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Developing a patient-centred approach to get best outcomes and value from medicines

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AIM OF THE JoMO

Medicines optimisation is a person-centred approach to safe and effective medicines use to ensure that people obtain the best possible outcomes from their medicines. The aim of the JoMO is to contribute to that process and play an influential and key part in shaping better patient care and the role that medicines can play. The JoMO provides a vehicle to enable healthcare professionals to stimulate ideas in colleagues and/or disseminate good practice that others can adapt or develop to suit their local circumstances.

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Editorial

It would seem that a reliance on dip sticks has resulted in an over-diagnosis of Urinary Tract Infections (UTIs) in some Nursing Homes. That is the finding of a study reported in this edition of the JoMO. A teaching package regarding the management of UTIs and a UTI Management Tool to aid health professionals in the diagnosis of UTIs based on signs and symptoms was developed for use in the Nursing Home setting. The evaluation demonstrated a significant reduction in the use of prophylactic antibiotics by 92% and a reduction in the diagnosis and treatment of UTIs by 66%. These are impressive quality of care results but, in addition, cost savings were also demonstrated. Pharmacists responsible for Nursing Homes and those responsible for reducing antimicrobial resistance will find this to be an illuminating read and will wish to consider if a similar approach should be implemented in their own locality.

The role of an Independent Prescribing Pharmacist (IPP) in improving patient safety and care through a review of 300 inpatient prescription charts over the course of a six week period has been identified. A total of 773 prescribing interventions were carried out at an average of 2.6 interventions per chart. The maximum number of interventions required on a single prescription chart was 20. The most common cause of IPP intervention was unintentionally omitted medication (55%), prescribing errors excluding omitted medications (26%), medication deprescribed (12%) and new medication prescribed (7%). The most common prescribing error was incorrect dose (47%).

It is always good to assess the views of patients to services being provided, particularly when these have only recently been introduced. This has been done following the development of a 'Pharmacy Integrated Care Service (PICS)' designed to identify, manage and minimise the risk of preventable, medicines-related hospital admissions and re-admissions. A plan, do, study, act (PDSA) methodology was utilised. A pilot using a post-discharge follow-up phone call using the validated CSQ-8 questionnaire style was initially used to collect data but the method proved problematic. A new questionnaire was therefore developed through reviewing the questions in a variety of tools and this was then utilised during the inpatient stay. This method was more time effective and achieved a better response rate. This method has now been embedded in to routine practice will be subject to re-evaluation after a one year period. Hospital pharmacy managers in particular will be interested to learn of the subsequent findings but the information presented in the article may encourage use and or adaption of the questionnaire in the meantime and promote further assessments of patient satisfaction.

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Developments in Practice

The impact of Independent Prescribing Pharmacists during admissions to hospital

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Abstract

Title
The impact of pharmacist prescribers during admission to hospital

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Summary
A total of 300 inpatient prescription charts were reviewed by Independent Prescribing Pharmacists (IPP) over the course of six weeks to identify the reason for an intervention and the type of intervention made.

From 300 inpatient prescription charts reviewed, a total of 773 prescribing interventions were carried out by the IPP team at an average of 2.6 interventions per chart. The maximum number of interventions required on a single prescription chart was 20.

The most common cause of IPP intervention was unintentionally omitted medication (55%), prescribing errors, with the exception of omitted medications (26%), medication deprescribed (12%) and new medication prescribed (7%). The most common prescribing error was incorrect dose (47%).

The findings confirm the role of an IPP in improving patient safety and care.

Keywords: IPP, intervention, patient safety, admissions, omitted medications, deprescribed medications, prescribing errors.

Background

In 2015, a team of independent prescribing pharmacists (IPP) were employed at Lancashire Teaching Hospital NHS Foundation Trust following a successful pilot that had demonstrated the positive impact of prescribing pharmacists on the safety, promptness and accuracy of discharge.[1] Although the service initially focused on providing an IPP led discharge service within the medical division, the benefits of the IPP team were recognised by the multidisciplinary team and the service was expanded to include prescribing during admission to hospital.

