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- Choose Life: Getting Your Work-Life Balance Right By Managing Your Time Effectively!
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Tel: 01747 829501
Homepage: www.jmedopt.com
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How can the cycle of demand for acute hospital services and bed pressures be broken? There does not seem to be any magic bullet but many readers will have been involved in various initiatives at different times. The best that can be done is a concerted effort and focus on a range of activities to improve patient flow. An article in this edition describes such an approach entitled ‘Perfect Week’. Interestingly, operational changes to the dispensary and drug delivery had little impact but it was found that clinical pharmacy services based on wards and working closely with medical and nursing teams had the most benefit. The evidence now available will be of much help in securing resources to develop the approach.

Aseptic compounding is a complex process with the potential for error at various stages such as preparing worksheets, labelling, transcription and calculations. A bespoke aseptic compounding management system has been designed to address these issues with modules for raw material stock control, finished product document masters, order management, scheduling/picking, electronic compounding, inspection/labelling, release and dispatch. Those involved in aseptic compounding will be interested to know of the development of the system but will note that further evolution and evaluation of the project is ongoing. It will certainly be of interest to learn the findings in due course.

The pre-registration pharmacy graduate year provides an opportunity to acquire experience in various aspects of the profession such as hospital pharmacy, community pharmacy and industry – but what about Clinical Commissioning Groups (CCGs) and GP practices? A scheme involving four months within a CCG, including one day a week spent in a GP practice, is described. The work undertaken involved formulary reviews, bulletin development, ePACT searches, adding entries to ScriptSwitch software, helping with medication safety and preparing for a Care Quality Commission (CQC) inspection.

Our Face2Face describes the work of a Consultant Pharmacist in Critical Care. This is a highly specialised role operating in what can be harrowing circumstances for patients. It is good to note the underlying interest and emphasis on practice research to develop the service.

The further development of seven day working in the NHS is a current theme – but how can that be done without additional resource and what will be the impact on staff? The Management Conundrum looks at this issue and commentators come up with some thoughts about how things might be taken forward. Their pointers will be relevant to many readers.

Finally, the Leadership section looks at the issue of ‘work-life’ balance? What does a good work-life balance look like for you? Are you happy to put in all those extra hours and, if so, are you sure that you are spending the time well? Or do you need more time with family and friends? Only you can decide but, if the answer to the latter question is ‘yes’, how do you go about it? A good starting point is to manage time well – there are some useful tips in doing so in the Leadership section.
Working Better Together
How to build multidisciplinary and multiagency teams to improve patient care

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Background
Cancer affects millions of people in the UK, with approximately 330,000 new cases each year.\(^1\) The survival rate has doubled in the past 40 years with 50% of patients now likely to live for 10 years or more post diagnosis, resulting in increasing pressure to chemotherapy services to provide treatments safely and on time.\(^2\)

Prescribing, compounding and administering chemotherapy to patients involves multiple processes and checks to ensure a safe product is delivered to the patient. Errors can occur at any time in this process and can include incorrect dosing or drug, scheduling and timing errors, wrong device for administration, improper drug preparation and delivery of product to the wrong patient.\(^3,4\)

Reports show medication errors in chemotherapy preparation and delivery are high. These have potential to cause considerable harm if not detected before delivery to the patient.\(^5\) The National Aseptic Error Reporting Scheme (NAERS) shows that a large proportion (43.4%) of errors reported in the prescribing, preparation and administration of injectable drugs between January 2004

Abstract

Title
Developing A Bespoke Electronic Aseptic Compounding Management System (ACMS): A Pre-implementation Overview

Author List
Smith E, Fox A.

Purpose
Manual aseptic compounding is prone to errors at multiple stages, which can cause harm and distress to patients and cost hospital Trusts money. This paper outlines the rationale and development of a bespoke Aseptic Compounding Management System (ACMS) designed to address these issues. The paper will also include an overview of procedures for evaluating the impact of implementation on a chemotherapy aseptics unit.

Method
The ACMS has been developed by a specialist pharmacy software development company in association with Oncology and Quality Assurance pharmacists and an independent subject matter expert. It supports compliance with European Union (EU) guidance on good pharmaceutical manufacturing practice (GMP) and NHS quality assurance guidance for aseptic preparation services.

The resulting system consists of eight main functional modules: raw material stock control, finished product document masters, order management, scheduling and picking, electronic compounding, inspection and labelling, release and dispatch.

Mixed methods process evaluation of ACMS implementation includes analysis of pharmacy systems to determine changes in error rates, workflow, productivity and raw material wastage as well as qualitative interviews with pharmacy staff.

Results
Pre-implementation analysis of chemotherapy compounding data demonstrates the need for such a system. It shows that internal errors relating to the manual processes of labelling, transcription and calculations account for 69-92% of reported internal errors. Additionally, measurements of workflow, productivity and raw material usage demonstrate areas that can be improved as a result of the ACMS. Initial thematic analysis of qualitative interviews supports this data. It shows that staff feel errors occur most often during the preparation of worksheets and labels, causing stress to staff and delays to service delivery, and that the implementation of the ACMS would be accepted with proper training.

Conclusion
There is a need to improve safety and efficiency within the chemotherapy aseptics unit. The ACMS has been designed to prevent errors by reducing compounding errors, improving workflow to benefit staff and patients, and reducing wastage.

Keywords: quality assurance; process control; process evaluation; medication error prevention; IV workflow management.

Background
Cancer affects millions of people in the UK, with approximately 330,000 new cases each year.\(^1\) The survival rate has doubled in the past 40 years with 50% of patients now likely to live for 10 years or more post diagnosis, resulting in increasing pressure to chemotherapy services to provide treatments safely and on time.\(^2\)

Prescribing, compounding and administering chemotherapy to patients involves multiple processes and checks to ensure a safe product is delivered to the patient. Errors can occur at any time in this process and can include incorrect dosing or drug, scheduling and timing errors, wrong device for administration, improper drug preparation and delivery of product to the wrong patient.\(^3,4\)

Reports show medication errors in chemotherapy preparation and delivery are high. These have potential to cause considerable harm if not detected before delivery to the patient.\(^5\) The National Aseptic Error Reporting Scheme (NAERS) shows that a large proportion (43.4%) of errors reported in the prescribing, preparation and administration of injectable drugs between January 2004
and December 2007, related to cytotoxic medicines. These conclusions are supported by recent NAERS data up to 2015 demonstrating that errors in compounding are still a problem in the NHS. The type of errors reported were predominantly in manually controlled processes: transcription, calculation, drug selection, dose/strength, diluents, final volume, labelling, expiry, or container selection. Human error was found to contribute to 79.7% of cytotoxic drug errors. The next highest contributors were perceived to be inadequate training (3.4%) and distraction/interruption (3.2%).

Information technology (IT) systems have been suggested as a way to reduce errors occurring, particularly human error. There is also a move within the NHS to remove reliance on paper patient and care records, thus moving towards becoming paperless by the year 2020 through the use of IT systems. Literature relating to electronic prescribing systems have reported as much as a 48% reduction in medication errors. Using IT to manage those processes most prone to human error may help reduce error rates, decrease the risk of wrongly prescribed or prepared drugs being delivered or administered to patients, and save the hospital time and money associated with correcting errors made.

Introduction

University Hospital Southampton (UHS) is one of 12 regional cancer centres in the UK, serving a population of approximately 1.7 million people. Providing an aseptic compounding service is essential to the Trust’s status as a major cancer treatment and research centre. UHS Oncology Pharmacy, comprising of 5 isolators and a staff of 25, prepares approximately 30,000 doses of cytotoxic chemotherapy per year.

Compounding cytotoxic chemotherapy at UHS involves many manual processes that require serial transcriptions of information and relies solely on human checks for accuracy and safety. Chemotherapy dose-preparation formulae are transcribed by hand from a range of electronic and paper-based prescriptions. Worksheets for each dose are calculated and written by hand, using photocopied templates, and product labels are printed semi-manually from templates held in Microsoft Word. A master record is made on a locally-developed IT system, which tracks progress of each dose through the service, controls the release process and records delivery to the clinical area in a form that is viewable on-line. Manually prepared worksheets are used to guide staff at all stages of the process. Accuracy checks throughout the process are made visually and recorded manually.

In 2013, Oncology Pharmacy at UHS was struggling to meet supply demands and products were often delivered late to patients. Errors were being made and staff morale was deemed to be low. A service review was initiated by an external consultant to identify aspects that could be improved. The review included examining the existing locally-developed IT system in comparison to other commercially available IT systems. The existing systems had limited capability, only working to track products through the compounding process. Review of other available IT systems demonstrated that none would adequately meet the UK aseptic compounding requirements. A bespoke system would, therefore, be required. Specifically, a new Aseptic Compounding Management System (ACMS) would enable an improvement in service delivery, reduce error rates, save the hospital Trust money and improve staff morale. Having identified a specialist pharmacy software development company as a partner, a successful joint bid was made to Innovate UK to contribute funding for the development, implementation and process evaluation of the ACMS with a view of building a system which would then be commercialised for the wider benefit of the NHS.

Objectives

The key objectives of the project are to:
- develop a bespoke ACMS
- implement the ACMS within the existing compounding unit
- evaluate the impact of the ACMS on quality, safety and efficiency of provision of parenteral chemotherapy and the impact it has on staff and patient experiences.

