) of the respondents were sometimes unable to retrieve images. Forty per cent (8) had difficulty in retrieving images in more than 50% of estimated total time that PACS was used. Seventy-five per cent (15) of the respondents felt PACS delays resulted directly in clinic delays and, worryingly, 70% (14) reported having to bring patients back for unnecessary clinic appointments to review films that they had been initially unable to trace on PACS. The top two advantages of PACS were listed as quality of images and the ability to digitally manipulate images. The top two disadvantages were the poor reliability and the speed of retrieval of images.

This small study has a number of limitations and direct comparisons between sites are inappropriate due to the fact that different software was used, and respondents had varying levels of training and experience. However, a number of important points are raised. The technology clearly has enormous potential, and undisputable theoretical advantages over a hard film system. A number of studies of users’ perceptions report high levels of satisfaction with this technology [3, 4], although concerns have also been expressed regarding confidentiality [5].

The main problems that our study identified concerned the retrieval of images and usability, which have implications for risk management and clinical governance. The usability of a system is affected by a number of factors, including training and the type of software used. We consider that some of the problems identified may have been alleviated by improved communication between radiology, information technology, hospital management and non-radiology clinicians, particularly at the time of implementation.

Although it is unlikely that clinicians will have influence over the choice of software, especially in the context of the NPIT,