The IPP team identified that prescribing errors and unintentional omission of regular medication led to sub-optimal patient care. This was, therefore, recognised as an area to focus on, in addition to the prescribing of new medications and deprescribing with patient consent.

Introduction

The EQUIP study[2] revealed a mean prescribing error rate of 7% on admission for all grades of doctor within a hospital setting; it was also identified that prescribing errors were 70% more likely on admission.[2] This is an area where the IPP team felt they could focus their expertise with the aim of improving patient safety and care. In 2016, a project was commissioned to explore the impact of the IPP team when prescribing on admission and during inpatient stay.

Objectives

The key objectives of the project were to capture interventions made across all of the acute medical wards at the Trust with a focus on the following:

• Determining the type and number of prescribing interventions.

• Recognising trends in prescribing errors that require intervention.

• Identifying the main BNF categories involved in interventions.

Method

A data collection tool was designed and piloted by a team of three IPP pharmacists. A total of 300 inpatient prescription charts were reviewed over the course of six weeks.

The data collection tool was designed to capture the following data:

- Reason for IPP intervention (prescribing error, unintentional medication omission, new medication prescribed, medication deprescribed).
- Type of prescribing error requiring intervention, if applicable (dose incorrect, medication incorrect, prescription unclear, time incorrect, frequency incorrect, other).
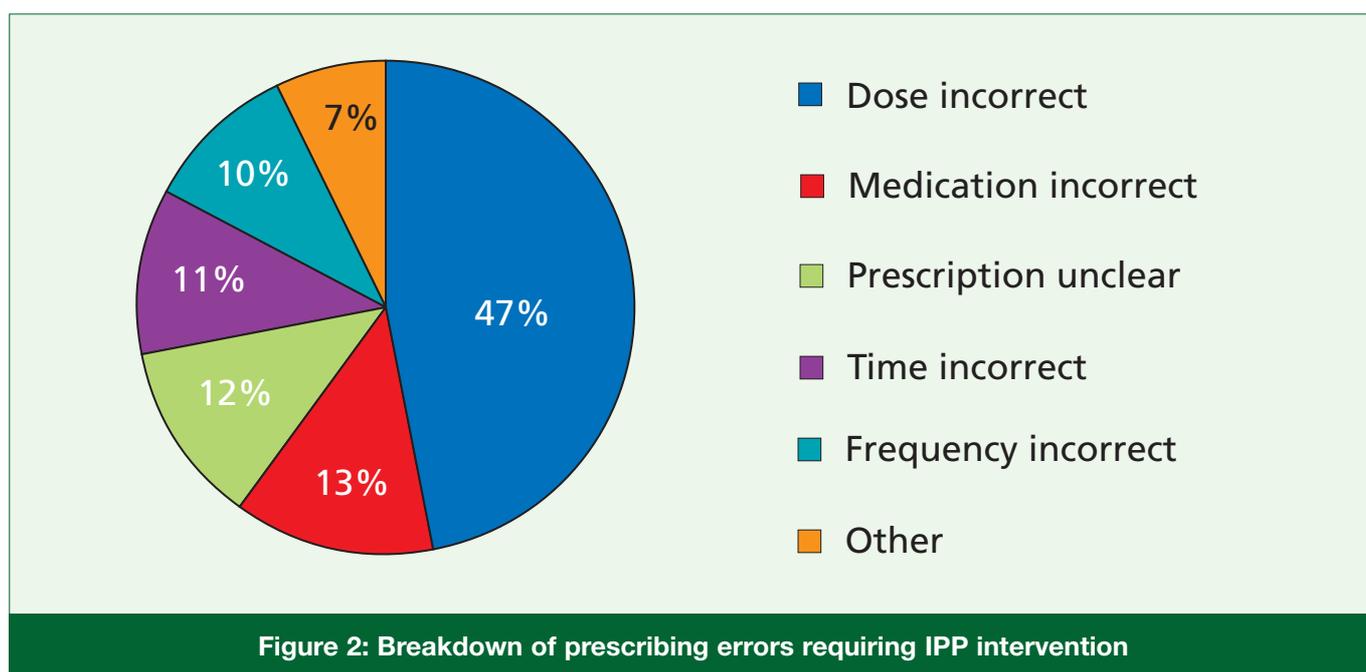- BNF category of medication involved.