This paper describes the development of the ACMS and the proposed benefits of the system prior to implementation and full evaluation. Pre-implementation data is presented to demonstrate why such a system is necessary and will form the basis of subsequent post-implementation analysis.

Developing the ACMS

The aim within UHS Oncology Pharmacy was to implement an integrated IT system to control the compounding service from order receipt, through management of raw materials and production processes, to product release and patient-
administration. It is required to enforce adherence to procedures and good manufacturing practice (GMP) guidance, reducing reliance on human checking for product quality. Table 1 outlines the design objectives.

Development of the ACMS was aligned with the Department of Health Quality, Innovation, Productivity and Prevention (QIPP) programme to improve quality whilst making efficiency savings within the NHS. Table 2 shows how the ACMS will benefit patients, practitioners and commissioners under each of the QIPP objectives.

An iterative design process was undertaken between UHS, the supplier and subject matter expert, based on Oncology Pharmacy driven User Requirement Specifications (URSs). This has resulted in the development of an ACMS consisting of eight functional modules: raw material stock control, finished product document masters, order management, scheduling and picking, electronic compounding, inspection and labelling, release and dispatch (Table 3).

Figure 1 shows the ACMS processes related to modules one, two and three. It demonstrates how stock can be categorised and entered into the system, how orders are placed through the use of specific Finished Product Master (FPM) order templates, and how specific product labels will be generated. These will allow for streamlined processing from stock receipt through to printing/finalising worksheets and labels.

In addition to structured software testing before release, extensive testing and validation of the ACMS has been undertaken by UHS pharmacists in conjunction with system developers. Under a validation protocol within the unit’s master plan, trained Oncology Pharmacy staff have undertaken structured testing of the software functionality and the products set up within it. Each of the 140 chemotherapy products was tested five times across a wide range of doses, ensuring that all operational scenarios were challenged. System faults were recorded and amended by system developers in a revised release of the software, which was used for repeat testing prior to closure, while data errors were logged for correction before live use. Testing met the requirements for operational and performance qualification and complied with GMP volume 4 annex 11 and NHS Quality Assurance guidance. Following a formal audit, the system has received positive opinion from external NHS quality assurance audit.

Implementation of modules one and two of the ACMS will be carried out in

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**Table 1: ACMS design objectives**

<table>
<thead>
<tr>
<th><strong>QIPP</strong></th>
<th><strong>Patient/Carer</strong></th>
<th><strong>Clinical Team/Trust</strong></th>
<th><strong>Commissioners</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>• error reduction</td>
<td>• error reduction</td>
<td>• service meeting national standards</td>
</tr>
<tr>
<td></td>
<td>• consistent planning and service delivery</td>
<td>• improved responsiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• consistent planning and service reliability</td>
<td></td>
</tr>
<tr>
<td>Innovation</td>
<td>• improved real-time information on product status</td>
<td>• better use of technology to improve efficiency and quality</td>
<td>• coming in line with standard practice in Europe and USA</td>
</tr>
<tr>
<td></td>
<td>• improved product presentation</td>
<td>• forefront of UK practice</td>
<td></td>
</tr>
<tr>
<td>Productivity</td>
<td>• right treatment at the right time</td>
<td>• improved chemotherapy capacity</td>
<td>• improved capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• best use of staff time</td>
<td>• best use of resources</td>
</tr>
<tr>
<td>Prevention</td>
<td>• error reduction (in pharmacy and clinical areas)</td>
<td>• reduced level of risk</td>
<td>• reduced errors</td>
</tr>
</tbody>
</table>

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phases on a ward by ward basis. Staff have been extensively trained in the change to procedures and the functionality of the system. Subsequently, modules three to eight will be further developed and released to UHS for rigorous testing and validating.

Process Evaluation

The process evaluation of the ACMS and its implementation will utilise a mixed methods approach. The ACMS implementation will be longitudinal and in modular staged release. To reflect this, the evaluation involves pre- and post-implementation quantitative and qualitative data collection, as well as continuous data monitoring and tracking of Oncology Pharmacy generated data. The process evaluation (Figure 2) is supported by the University of Southampton and consists of two work packages:

- Evaluation Work Package 1 (EWP1): Service Improvement

### Evaluation Work Package 1: Service Improvement

The aim of this evaluation work package is to evaluate the impact of the ACMS on safety (including quality) and efficiency of the service in the provision of parenteral chemotherapy. Specific areas to be evaluated are internal and external errors, number of calculations required to complete work orders, number of worksheet deviations and anomalies, frequency of out-of-hours work required, the efficiency of Oncology Pharmacy in total daily output, time taken to deliver products to patients, and changes in internal and external wastage. The data

### Table 3: ACMS Functional Modules

<table>
<thead>
<tr>
<th>Functional Modules</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Raw Material Stock Control</td>
<td>Enable the control of raw materials through electronic cataloging of all materials received and record expiry date and batch number for use as unique product identifiers, controlling the identity of all products used in the compounding process to ensure the correct drug and drug concentrations are used.</td>
</tr>
<tr>
<td>2. Finished Product Masters (FPM)</td>
<td>ACMS controlled list of compounded products via a set of master files (FPMs) which define the compounded product by combining drug, delivery route, diluents and device/container components into a unique combination. The FPM will also define minimum and maximum dose ranges for varying patient groups.</td>
</tr>
<tr>
<td>3. Order Management</td>
<td>Orders can be both patient specific, linked to prescription or for batch manufacturing. At order entry the user chooses a FPM to base the order on. Orders can be approved, placed on hold or cancelled by approved users only. GMP compliant, customisable, production worksheets are created along with a barcode enabled product.</td>
</tr>
<tr>
<td>4. Scheduling and Picking</td>
<td>Electronic, aseptic unit, ‘drag and drop’ diary allowing items to be scheduled and allocated to specific isolators. Automatically suggested ‘order grouping’ to group similar orders and facilitate use of part-used vials. Automatically produced picking lists with ID check via barcode or batch number and automatic allocation of vial size, diluent, and final container. Automatically amends stock lists.</td>
</tr>
<tr>
<td>5. Electronic Compounding</td>
<td>Electronically displayed compounding process and checking screens. Allows for manufacturing incident recording, calculation of exact expiry date based on exact compounding time, manages part-used vials, and final reconciliation of component process. Gravimetric control provides verification for high risk doses and integration with weigh scales. All compounding processes are date and time stamped allowing for full audit and electronic batch record print out.</td>
</tr>
<tr>
<td>6. Inspection and Labelling</td>
<td>Products enter label and release room with barcodes attached. ACMS produces production inspection checklist for inspection checks. Labels are produced on demand after inspection.</td>
</tr>
<tr>
<td>8. Dispatch</td>
<td>Allows printing of dispatch documentation and final destination label. Enables tracking of dispatch and delivery to final destination.</td>
</tr>
</tbody>
</table>
Errors

Internal errors are defined as those that are detected and corrected during the production process and prior to product release from the unit. They are recorded through an error monitoring process and reported monthly for quality assurance purposes. The error rate is calculated using the number of errors in relation to the number of products compounded per month. Error type is also captured and reported as a proportion of the overall error rate. This will allow for evaluation of a change over time as different modules of the ACMS are implemented.

Pre-implementation data from June to November 2015 shows the proportion (%) of monthly internal errors attributable to one of 10 different error types.
The majority of errors relate to manual processes with label generation, transcription, expiry date calculation and calculation errors making up 69-92% of monthly errors over this period. The introduction of the ACMS will electronically control these and other processes and so a reduction in error rates is expected.

External errors (i.e. those that are not detected until after the product has been released to the ward for administration) are spontaneously reported using the Trust’s incident reporting system thus allowing for monthly calculation of external error rate and potential harm.

**Efficiency**

Efficiency changes related to the implementation of the new ACMS will be evaluated through analysis of data from existing IT systems within the Oncology Pharmacy. Efficiency through changes in productivity will be evaluated by examining the number of prescriptions screened and parenteral chemotherapy products compounded each month throughout the course of the project pre-, peri- and post-implementation. Due to the modular implementation of the ACMS, time series analysis will be conducted once implementation is complete.

Pre-implementation data from June 2015 to November 2015 shows that, on average, 1,904 prescriptions are screened per month and 2,769 products compounded. It is hypothesised that spending less time correcting errors caused by pre-implementation manual procedures will enable the workflow to become more streamlined thus reducing staff overtime and reducing the number of products delivered late for administration.

Changes in workflow will be evaluated by further investigating the number of prescriptions screened and parenteral chemotherapy products compounded each hour per day. Pre-implementation data shows that there are peaks in completion of these tasks ahead of staff breaks and at the end of the day as staff try to complete work in order to take their breaks or finish on time. These pressure peaks could contribute to the error rates. An ACMS which controls scheduling as well as removing the risk of errors occurring could improve this workflow and reduce pressure peaks. Figure 4 shows data for the 6 month period June 2015 to November 2015. It shows the proportion (%) of daily output screened or compounded at one hour intervals throughout the day.
Delayed delivery of products to patients is a commonly reported concern. Pre-implementation data (Figure 5) from existing Oncology Pharmacy reporting systems shows that the majority of products released are prescribed a day or more ahead of treatment day, and that the majority of these are released on time e.g. in June, 60% (i.e. majority) were prescribed for a different day and 83% (i.e. majority) of those were delivered on time. Those prescribed on the same day as treatment day are more likely to be released late e.g. in June, 40% were prescribed for the same day and more than 50% of those were late.

Finally, efficiency will be evaluated by examining changes over time in wastage generated internally prior to release from the unit, and wastage that occurs externally as a result of factors such as delayed treatment, incorrect storage, changed dosage after release of products. Internal wastage will be evaluated longitudinally through periodic measurement of remaining raw materials at the end of production and identify where vial sharing may have reduced wastage. Focused recording will take place one week per month prior to, during, and post-implementation.

Other areas included in the process evaluation will be the impact of the ACMS on the number of calculations required, the number of worksheet deviations conducted and the amount of out-of-hours work time required.
Evaluation Work Package 2: Organisational Implementation and Patient Experience

This evaluation work package aims to carry out a detailed qualitative and quantitative evaluation of the impact of implementation on staff and patients. Qualitative data collection is guided by Normalisation Process Theory (NPT), a conceptual model which allows for the implementation processes in healthcare to be explained. It situates implementation processes in four main constructs (Coherence, Cognitive Participation, Collective Action and Reflexive Monitoring), which represent the different kinds of work people do around implementing a new practice (See Table 4).

Interviews conducted with staff from UHS Oncology Pharmacy are structured around questions about their experiences with, and views on, current systems and working procedures. These questions have been designed to be relevant when asked pre- and post-implementation with thematic analysis being conducted at each stage and logic models constructed to evaluate changes in experiences and perceptions as a result of the implementation. Pre-implementation interviews were carried out with 27 pharmacy staff in June 2015.

Initial thematic analysis of pre-implementation interviews with pharmacy staff was conducted. Staff felt that they worked safely and delivered safe products. However, the pre-implementation processes relating to preparing of worksheets and labels, screening prescriptions and releasing chemotherapy products were where most errors occurred. These errors were felt to cause a slowing down of service delivery while errors were corrected, a stressful work environment due to the need to correct errors in time for patient treatment appointments, and wastage of expensive drugs when errors occurred during compounding of products. The impending implementation of the ACMS was generally viewed positively due to the removal of the need for hand transcribing prescriptions onto worksheets thus removing the risk of related errors. The staff felt that the ACMS would be accepted into working practice with sufficient knowledge and training.

Post-implementation interviews will also be conducted with staff involved in prescribing and administering parenteral chemotherapy, as well as with patients to gain an understanding of their experiences as a result of pharmacy processes and the ACMS implementation.

Organisational implementation will further be evaluated through the use of a brief questionnaire administered pre- and post-implementation. These will ask questions relating to staff stress and staff satisfaction with Oncology Pharmacy procedures.

<table>
<thead>
<tr>
<th>NPT Construct</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Coherence</td>
<td>What people do collectively and individually when they are faced with the problem of operationalising some set of practices.</td>
</tr>
<tr>
<td>Cognitive Participation</td>
<td>The relational work people do to build and sustain a community of practice around a new technology or complex intervention.</td>
</tr>
<tr>
<td>Collective Action</td>
<td>The operational work that people do to enact a set of practices.</td>
</tr>
<tr>
<td>Reflexive Monitoring</td>
<td>The appraisal work people do to assess and understand the ways that a new set of practices affect them and others around them.</td>
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Conclusion

This paper outlines the development, implementation, and process evaluation surrounding a bespoke ACMS for the preparation or parenteral chemotherapy.

Current procedures at UHS Oncology Pharmacy involve a number of manual steps which are time consuming and subject to error. Due to the toxicity of parental chemotherapy and the risks to patients, stringent checks and procedures are needed to ensure safe delivery of treatment to patients. These processes are prone to error and put pressure on staff and service delivery. IT systems are suggested as a way to reduce error and improve workflow and productivity.

The bespoke ACMS, Medcura™, has been designed by pharmacists to work equally in any aseptic preparation unit. A chemotherapy unit was chosen for the project since it represents the highest risk and complexity. The system will automatically conduct many of the procedures that are known to cause error and allow for tracking of products from order entry through to delivery.

Pre-implementation data shows that UHS Oncology Pharmacy error rates, late product delivery and raw material wastage costs are currently at unacceptably high levels, requiring intervention, and could be substantially improved through the use of an ACMS.

Implementing an IT system such as the ACMS will help improve quality, safety
and efficiency within the Oncology Pharmacy, thus improving staff and patient experience and saving money.

Next steps

Development and validation work will continue on the remaining functional modules whilst initial implementation takes place. Data capture of pharmacy systems will continue for a full evaluation of implementation to be conducted. Qualitative interviews will be conducted with pharmacy and clinical staff to evaluate their experiences with working procedures once the ACMS has been implemented.

Declaration of interests

The development and evaluation of the ACMS, Medcura™, is a joint project between University Hospital Southampton NHS Foundation Trust and Medcura Technologies Ltd and Active Tagging. It has received funding support from Innovate UK and subject matter expertise from Clive Richards, CRCura Ltd.

Acknowledgements

We would like to acknowledge the contribution of the ACMS development team at University Hospital Southampton and Medcura Technologies Ltd in their clarification of technical details and comments on drafts of this manuscript: Anna Bunch, Shapour Hariri, Sue Ladds, Julie Martin, Emma Meehan, Peter Rhodes, Graeme Willmers and Debbie Wright.

”. . . Oncology Pharmacy error rates, product delivery, and raw material wastage costs are currently at an unacceptably high level, requiring intervention, and could be substantially improved through the use of an ACMS.”

REFERENCES


Background

Demand for NHS services is ever-increasing whilst there is pressure on staff to work more efficiently with fewer resources. Gone are the years when winter pressures were felt only during the few cold, dark months at the start of each year. Hospitals can just as easily be short of beds during August as over Christmas.¹ The press continue to report the challenges around A&E waits and bed crises but the tone has changed to it being the natural state. Media reports regularly anticipate disaster or even collapse of the service. The challenge for pharmacy in the current NHS economic climate is to develop these extended services with limited extra resource. Perfect Week has demonstrated that a Trust-wide focus on collaborative working can significantly improve patient flow. Pharmacy services have an integral role to play in supporting these improvements.

Why do we need to have a ‘break the cycle’ initiative?

The healthcare services across the UK are under significant and prolonged pressure. The NHS has the potential to be overwhelmed if it does not tackle the challenges it faces.¹ The population is aging and more people are living longer with chronic diseases. Added to this, the costs of treatments are rising and threatening the financial stability of the service. It is widely accepted that the NHS needs to change and adapt to continue to deliver high quality patient-centred care. This cannot be another top-down reorganisation but, instead, needs to work at grass roots with patients to understand their needs and requirements from a health service. Often, the biggest challenge of any journey is that first step i.e. the problem is knowing where to start. Staff need to lead on transformational change of the services but they often feel overwhelmed by the scale of the problem. Research has shown that NHS organisations that develop a clear vision for change, empower their staff to transform the service and develop a compassionate supportive environment are more likely to be high performing.⁴ The challenge for large NHS organisations is to overcome the inertia provided by working within such a large system that is operating so close to capacity. The case for change needs to be clearly expressed and staff need to be engaged to deliver improvements.

One of the major areas of challenges the NHS currently faces is the flow of patients through acute hospitals. This is a system-wide issue starting from pressures on ambulance Trusts to respond, through A&E waits, bed shortages and delays in

Abstract

Title
A Perfect Week For Hospital Pharmacy

Author list
Gibson D, Forlow J, Robson J and Davison J.

Summary
Perfect Week is an improvement programme supported by the NHS Emergency Care Intensive Support Team. The focus is on ‘breaking the cycle’ of bed pressures and the demand for acute hospital services. Perfect Week uses various tools to support Trusts to look at their services, try new ideas to improve patient flow and empower staff to improve the care they give to patients. This article evaluates the experiences of the involvement of four Trusts’ pharmacy departments in Perfect Week. The process uses the ‘SAFER’ bundle to improve patient flow through acute hospitals. Various different methods to extend services, improve communication and focus on discharge were implemented with varying degrees of success. By working collaboratively with other health professionals the four pharmacy departments demonstrated that they contribute to addressing the challenges of increasing pressure on acute NHS services. The experiences of all organisations showed that operational changes to dispensary and drug delivery had little impact on improving patient flow through the hospital. A focus on providing clinical pharmacy services based on wards and working closely with medical and nursing teams had the greatest impact on improved patient care and flow through the hospital. The challenge for pharmacy in the current NHS economic climate is to develop these extended services with limited extra resource. Perfect Week has demonstrated that a Trust-wide focus on collaborative working can significantly improve patient flow. Pharmacy services have an integral role to play in supporting these improvements.

Keywords: extended service, discharge, communication, SAFER.
discharge. This all leads to poor performance, reduced safety and low quality patient experience. Changes to one element of the system are likely to be like a drop in the ocean; what is required is a whole system approach to improvement.

As part of NHS improvement programmes, ECIST have developed a ‘breaking the cycle’ initiative. This acknowledges that acute health services are experiencing significant high levels of pressure leading to poor patient experience and outcomes. The initiative develops a sense of purpose, aims to understand the challenges and has system wide, multi-agency participation. The goal is to have a rapid process that emphasises doing rather than lengthy discussion and overthinking.¹

What is Perfect Week?