The original data collection tool recorded the grade of the prescriber involved and the ward where the intervention occurred. This was removed as it was not required to meet the objectives of the project.

Results

From 300 inpatient prescription charts reviewed, a total of 773 prescribing interventions were carried out by the IPP team at an average of 2.6 interventions per chart. The maximum number of interventions required on a single prescription chart was 20.

The most common cause of IPP intervention was unintentionally omitted medication, which accounted for 55% of all interventions made (Figure 1). Prescribing errors (with the exception of omitted medications) accounted for 26% of interventions made followed by medication deprescribed at 12% and new medication prescribed at 7%.

Taking a closer look at prescribing errors, the most common was incorrect dose (47%), the remaining categories featured each with an incidence between 7 -13% (Figure 2).

Figure 1: Type of IPP intervention made during the project period

- Unintentionally omitted medication prescribed
- Prescribing error re-prescribed
- Medication deprescribed
- New medication prescribed

Figure 2: Breakdown of prescribing errors requiring IPP intervention

- Dose incorrect
- Medication incorrect
- Prescription unclear
- Time incorrect
- Frequency incorrect
- Other

The most common BNF categories requiring intervention were gastrointestinal, cardiovascular, respiratory and nervous system, although there was a frequent intervention made across a wide range of different drug categories reflecting the diverse range of medicines patients are routinely taking prior to admission to hospital (Figure 3).

Discussion

Traditionally, hospital pharmacists are required to contact the prescriber or leave notes in the patient record to highlight any discrepancies that have been identified on admission. This often causes delays to corrections being actioned and sometimes even gets missed, leading to detrimental patient care.[3]

The expanded role of the IPP allows errors and queries to be rectified at the point of medication reconciliation, reducing delays and potentially increasing patient safety and experience. Concordance with National Institute for Health and Care Excellence (NICE) medicines optimisation guidance[4] can also be improved through accurate communication of recognised discrepancies to an IPP, who can then review the prescription with the aim of achieving a fully reconciled list of medications within the 24 hour timescale recommended.

The majority of interventions were to ensure the patient continued to receive their pre-admission medicines where appropriate, positively impacting on the patient experience as well as safety.

Conclusion

The data identified that 55% of interventions made by an IPP involved the prescribing omitted medications and 24%

resolving prescribing errors, confirming that the role of an IPP improves patient safety and care. Looking to the future, as this aspect of pharmacy service develops the impact of the IPP team on patient safety will be quantified through analysis of the numbers and type of incident reports related to prescribing errors and omitted medications.

Increasing complexity of polypharmacy is creating challenges to medicines optimisation and is a recognised contributor to Emergency Department (ED) attendance figures and hospital admissions. Since 2003, the average number of medications prescribed per patient has risen from 13 to 19 items per year, augmenting the medication risk associated with an aging population.[5]

Deprescribing is not routinely carried out during hospital admission. However, evidence of the positive impact of deprescribing activity in the North East[6] has identified opportunity to introduce this aspect of service into the remit of the IPP Team. More than 90 deprescribing interventions were made for the 300 patients included in the project, representing a good contribution to optimising patient's medicines. Future work is planned to identify a working model and appropriate toolkit to support deprescribing, with the intention of reducing risk and potentially preventing re-admission to hospital.