As part of the ‘breaking the cycle’ initiative, Perfect Week is an improvement programme designed by the NHS ECIST team. It has been run by many health care Trusts across the NHS that are aiming to improve patient safety and reduce delays in patient care. A Perfect Week initiative encourages staff from all partner organisations across the health and social care system to work collaboratively to trial new ways of working. It removes delays and bottlenecks in the system by ensuring patients are transferred to the right place for their care as quickly as possible. In effect, it allows a ‘reset’ button to be pressed on our hospital systems. Perfect Week objectives are to:

- Improve patient experience.
  Timely senior reviews and better care planning will lead to fewer delays. This, in turn, will reduce a patient’s length of stay by eliminating unnecessary delays in care.

- Increase patient safety.
  Care delivered in the right place at the right time

- Improve staff experience.
  Allow staff to focus on high quality clinical care with fewer distractions. The week should provide a less stressful and pressurised environment.

- Improve performance.
  Clinical staff empowered to focus on best practice guidelines and professional standards.

Often, significant changes to large systems such as a hospital and the associated health and social care organisations are difficult to achieve. For the staff on the ground the problem can appear too large to tackle and senior management are occupied with ensuring the organisation manages to function from day-to-day. Good ideas can be lost in the business of patient care as people do not have the time or the authority to

"A Perfect Week initiative encourages staff from all partner organisations across the health and social care system to work collaboratively to trial new ways of working."
try new initiatives. In other words, the NHS organisation is too busy ensuring the safe and effective care of patients on a day-to-day basis. A Perfect Week aims to break this cycle, engaging staff and empowering them to improve patient care and patient flow through the hospital. The focus is on giving staff the time and authority to implement improvements. To achieve this there are seven key priorities for a Perfect Week:

1. Planning and preparation – which is crucial to avoid potential problems cropping up.
2. Creation of a compelling story – so we know why we are doing it.
3. Creation of a commitment - so everyone shares a commitment to making it work.
4. Staff engagement – to involve everyone.
5. Creation of a structure – so it’s clear how things will be done.
7. Sustainability – to make the good things stick.

How were changes achieved?

To achieve significant and meaningful change a clear process for implementation is required. Staff need to know how they can get involved with any change process. In addition, a communication structure is a key enabler so that learning from changes implemented can be measured and recorded. Perfect Week uses four main concepts to achieve this.

**SAFER care bundle**

The SAFER care bundle is the core concept of Perfect Week. It is a practical tool that helps to reduce delays for adult patients in hospital. When used consistently it has been shown to reduce length of stay, improve safety and improve patient flow.

The bundle will only be effective if used across the whole organisation and benefits will only be seen whilst the bundle is used. This is why an event like Perfect Week is essential to get the SAFER bundle introduced. To maintain the benefits a change in culture is required.

**Command and control**

All delays in implementing the SAFER bundle that cannot be resolved at ward level are escalated through dedicated command and control teams. This involves having clear lines of communication to quickly correct problems and unblock delays in the flow of patients through the hospital. The command and control structure also needs links with external organisations, such as GPs and social services, to unblock delays that may be due to external factors.

**Perfect Week liaison officers**

To ensure that all clinical staff can be freed to patient care, non-clinical staff are utilised as Perfect Week liaison officers. Their role is to facilitate the change in practice and provide a clear line of communication to the command and control officers. They provide the authority and ability to make changes as well as escalating bigger problems to a higher level.

**Give and take**

All participants need to be both empowered and prepared to work differently. There needs to be a commitment to try new ways of working to deliver SAFER care for patients with the ability to try new things when a suggestion is made or a problem arises. The key to this is being flexible in approach and not to tolerate the status quo.

How was pharmacy involved in Perfect Week?

Perfect Week was implemented in four acute NHS Trusts across the North East and Cumbria during the second half of 2015-16. The pharmacy departments in all four organisations were heavily involved in the implementation process.
involved in supporting the initiative. Each pharmacy department worked with key stakeholders to identify the key critical areas that would significantly contribute to the Perfect Week objectives. Each pharmacy team then developed Perfect Week implementation plans. The experiences of the pharmacy teams were variable, including some positive improvements to practice but also some challenges around delivering a sustainable service. The different approaches and experiences of the pharmacy teams in the four organisations have been analysed for common themes. These themes can be used to understand how pharmacy could contribute to further improving patient flow and reducing pressures on acute hospitals.

Each Trust pharmacy team implemented a number of improvements as part of Perfect Week. Examples of successful and unsuccessful activities are shown in Tables 1 and 2 respectively.

Extended services
Pharmacies from across all four organisations trialled different ways of delivering their clinical and dispensary services. The traditional office hours approach by pharmacy is often cited as one of the main barriers to effective discharge at evenings and weekends. There is often pressure to increase dispensary services to allow discharges to be dispensed ‘24/7’. One pharmacy team described how ‘reactive dispensing

Table 1: Successful change activities for pharmacy

<table>
<thead>
<tr>
<th>MDT working</th>
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<tr>
<td>Pharmacists attended ward and board rounds daily where the team use electronic whiteboards to review all ward patients. This allowed pharmacists to have a clear ‘handle’ on the plan of care for patients. Pharmacy team members could work towards a shared goal of specific discharge plans and interventions were made in a more timely and effective manner.</td>
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<th>Early discharge notification</th>
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<td>Each ward team informed pharmacy of the expected discharge time well in advance of discharge. In general this worked well as it allowed patients to be discharged earlier in the day due improved planning. In some cases it did lead to increased pressure being placed on pharmacy staff either because last minute changes had been made to prescriptions or SAFER principles for discharge were not being fully applied.</td>
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<th>Extended hours clinical pharmacy</th>
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<td>This involved relatively modest increases of clinical pharmacy services to wards. One Trust provided two extra pharmacists over the weekend who focused on high impact interventions identified using referrals and electronic patient medication administration (EPMA) records. One pharmacist identified three potentially life threatening prescribing issues involving opiates and insulin. They also help facilitate the discharge of three complex Medidose and nursing home patients who would ordinarily not be able to go home. The outcome of this experience has led to the production of a business case to provide extended hours clinical pharmacy services with a focus improving outcomes for specific high risk patients.</td>
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Table 2: Unsuccessful change activities for pharmacy

<table>
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<tr>
<th>Improved delivery process for medication post discharge</th>
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<td>A delivery driver was employed by one Trust to allow patients to go home and then have their medication delivered when it was dispensed. In reality, over the week, there was only one occasion where the medication was not ready when the patient was going home. It was felt that having a driver on standby for an occasional problem was not the optimal use of resources.</td>
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<th>Senior management attending command and control meetings</th>
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<td>Senior pharmacy management attended the Trust-wide command and control meeting. Again, over the week only one issue was escalated to pharmacy and this could have been solved by usual processes. It was felt that it was not the optimal use of resource to have a senior pharmacy manager spending time attending the meeting with little input.</td>
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<tr>
<th>Increased pharmacy dispensary service</th>
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<tr>
<td>Extending pharmacy dispensary services was piloted at a number of Trusts using overtime. Demand was very small and was not a good use of resource; these staff would be far better employed providing pharmaceutical care directly to patients on the ward. As the extra service was staffed using overtime it was not feasible to continue as the benefits did not stack up to support the development of a business case for the change.</td>
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</table>
services only supported a continuation of late decision making’. Where the SAFER bundle was implemented effectively decisions to discharge were made in a timely way. This allowed pharmacy teams on the wards to facilitate discharge with near-patient dispensing services. Where the SAFER bundle worked effectively, dispensaries reported receiving work earlier in the day thus eliminating the peaks in demand that occur with late decisions about discharge. By smoothing out the peaks in demand, dispensaries reported a calmer and safer dispensing environment.

A significant improvement in facilitating discharge medication supply involved enhanced portering services. Ensuring timely transportation of medication to wards when it had been dispensed reduced delays in discharging patients. It also allowed both nursing and pharmacy staff to focus on the clinical tasks where they can add value to a patient’s care. Another extended service planned for the Perfect Week was to employ a delivery driver in one of the Trusts to allow patients to be discharged before their prescription was dispensed. However, the service was not utilised as the more timely receipt of prescriptions meant that all medication was ready before other discharge processes were complete. However, better use of the Discharge Lounge for patients waiting for prescriptions to be dispensed and other services to be arranged was effective at freeing up beds.

Whilst increasing pharmacy dispensary services was shown to be of little value, an increase in ward based clinical pharmacy services was shown to improve patient care. Various approaches were trialled including support to areas with little pharmacy input, extended weekend services and flexible clinical teams going to where demand was highest. In some cases clinical pharmacy services were required to overly focus on discharge, which led to neglecting clinical tasks that improved quality and safety. By having pharmacy teams working as an integral part of the multidisciplinary team (MDT), problems with prescriptions were identified in a timely way and proactively resolved. Pharmacy teams applied SAFER bundle principles to the care they delivered. They were able to identify and solve potential issues that may delay discharges before they started to affect the patient.

**Improved communication**

Various methods were used to improve communication with a focus on eliminating potential delays in care and on timely, planned discharge. Across the four organisations ‘Board Rounds’ was the mechanism most utilised to improve communication. The use of electronic whiteboards allowed a focussed discussion, which provided a visual indication of any potential hold-ups to discharge. Board Rounds provided a structure to allow the MDT to use SAFER bundle principles and focus on progress towards discharge. All members of the MDT benefited from the input of other professions, likely time frames for resolving problems and how they affected the actions of other members. Board Rounds were identified as an important part of improving early decision making. Problems occurred when the Board Round was poorly led. This involved them either...
starting late or getting side tracked, leading to a significant waste of time and poor decision making. Standardised approaches to Board Rounds were developed to ensure a consistent high quality approach.

In addition to the decision making Board Rounds, many wards also operated Ward Huddles. These are brief assemblies to allocate work and check on progress towards task completion. They proved useful to ensure momentum was maintained towards the decisions that had been made on ward rounds and Board Rounds. Ward Huddles benefited pharmacy as they allowed appropriate delegation of tasks, clear lines of communication and closer integration into ward MDTs.

The final major change to communication was about how issues and problems were escalated in the command and control structure. Each ward had a Perfect Week liaison officer who fed back any problems in real time to ‘Bronze’ commanders who removed potential barriers. The Perfect Week structure required significant extra resources but did demonstrate a mechanism that robustly escalated problems until resolution. It was quite reassuring that many of the issues that were flagged up as medication-related were actually problems that were not connected to pharmacy. In a number of isolated instances, the command and control structure put inappropriate pressure on junior pharmacy staff and this caused upset. The key to sustaining improvements is to ensure that the command and control structure provides appropriate support as well as rectifying problems.

Focus on discharge
The Perfect Week shone a light on the discharge process. In all organisations involved there was an improvement in patient flow through the hospital. The key to implementation was the culture of the organisation. Some found that SAFER bundles were adopted and that discharge notification did occur early while other wards and hospitals found that planning for discharge was not adopted. Unfortunately, the emphasis on providing an earlier discharge resulted in a few patients being readmitted in the following week. However, medication issues were not deemed to be the reason for readmission.

To fully embed the potential improvements in care from SAFER bundles, a culture change in how discharge is viewed and planned for is required. Having a structure that quickly identifies and resolves delays through effective communication helped reduce delays in the discharge process. The challenge for each of the teams now is to embed the learning, adopt the good elements and make an effort to change the culture of how discharge and patient flow is viewed.

What have the pharmacies involved in Perfect Week learnt?
Many of the delays in discharges identified were known to pharmacy before the initiative started. The Perfect Week exercise increased the knowledge and understanding of the wider hospital team with regard to medication-related issues, for instance the particular needs of care home patients or those with home carers. Pinch points and blockages were identified and, if long-term resolution was not found during the week, plans to develop services were made. The Carter review has highlighted that significant savings can be achieved by better use of clinical staff. Our experiences of Perfect Week have demonstrated that basing the pharmacy team close to the patient and proactively resolving issues can significantly reduce delay and improve efficiency in patient care. This supports the concept within the Carter Review that increased clinical pharmacy services are likely to lead to better optimisation of medicines.

As the name suggests, Perfect Week is only seven days long. The challenge is to learn from the experience and apply that learning to improve services longer term. The traditional view that the dispensing process is a major delay in patient discharge from hospital was not seen in any of the Trusts that undertook Perfect Week. Short-term improvements in care were achieved by proactively adapting clinical services to prioritise patient flow through the hospital. In a large number of cases this was achieved by postponing other activities. Many NHS organisations are carrying vacancies and struggling to recruit pharmacy team members. Perfect Week has demonstrated that, with a full complement of staff, pharmacy can deliver an extended service that improves patient care. The challenge is to achieve a critical mass of pharmacists and technicians in each acute Trust to maintain quality core services during the week whilst also providing enhanced patient care during extended hours. Overly stretching services over seven days can potentially lead to staff being exposed at peak periods of activities. The experiences during Perfect Week demonstrated that, by focusing on areas that can have the greatest impact on improving the flow of patients through

“. . . basing the pharmacy team close to the patient and proactively resolving issues can significantly reduce delay and improve efficiency in patient care.”
Trusts, relatively small changes to pharmacy services can improve patient care.

Unfortunately, the NHS is struggling with large financial deficits and Trusts are not able to fund significant increases in staffing levels. The experiences of Perfect Week in the North East and North Cumbria have demonstrated that clinical pharmacy is one of the solutions to the issues of patient flow in acute hospitals.

By proactively working with the MDT on wards, pharmacists and medicines management technicians can help resolve many of the blocks in patient care and provide solutions that will help with solving the bed crisis that the NHS is almost perpetually suffering from.

Declaration of interests
The authors have nothing to disclose.

"By proactively working with the MDT on wards, pharmacists and medicines management technicians can help resolve many of the blocks in patient care . . .”

REFERENCES
COMING TO A TOWN NEAR YOU IN 2017 - A PHARMACY MANAGEMENT EVENT FOR MEDICINES

JoMO-UKCPA National Diabetes Workshop
9 May 2017, Manchester

PM National Forum for Scotland
30 August 2017, Dunblane

JoMO-UKCPA National Cardiovascular Workshop
13 September 2017, Leicester

National Forum for Northern Ireland
October 2017 (day and venue to be confirmed)

JoMO-UKCPA National Diabetes Workshop
10 October 2017, London

Pharmacy Management National Forum Workshop
10 November 2017, London

Pharmacy Management Academy
See details for the next programme elsewhere in the Journal.

Details from katie.fraser@pharman.co.uk
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Further information relating to these events will be added onto the Pharmacy Management website events page which can be found using the QR code.
The Role Of A Preregistration Trainee Pharmacist In Primary Care

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Abstract

**Title**
The Role Of A Preregistration Trainee Pharmacist In Primary Care

**Author list**
Crotty S, Daas M.

**Introduction**
The role of the primary care pharmacist is evolving. We present a novel preregistration trainee pharmacist model which we have run with one trainee. This work could be of interest to other involved in such training.

**Methods**
The preregistration trainee pharmacist was recruited at a hospital recruitment session, supported by Health Education England. Only applicants who were interested in a Clinical Commissioning Group (CCG) rotation at interview were considered for this joint post. Our post involved half of the training in hospital and half in primary care roles. The primary care rotation included a two-month period in a community pharmacy and four months within a CCG. The CCG rotation included one day a week spent in a GP practice. The preregistration trainee pharmacist completed useful work including formulary reviews, bulletin development, running ePACT searches, adding entries to ScriptSwitch software, helping with medication safety and preparing for a Care Quality Commission (CQC) inspection in a GP practice.

**Results**
Our preregistration trainee pharmacist obtained a broad-based experience from various sectors, including hospital, community pharmacy, GP practice and CCG. He found the primary care/community based half required him to develop his clinical skills, and he gained an understanding of all sectors. Overall, this preregistration year has given him a good grounding for the future and prepared him for future roles, which could be in hospital, community or primary care.

**Discussion**
Following the national direction with primary care pharmacists helping GP practices to manage their increasing workload, many jobs have been created and it seems essential that part of the preregistration training gives experience in primary care roles. Our model could be adapted for either community-based placements or hospital-based placements and is in line with national recruitment drives of pharmacists in primary care roles.

**Conclusion**
We present a new model of preregistration training which included a successful rotation through a CCG.

**Keywords**: rotation, tutor, GP practice, CCG.

Introduction

The role of the primary care pharmacist has become more and more significant over the years. It is important that preregistration pharmacists have an understanding of the potential different roles for pharmacists within our health economy.

It is fairly uncommon to have a preregistration trainee pharmacist (prereg) rotation for more than a couple of weeks in a Clinical Commissioning Group (CCG), although these posts are developing in a few selected sites. We felt that our first rotation of a prereg for a four-month period in a two-CCG federation should be shared.

Health Education England (Thames Valley) agreed to fund a prereg post that involved a rotation through hospital and a rotation within the CCG, including a GP practice.

We were fortunate to have a GP practice that had a recent, positive experience of a pharmacy student rotating to them as a holiday job and which had a GP lead who is dual-qualified as both a doctor and a pharmacist. This practice was happy to take the student one day a week for their four-month rotation while attached to the CCG. The timing of the rotation to the GP practice was linked in with GP registrar training days to reduce the additional work required by the GP practice.

The CCG Head of Medicines Management nominated an experienced CCG lead pharmacist with prior experience of training preregs in hospital to provide tutoring. The CCG lead pharmacist acted as lead tutor for sign-off of the mandatory appraisals for the Royal Pharmaceutical Society.

A link was made with BMI Chiltern Hospital for hospital pharmacy skills and clinical rotations.

The lead-in time after recruitment is quite long and so we had time to discuss, within the CCG medicines management team, the tasks and responsibilities that might be feasible for a prereg to take on. There was significant disquiet within the team about the responsibility required of the prereg for...
their own independent learning and working. It is the nature of CCG posts that, because teams are small, staff need to develop multiple skills to deal with complex and changing workloads, much of which are strategic. Against this background, staff felt that it might be difficult to delegate tasks to the new prereg. However, it turned out that we had under-estimated the number of currently undertaken tasks that could be given to a prereg. Given the academic ability and the information technology (IT) proficiency of the younger ‘pharmacist-in-the-making’ we have been surprised at how much could, with adequate supervision, be delegated successfully.

Method

The prereg was recruited at a hospital recruitment session supported by Health Education England, along with recruitment to NHS hospital preregistration posts. At interview, all applicants were asked for their preferences including whether or not they would be interested in undertaking a preregistration rotation to Chiltern and Aylesbury Vale CCGs. Only applicants who were interested in a CCG rotation at interview were considered for this joint post.

Our post involved half of the training in hospital and half in primary care roles.

The position was linked with a BMI Chiltern private hospital placement, which was provided in two three-month blocks in quarter one and quarter four.