Future Developments

Due to the success of the IPP team, additional funding has been provided by the Trust with the intention of expanding the service into all ward areas across all specialities. Currently, 46% of the clinical pharmacist team are IPPs, thereby supporting recommendations made by Carter[7] to increase the clinical input from pharmacy and expand the roles of prescribing pharmacists. A specific example of this at the Trust is reviewing

Figure 3: BNF categories of medications requiring IPP intervention
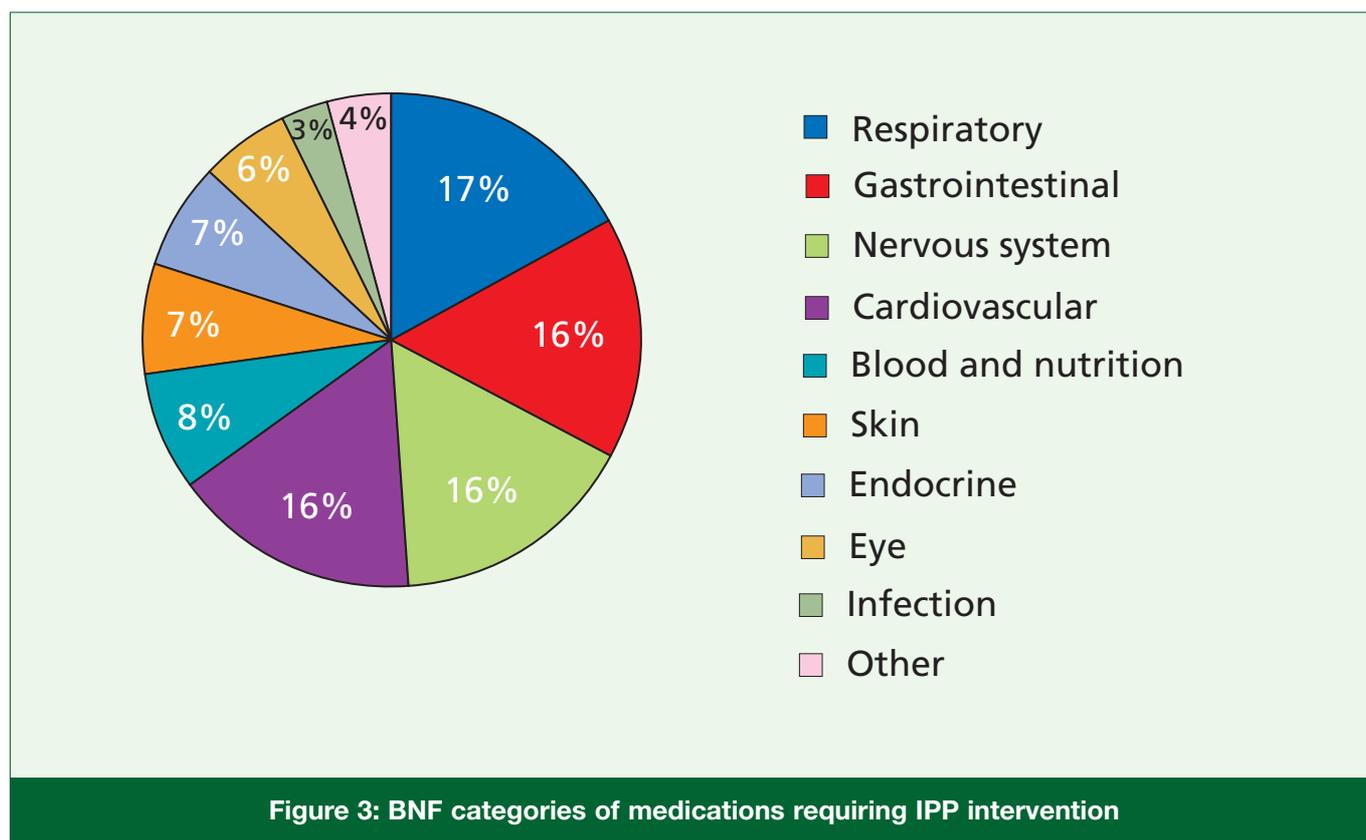
the possibility of enabling IPPs to attend the ED to support patient flow and improve patient safety/experience during the winter bed pressure period.

Prescribing new medications formed only 7% of IPP interventions. It is expected that prescribing and deprescribing activity will increase as these roles become embedded into consultant ward and board rounds. The planned deployment of a research fellow in the pharmacy department in the near future will support a more in-depth assessment of the impact of these roles in terms of the impact on patient safety, patient flow and patient experience. This early data captures the benefits our patients are gaining through the expansion of the role of the prescribing pharmacist, and it is hoped other Trusts will be inspired to develop similar innovative services.