The primary care rotation included a two-month period in a community pharmacy and four months within a CCG. The CCG rotation included one day a week spent in a GP practice under the supervision of the practice manager and a dual-qualified GP, who is also a qualified pharmacist.

Good communication across sites, which is essential, is an area we could improve upon. For example, the mandatory prereg audit and poster was completed during the hospital rotation but written up during the CCG rotation. This aspect felt ‘rushed’ and the timing of rotations will be reviewed for the next preregs who we employ to ensure that the prereg is in the same base as the audit when writing up.

The CCG medicines management team kept a list of projects that we felt were of a suitable size for a prereg to complete and all members of the medicines management team were asked to contribute to this list. If a pharmacist within the medicines management team contributed a task that required completion then they supervised the day-to-day completion of this task, although overall supervision of the prereg was managed by one pharmacist.

Tasks were allocated, taking into account the prereg’s preferences and abilities. As this was a new rotation the setting of tasks was more fluid than hospital rotations, which tend to have a more set task completion list. It was felt appropriate to have a maximum of three projects ‘on the go’ at any one time. This provided the right balance between having a realistic work schedule while having something to move on to if a task reached a stage where tutor input was required.

It is important to support growth and skill development throughout the rotation and to reinforce knowledge gained. So, for example, at the time when undertaking a medication review for a care home pharmacist on a patient with renal problems worsened by metformin, the student was attending study days about acute kidney injury (AKI), read local policies on AKI and discussed the implementation of the recently introduced AKI card with their GP tutor. He also ran a short session within a clinical team meeting where AKI was further discussed. This presentation was used as evidence of presenting skills for his prereg study days. Linking tasks to study days is not always possible, but where it can be done it reinforces an ethos of learning for life and not just for the exams.

The CCG tutor met with the prereg on an informal basis at least twice a week, more often if required, and on a more formal basis monthly. Written evidence was provided by the prereg against Royal Pharmaceutical Society competencies on Mondays each week. This was communicated to the tutor by email. Initially the student wrote up things of which he was proud, where he had learnt something or if he had changed an aspect of his approach. Towards the end of the rotation evidences became more targeted towards items where the student had gaps. Our current evidence collation uses a standard form that relies on longhand form completion and email, but for the next prereg intake we will be using an electronic system.

Main achievements and successes

The key accomplishments are summarised in Table 1. The main achievements and successes for the CCG and the GP practice respectively are outlined below.

CCG

Becoming familiar with useful tools in the CCG

ePACT.net is software available for CCG

“**The primary care rotation included a two-month period in a community pharmacy and four months within a CCG.**”
prescribing advisors that allows online analysis of the previous 60 months prescribing data generated by NHS Prescription Services from FP10 prescriptions submitted by community pharmacists within the CCG for payment. This resource is very useful and fairly easy to use. It was used by the prereg to obtain prescribing data for medicines relating to projects such as interventions, formulary applications and reviews. At their request, the prereg was able to provide a specific GP practice with their current prescribing of ‘red-listed’ (hospital only) and ‘black-listed’ (non-formulary) drugs and to devise variance reports for individual practices, which are then used to assess where a practice varies significantly with the usual prescribing rates. Reducing variation within prescribing is a current ‘hot topic’ within pharmacy.

ScriptSwitch is a computer program that interacts with GP clinical systems and operates at the point of prescribing. It offers messages and potential ‘switches’ to the prescriber. These messages/switches are set locally and approved after discussion at a Medicines Management Joint Executive Team Meeting. It was used to standardise messages for drugs that were red and black-listed on the Buckinghamshire formulary. The prereg added messages to all low protein foods for phenylketonuria (PKU) and reviewed messages for all sip feeds.

Bulletin Preparation
The task was to develop a local bulletin for GPs in Buckinghamshire, after review of the PrescQIPP ‘drop list’ bulletin on omega-3 fatty acids. The bulletin had to be concise and simple to implement. The project was managed from start to finish by the prereg, who took it through the CCG approval process.

The prereg critically appraised the evidence and concluded that we should recommend stopping therapy and not switching to alternative agents.

Buckinghamshire CCGs’ local bulletins have a standard format, including practice benchmarking data. This required searches to be done using ePACT data so that a benchmarking graph could be produced. The data on omega-3 fatty acids was displayed showing spend from highest to lowest across all 53 general practice surgeries in Buckinghamshire. Using benchmarking data is an effective way of motivating practices to make a change - they can see how they compare to other practices and want to perform better.

PrescQIPP provide a patient letter template for practices but this required some local re-drafting. The prereg learnt that it is important to be very particular with the choice of words when writing patient-facing material.

The local ‘intervention’ bulletin was approved and was circulated to all the Buckinghamshire practice managers and each GP practice prescribing lead. Implementing our local recommendations at this time was included as part of the Aylesbury Vale CCG quality

A prereg needs to know about the tools available to the CCG
improvement scheme. The impact of the intervention will be possible to see using ePACT data.

By reviewing all patients taking omega-3 fatty acids and stopping 100% of omega-3 fatty acids therapy, general practices across the region could make savings that amount to more than the prereg's salary for the year.

**New medicines application (NMA) – tolvaptan for treating autosomal dominant polycystic kidney disease (ADPKD)**

Following the release of the National Institute for Health and Care Excellence (NICE) technology appraisal (TA358), tolvaptan had to be available on our local joint formulary within three months.2

The prereg had to understand and apply the local processes for the addition of new medicines to the Buckinghamshire joint formulary.3

The task was to complete the local NMA form for tolvaptan that would go to the next Formulary Management Group (FMG) for review. These reviews require someone with clinical expertise and understanding to complete. An abbreviated version of the local application form is used for NICE TAs because the NICE TA document reviews the evidence and safety well. The purpose of the application is to decide the local place in therapy, the traffic light position and whether additional resources (such as a local protocol) are needed.

The reviewer needs to be able to perform literature searches, critically appraise and give an opinion on the medicines. The prereg was asked to propose a traffic light classification and so looked at bordering formularies to see their classification and discussed this with their tutor.

To effectively understand this drug’s place in therapy, it was suggested that the prereg should have a good understanding of renal physiology and chronic kidney disease. This led on to developing an acute and chronic kidney injury (AKI) case presentation, which was presented at an internal clinical meeting and at a preregistration study day. AKI is topical at the moment and pharmacists are crucial in advising on medication dose adjustment to prevent AKI.

The costing section of the form was a challenge and required a pharmacoeconomic analysis. Using the NICE costing template and the prevalence of ADPKD, the prereg was able to estimate that the estimated annual usage for the Buckinghamshire population would be 22 patients. Using the confidential PAS price, he was then able to calculate the hospital cost including VAT per patient per year. He calculated the total cost for the Buckinghamshire population. Although the expenditure would be high, there could be savings from avoiding hospital admissions, delayed need for dialysis and delayed need for kidney transplants. With guidance from the tutor, the application form was completed, including obtaining budgetary approval, in time to be discussed at the next FMG.

Tolvaptan was presented by the lead tutor and the renal consultant who attended the FMG. The prereg attended to offer support if any questions arose from the application. He found it interesting to see the process for how medications are approved for addition to the formulary within the Buckinghamshire health economy. The Buckinghamshire formulary applies to both primary and secondary care.

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**The audit showed that 14 patients (87.5%) were being monitored correctly but there were two who did not meet the standard . . .**
patient, taking into account other conditions and adjusting the drug monitoring accordingly. These can now be uploaded onto the clinical system by the practice manager.

The project took longer than expected to complete and so the prereg produced a guide for the practice staff on how to input data into the template and care plan.

The principle of developing an individual care plan could be used for all DMARDs. This should empower patients to seek tests at the correct time and fits in with local work encouraging patients to take more responsibility for their own healthcare. Feedback from the prereg is that it is great to feel that something that they developed will benefit patient care and prevent harm.

Care Quality Commission (CQC) preparation for inspection

In October 2014, CQC began inspecting and regulating GP services. The prereg’s GP practice was due for its first ever inspection. This was a very busy and stressful time for the staff.

The prereg was asked to review all the drug safety alerts from the last two years to show which of these had been actioned. Older alerts can be found on the National Patient Safety Agency (NPSA) website until June 2012, after this date they were stored on the Central Alerting System (CAS).\(^4\) Medicines and Healthcare Products Regulatory Agency (MHRA) drug safety updates were also included.

The prereg familiarised himself with the three websites and then downloaded the patient safety alerts and put them into a folder on the practice intranet, made a table and added a short summary of what they related to. He inserted the files as objects into the document to allow for easy navigation of all the alerts. The GP tutor reviewed the document and colour coded the alerts to identify which had been implemented and which needed to be actioned.

Both the methotrexate audit and alerts document were shown to the CQC inspectors and used as evidence of good practice for this inspection.

Discussion

Initially, the prereg had some concerns which included:

- Any new post is a bit of a gamble because the training is developing and there is some uncertainty as to what you will get from the post.
- Cost of living. Living in Buckinghamshire is expensive.
- Travelling to numerous training sites. A car was needed and the prereg had to pass his driving test after he accepted the post in a tight timeframe.
- Moving sites. Moving between training sites means building new
professional relationships. This adds stress, but provides unique and valuable experience.

- Communication between training sites and tutors. Work is still required to ensure ‘glitches’ identified this year do not happen in the future.

- Isolation. Being the only prereg in the CCGs, there is not the camaraderie of having a number of peers in the same workplace.

- Preparation for the dreaded prereg exam! Concerns that the CCG time would not prepare the prereg adequately for the new format exam. This concern appears less valid now (for the whole training) because, through his hard work, the prereg achieved a very good pass.

Interestingly, the advantages of the CCG/GP practice rotation perceived by the post-holder were that they:

- gained a better understanding of the NHS and the wider aspect of who is involved and what goes on

- were able to work independently a lot of the time and were expected to be professional. So, in essence, the CCG staff’s concerns about the need for responsible working were perceived as a benefit by the prereg

- considered the varied nature of the work, feeling part of a team and having their own projects to work on were key to their personal development.

Conclusion

Overall, the new four-month CCG/GP practice rotation was a positive experience. Subject to suitable posts becoming available, our initial prereg believes that, at some time in the future, he may like to return to a clinical role within primary care.

It is exciting that one of the advantages of a varied experience obtained from a mixed placement - from a prereg pharmacist’s perspective - is that you can see all the different roles and responsibilities in a GP practice, a CCG, a community pharmacy and a hospital. Our prereg felt that he developed a unique perspective that few pharmacists gain even in many years of practice.

There is a need to train more pharmacists. Currently the number of graduate pharmacists exceeds the number of preregistration training places; increasing the supply of preregistration places is not easy. In addition, the number of available roles for pharmacists is expanding. Including a three or six-month period within a CCG/GP practice into existing or new hospital or community preregistration training posts could be attractive as well as providing a way to expand the number of preregistration training posts available. However, to release the necessary time within the current prereg training year, there needs to be local discussion on how to reduce the existing hospital/community portion of training, which is currently 12 months, into six or nine months to allow for more variety of experience including a CCG/GP practice rotation.

We believe there have been benefits on both sides. The prereg does need to fit in well and be highly motivated to be able to cope with changing rotations regularly. Experienced CCG medicines management staff are training a pharmacist for the future. The prereg has benefitted from undertaking a wide variety of different work, under supervision. It takes time to act as a tutor, but the benefits of seeing a young pharmacist progressing and developing have been very rewarding. With NHS England’s ‘pharmacists in practices’ pilot starting to demonstrate that pharmacists can reduce the workload of GPs, there is huge potential for more pharmacists to work within primary care in the future. Where should this training start if not right at the beginning?

Acknowledgements

This preregistration training post was funded by Health Education England - we are grateful for their support.

Declaration of interests

The authors declare no conflicts of interest with respect to the authorship and/or publication of this article.

“"Our prereg felt that he developed a unique perspective that few pharmacists gain even in many years of practice."
It’s all about you!

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**Question:**
What is your job title?

**Answer:**
Consultant Pharmacist in Critical Care, Clinical Academic Reader in Critical Care, Therapeutic and Senior Lecturer in Medical Education.

What are your main responsibilities/duties?
- Clinical Pharmacy Service to critical care at Guy’s and St. Thomas’ NHS Foundation Trust (GSTT).
- Analgesia, Sedation and Delirium (ASD) lead.
- Research Lead for pharmacy.
- Principal investigator on a number of research studies.
- PhD supervisor.

To whom do you report and where does the post fit in the management structure?
That’s an interesting point. In terms of a clinical service, I think ultimately that I report to the Consultant Intensivist and Clinical Lead. On a day-to-day basis I report to the Critical Care Pharmacy Team Leader.

How is the post funded?
The clinical aspect of my post (50%) is funded jointly by pharmacy and critical care. The research aspect (about 30 to 50%) is funded by various different sources, some competitive and some not.

When was the post first established?
The post was first established in 2006.

Are you the first post holder? If not, how long have you been in post?
I am the first post holder and have been in post since it was created.

What were the main drivers for the establishment of the post and how did it come about?
The post was created under transitional arrangements by the now retired Chief Pharmacist. I think it was considered, rather nicely, that securing a consultant post for me would be a key driver.

What have been the main difficulties in establishing/developing the post to its current level?
There have definitely been challenges along the way. ‘Smarty-pants pharmacist’ is what some may think. I try and overcome this by giving the doubters new knowledge, praise them greatly, make them laugh and, lastly, continually mock myself. One can’t take arrogance too seriously. In intensive/critical care, patients face death - sometimes on a daily basis.

Research is always a battle. Studies now take a long time to get approved. Ethics approval and associated forms are also a challenge. It does mean more satisfaction when studies are finally approved. I have just heard today* that a gentamicin pharmacokinetic (PK) study for which I am the Chief Investigator has achieved National Institute for Health Research (NIHR) portfolio status. This means I have access to the NIHR and its funds for research activity.

What have been the main achievements/successes of the post?
It’s always such a pleasure to make a patient laugh. Imagine sitting all day with a tracheostomy - you can’t talk, you can’t swallow, you have a catheter to pass urine and everything else is mopped up as you go. If poking fun at myself or the multi-disciplinary team (MDT) makes that patient laugh, well, that absolutely makes my day.

I try and always have a ‘can do attitude’. Some of what I perceive as my greatest successes were not supported by others. I once persuaded an unfortunate

“*One can’t take arrogance too seriously. In intensive/critical care, patients face death - sometimes on a daily basis.”*
young man with neurofibromatosis who knew, in his heart, he would never leave hospital to swap from iv to oral oxycodone so that he and his devoted wife and mother could leave critical care and have quality ward-time together without the need for an intravenous catheter.

I have also been principal investigator on a number of research studies. The latest one is a pharmacokinetic (PK) study of gentamicin in critical illness. I can’t take all the credit as my Master of Research (MRES) student did most of the work. She went off on maternity leave before it opened. I have recently been invited to be part of the investigatory team on an NIHR commissioned call for a sedation trial. This is a huge compliment.

I am recognised nationally as an academic pharmacist and PK/delirium expert.

What are the main challenges/priorities for future development within the post which you currently face?

My main challenge, personally, is that I have chronic neuropathic pain in my left knee, which makes standing and walking very difficult.

Future priorities/challenges include the continued gap between research and clinical practice. I represent pharmacy on the National Speciality Group (NSG) for critical care. We are trying to encourage more pharmacists to become principal investigators, or at least participate and appreciate research.

What are the key competencies required to do the post and what options are available for training?

I have always believed that the key competency to be recognised as a Consultant Pharmacist is extensive knowledge of critical care therapeutics, including the up-to-date critical appraisal of evidence. The best method to achieve this is by attending international conferences and reading the medical literature.

Getting a PhD was very important. This is one of the basic building blocks to becoming a researcher. It is, though, by no means the only method. There are many ‘top drawer’ researchers who do not have a PhD. It did help me though.

I also believe that publishing or sharing work is important. It brings scientific rigour into one’s clinical practice.

In addition, independent prescribing is a key competency. As soon as this was available, I made sure that myself and the remainder of the pharmacy team were competent.

We are affiliated with Kings College London (KCL) and have the Biomedical Research Centre (BRC) on the Guy’s site. There are ‘tons’ of opportunity (but no funding!) for training. That said, much of the training is free.

How does the post fit with general career development opportunities within the profession?

It fits in rather well I think. There are five Consultant Pharmacists in critical care. We all support each other. A number of
us publish together. We have published five papers to date. There could be more.

I believe consultant posts should be aspirational. I have always tried my best to make the post aspirational and to push the boundaries.

In my humble opinion, there needs to be more consultant pharmacist posts. Just like in medicine, it should be viewed as the end of ‘training’ - your permanent post. I think this will be one of the outcomes of Lord Carter’s review.

**How do you think the post might be developed in the future?**

I would really like to develop the academic component and with that, build research capacity within critical care and anaesthetic clinical pharmacy. The area I have chosen to focus on is clinical research, others chose teaching and some chose leadership within the profession.

**What messages would you give to others who might be establishing/developing a similar post?**

Do not give up easily. Keep going. All the things you think you can’t do, you really can. Plan and deliver research studies. Publish your work.

**Do you have any Declarations of Interest to make and, if so, what are they?**

I have done work for a number of companies all under the ABPI. These include Pfizer, Eli-Lilly, Merck and Orion.


“... there needs to be more consultant pharmacist posts. Just like in medicine, it should be viewed as the end of ‘training’ ...”
All Hands To The Pump!

Janet Donnit, Chief Pharmacist at Metropolis NHS Trust, had seemed a little distracted during a Prescribing Committee meeting, so when it ended her friend Carey Whitecoat, her PCO counterpart, suggested they detour on the way back to work to have a coffee together.

“It’s the seven day working thing,” Janet explained. “We already supply some services on a seven day basis, but it’s a real stretch to cover them all with no significant extra funding. I put a plan to the hospital board that set out, on a risk-assessed basis, what activities I thought were needed on a seven day basis, but they added some extras at the request of the clinical directorates, and I just don’t have the manpower to do it all.”

“I’m sure that’s a common feeling everywhere,” Carey replied sympathetically.

“But that’s not what’s really upsetting me,” said Janet. “I talked to the staff about the new requirements and how we could cope given some changes to individual roles. One of the clinical pharmacists is arguing, however, that they shouldn’t cover the dispensary because their role is the provision of clinical services. He’s not objecting to seven day working, but he says that we shouldn’t change his role. He’s a specialist and he doesn’t want to go back to being a generalist.”

“Well, we all have to make sacrifices,” Carey answered.