A cost saving was not assigned to the interventions in the project, which focused on just one clinical area (acute medicine), due to the time constraints in meeting clinical commitments to patients in the hospital. Future plans include the option to re-run the project using all of the IPPs in the pharmacy department across all of the clinical specialties to measure the impact across the whole Trust. Post-evaluation support will include a pharmacy research associate to help with identifying cost savings due to the interventions made.

The project was used to establish a baseline of current prescribing activities by IPPs on admission as it is quite an innovative and new way of working. When the project is re-run utilising all the IPPs in the future, the baseline data can be used as a defined standard to complete a clinical audit.

Declaration of interests

The authors have nothing to disclose.

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TMO

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Improving the management of Urinary Tract Infections (UTIs) in Nursing Homes: an antibiotic stewardship intervention

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Abstract

Title
Improving the management of Urinary Tract Infections (UTIs) in Nursing Homes: an antibiotic stewardship intervention

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Summary
The Bug and Drug Delivery of Integrated Education (BUDDIE) project was launched in 2016 with an innovative vision to address the critical challenges of antimicrobial resistance and healthcare associated infection. The project was staffed by two nurse educators, and was funded for one year.

A teaching package regarding the management of urinary tract infections (UTIs) was developed for use in the Nursing Home setting.

Another workstream introduced by the project involved the development of a Urinary Tract Infection (UTI) Management Tool to aid health professionals within the Nursing Home setting. The evaluation of a three month pilot highlighted both a streamlined diagnosis and management pathway; a significant reduction in the use of prophylactic antibiotics by 92% and a reduction in the diagnosis and treatment of UTIs by 66%. The data from the project was fed into a costing model, which estimated a £3,700 saving throughout four Nursing Homes (157 beds). In addition, the healthcare community is expected to reduce the number of Escherichia-coli bacteraemia by 50% over the next 3 years and, as the majority of these occur in primary care, this role could support any quality improvement initiatives that are required to achieve this.

With continued funding, the BUDDIE project can improve education around antimicrobial stewardship and improve pathways for infection management within both primary and secondary care. Its unique ability to work across traditional boundaries highlights its compatibility with NHS England's Sustainability and Transformation Plan.

Keywords: antimicrobial resistance, AMR, urine dip stick.

Introduction

The possibility of working in a healthcare system where we may not be able to treat common infections is becoming a reality[1] with the Chief Medical Officer for the NHS in England stating there are fewer public health issues of greater importance than that of antimicrobial resistance (AMR).[2] Bacteria, viruses and fungi are evolving naturally and becoming increasingly resistant to the medicines used to treat the infections they cause.[3] As the World Health Organisation explains, resistant bacteria can be passed from person to person, but the problem is exacerbated beyond the human health sector and includes factors from the environment, agriculture, farming and veterinary medicine.

Coupled with this, the number of new antibiotics coming through the development stages is at an all-time low.[4]

The UK Five Year Antimicrobial Resistance Strategy for 2013-2018 was a collaborative publication with contributions from organisations such as the Veterinary Medicine Directorate and the Department for Environment.[3] Such an integrated, 'One Health' approach is vital to any strategy aiming to tackle and minimise the effects of AMR and, crucially, this must happen on a local, national and global level.[5]

Background

It has been suggested that many issues in health care carrying a major threat, like AMR, can be mitigated against using very simple and straightforward changes to practice and behaviour.[6] The AMR Strategy highlights three such objectives:

- Good infection prevention and control measures.

- Effective diagnosis techniques and treatment regimens with adherence to them.

- Better transfer of education and understanding of AMR.[3]

This prompted the Directors of Infection Prevention and Control at the Royal Cornwall Hospitals NHS Trust (RCHT) to establish a nurse-led project to achieve these goals. Two Nurse Educators were employed for twelve months from September 2016 with funding from the Health Education South West Innovation Scheme. This project, 'Bug and Drug Delivery of Integrated Education' (BUDDIE), was a joint venture between Local Authority Public Health (Cornwall Council) and RCHT. The project was entirely innovative with no other national projects to follow for inspiration or to share ideas.