“Yes, but his argument is that it’s the clinical services that should come first. He can’t see that it’s the whole range of services we provide that I have to think about. And it’s all making the atmosphere rather unpleasant.”

Carey thought for a moment.

“It might be helpful to find out if others have had this problem and how they dealt with it,” she finally suggested. “Even if they haven’t, it would be interesting to see what they suggest could be done’. If Janet approached you, how would you suggest she should take things forward?

Wasim Baqir, Research & Development Pharmacist, Northumbria Healthcare NHS Foundation Trust. Correspondence to: wasim.baqir@nhs.net

NHS organisations have now started to provide a seven day clinical service. Before any sort of clinical or dispensing service is even considered, Janet needs to talk with and listen to her team. A lunchtime meeting or an evening event could be a good opportunity for her to explain to her team what the Trust expectations are and, more importantly, for the team to be given an opportunity to have their say.

Janet and her management team should work with her full team to list the pros and cons of a seven day service; this will include the impact on the team, wider hospital service and patients. The team should be asked to go away and look at ways of implementing the service; all ideas should be considered. A small working group should be formed to support the development and implementation of the initiative. This should include all grades of staff and, crucially, those who are against the move as well as those for it.

Janet and her working group should firstly look at the metrics of the current service e.g. what is the workload like Monday to Friday, are Monday mornings busier than the rest of the week, how many patients don’t get a medicines reconciliation, what is the level of omitted doses from medicines not supplied, etc?

A 7 day service pilot should be run on one ward (e.g. the admissions ward) and data should be examined on the impact of this; was it better, worse, no different (e.g. in terms of key metrics and workload). Teams and patients should be interviewed to get their viewpoint.

Commentaries
Janet will then have data to support her case for change. She should now ask staff for rota ideas; how can the service be rolled out across 7 days and what services will it include (e.g. supply, emergency care, medical wards, etc)? She should look at what services can no longer be delivered during the week e.g. what can be ‘turned off’ to release the resource needed.

From this, Janet and her team should come up with a service specification and plan. She should run a series of team presentations and Q&A sessions for her staff. By this point all staff members will know that a seven day service is coming and, crucially, many will have been involved in the development. A series of PDSA (Plan, Do, Study, Act) cycles should support the rollout programme so that problems can be quickly identified and resolved. Key metrics should then be presented back to the staff to show improvements in service e.g. flow, safety or patient satisfaction.

The approach outlined above uses Quality Improvement methods to identify a problem, come up with solutions as a team and implement/test.

“A 7 day service pilot should be run on one ward (e.g. the admissions ward) and data should be examined on the impact . . .”
A really interesting conundrum and one that many NHS managers will face in the coming months.

I would suggest that there may be wider issues amongst the team, or even a lack of a team spirit within the department. It’s very important that specialties grow within pharmacy. Janet would not want to stunt this growth but what she must get across to her team (and specifically to this clinical pharmacist) is that a pharmacy service in entirety is greater than the sum of its parts and that every aspect is critical to patient care. Clinical services include the dispensary as pharmacists check the prescriptions to ensure that they are clinically accurate. The pharmacist needs to be aware that the idea of a patient-focused service is providing a pharmacy service that a patient wants, which in the majority of cases is a timely supply of medication right across the 7 day week.

I would be trying to get down to the real issue of why the pharmacist has a problem with the change. Is it because they feel that they won’t be able to get their clinical work done? If so, is there any support that can be given? Is there a way that Janet can get the wider hospital staff to show their support to pharmacy in these changing times? Like a lot of problems it may be down to how these changes are being communicated to staff. Janet needs to ensure that she lets pharmacy staff know how this is affecting the whole hospital and that pharmacy must play its part if it is to be seen to be a vital service and one that can flourish and respond to change.

I would ask Janet about what extras the Directors added to her proposal and whether these are reasonable? The idea of a 7 day service is that it’s the same standard of service every day and not a diluted service. Had this been discussed in the meeting with the Directors and, if so, had there been an acknowledgement that staffing levels were such that standards may drop?

Is there an issue here with a complete lack of awareness of the current state of the NHS?

How senior is the pharmacist and how much is their view linked to their level of experience?

A practical solution could be to get the pharmacy staff in a room and allow them to be put in the shoes of the Chief Pharmacist. Janet could let them know all of her competing challenges and then let the group see if they can solve them. It would be interesting to see how they resolved the issues. This would potentially get ‘buy in’ to any potential solutions and also build the feeling of a team approach and an ‘everyone is in this together’ mentality.

Declaration of interests

You may have noticed that ‘Trainspotting 2’ recently hit cinema screens across the UK. I am particularly excited about this movie, not only because of its iconic predecessor from the 1990s but also because some of the scenes in the new movie were filmed in a colleague’s house! It’s ‘choose life’ monologue is iconic.

What does a ‘work-life balance’ mean for you?

The phrase work-life balance is often bandied around, but what does it actually mean? The answer to this is quite subjective. For some people having a good work-life balance means being able to spend long hours in work to get the jobs done that need to be done. If they are lucky, such people have supportive and understanding families who do not begrudge long hours spent in the workplace. For others, a good work-life balance means being able to spend a maximum amount of time away from the workplace to enjoy time with families and friends, or just with themselves.

How do you achieve a good work-life balance?

There are several tips that I can share with you based on my observations of people whom I believe have a good work-life balance.

- **Take time to manage your time**
  If you want to avoid working long hours or taking work home with you, you need to be able to manage your time effectively. This means proactively managing your time and allocating the right amount of time to the right activities.

  A simple but very effective tool here is the ‘urgent versus important’ matrix that was originally created by President Eisenhower in the United States of America. A diagram of the matrix, which is shown in Figure 1, works as follows:

  - **Unimportant and not urgent**
    Delete it or drop it from your schedule.
  - **Urgent, but not important**
    Delegate it or distribute it to someone else (including your boss).
  - **Important but not urgent**
    ‘Diarise’ it i.e. put it in your diary to work on at a later date.
  - **Important and urgent**
    Do it now. These are the projects, tasks or items you should be working on today.

Choose Life: Getting Your Work-Life Balance Right By Managing Your Time Effectively!

*By Tom Phillips, lead trainer at Pharmacy Management, who has enjoyed 20 years of working with both the private and public sector, during which time he has gained extensive experience and demonstrated considerable success in management, sales, marketing and training. Tom is an excellent communicator and motivator and has designed/delivered training at all levels from trainees to directors at both a national and international level. Such is Tom’s love of training and development that, in his personal life, he is also a qualified fitness and diving instructor.*

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**LEADERSHIP**

**FIGURE 1: Urgent versus important matrix**
With regards to how you determine what is urgent and what is important, you will be the best judge of this as you should understand your work environment better than anyone else.

A lot of people spend too much time in the ‘Do it now’ quadrant, which is definitely not a good situation to be in, especially if you are keen to have a good work-life balance. Too much time spent here can lead to burnout.

There is also a useful question cascade that you can use to place different tasks into the various quadrants. It goes like this:

**Does this need to be done?**
No - delete it.
Yes - go to the next question.

**Do I need to do it?**
No - delegate or distribute it
Yes - go to the next question.

**Do I need to do it today?**
No - ‘diarise’ it
Yes - do it today!

The best time managers will proactively use such management tools to plan their time for the coming week or month. They also take time to review how they have spent their time over the last week or month and make adjustments as necessary.

- **Learn to say no assertively**

I have noticed that individuals who enjoy a good work-life balance are comfortable saying no when asked to take on tasks that will stretch their workload to an unacceptable limit. This does not mean that they say no and that is the end of the conversation. They will say no and explain why they are saying no or say no and help the other person to explore alternative solutions.

A useful acronym to remember here is N.E.A.T. You can say no and be ‘neat’ about it.

- **No**

Say no and be clear about this. Do not prevaricate. Gandhi once said that “A no said with conviction is better than a yes said to appease” and this is true here. If you prevaricate because you do not want to offend or upset the other person, you usually end up confusing them because they are not sure whether you are agreeing to their request or not.

- **Explain why you are saying no**

This could be for a number of reasons. Your own workload may be such that you cannot possibly take on any more at present. It may be that you lack the confidence, skills or knowledge to perform the task in question. It could be that you feel someone else in your team or department may be better suited to complete the request. It could be a development opportunity for someone.

- **Alternatives**

Be prepared to explore alternatives. If the task can be delegated or distributed, who is the right person to do it? If you are the only person who can carry out the request, what else can you delegate or distribute from your existing workload? What could you diarise by pushing back the deadline for another task?

- **Timeline**

Whatever agreement you come to (e.g. someone else is going to do the task or you are going to take it on and delegate another of your existing tasks), what is the timeline involved for any actions that need to happen?

- **Reward yourself for a job well done**

When you get into the habit of proactively managing your time and reviewing your time management on a regular basis, remember to reward yourself for a job well done. Take stock of what you have achieved in the last week or month and give yourself a pat on the back. Share your success with your boss or a colleague or a loved one. Open up a nice bottle of wine at the end of the week, go to your favourite restaurant, go to the gym, go for a walk.

**Remember**

If you want a good work-life balance, you need to manage your time; if you don’t manage it for yourself, someone else will manage it for you!

**Choose your reward, and choose life - your life.**

**Declaration of interests**

Tom Phillips discloses payment for writing the article and professional fees from Pharmacy Management outside the submitted work.