Objectives of the project

- **Education**
  To deliver a teaching package regarding the management of urinary tract infections (UTIs) to Nursing Homes across Cornwall.

- **UTI management tool for adults >65years**
  To implement an algorithm to aid the diagnosis and management of UTIs. This followed a change facilitation model[7] and the outcomes were fully evaluated.

- **Public awareness and professional education**
  To work with health professionals and the public at an array of events, workshops and teaching sessions by using a locally developed, multi-tiered and integrated education approach that increases understanding of their role in protecting patients against both infections and inappropriate antibiotic use.

Crucially, this scheme aims to bring together individuals from different occupations and agencies in an integrated education approach that increases understanding of their role in protecting patients against both infection and inappropriate antibiotic use throughout the patient pathway. As such, the BUDDIE scheme aspires to a model of training analogous to the delivery of adult and child multi-agency safeguarding training.

A steering group for the project was set up at RCHT, which included the Joint Directors of Infection Prevention and Control, the Chief Pharmacist, a Consultant Microbiologist, the Head of Learning and Development, Public Health Consultant from Public Health England and the two Lead Nurse Educators for the BUDDIE project. As is often the case with innovative schemes, the BUDDIE's project appeared to be the first of its kind and so there were no existing projects to use for comparison. It was vital that the team set 'SMART' goals so that the project could be comprehensively evaluated with academic partners.

The project initially focused on UTIs due to significant amount of overprescribing within the community setting. One such clinical audit in 2013 identified that residents of Nursing Homes were frequently prescribed antibiotics (19% - 48% of residents per Nursing Home) based on the use of urine dip sticks, which guidelines do not support.[8] Indeed, experts from Public Health England describe the significant scope for reducing antibiotic prescribing and for GPs to use the drugs more sparingly to avoid the spread of antimicrobial resistance.[9] It is also widely reported that, of the total antibiotic prescriptions, 74% are made by General Practitioners.[10]

As a consequence of the above, it was determined that a teaching package should be designed for roll-out across the 53 Nursing Homes in Cornwall.

Method

Teaching package
The teaching package included three topics:

- Awareness of AMR.

- Infection Prevention and Control.

- Management of UTIs.

It lasted an hour and took place in the Nursing Home setting so was accessible to staff at no cost.

The teaching was evaluated by using a questionnaire at the beginning and end of each session, which each delegate was asked to complete. This gauged if learning had taken place on specific subjects and also provided feedback on expectations and the content of the session. The evaluation questionnaire given to delegates at the end of the teaching session, asked 'yes' or 'no' questions: 'Did the session meet your expectations?', 'Was the session clear, interesting and informative?' We also asked delegates pre-teaching and post-teaching to circle a number on a scale of 1-10 to indicate where they would place their level of understanding of AMR. We used this pre and post evaluation question to gauge learners' knowledge of the SIGN 88 Guidance by asking 'Would you base your diagnosis of UTIs on signs and symptoms or a urine dipstick?' This information was then transformed into data to present back to the steering group to measure its success and form an on-going evaluation of projects achievements.

The introduction of the teaching package commenced in December 2016 and was utilised during a pilot phase (see below) and then continued throughout the one year period of the project.

The number of Nursing Homes visited and how many staff involved was also noted. The two Nurse Educators could teach the sessions together or, to be more time efficient, they could teach separately.

The Urinary Tract Infection Management Tool
Following collaboration with a Quality Improvement project, 'To Dip or Not To Dip', undertaken by NHS Bath and North East Somerset Clinical Commissioning Group (CCG),[8] the BUDDIE project team devised a tool for diagnosing and managing UTIs (see Box 1). This was based on SIGN Guidance[11] and was designed as an algorithm to provide a systematic technique to aid healthcare staff within nursing homes in West Cornwall in the management of UTIs. The objectives of this algorithm were to:

- ensure the accurate diagnosis of UTI in Nursing Home residents

- decrease inappropriate antibiotic prescribing for UTIs

- decrease inappropriate use of urinary dipsticks in NH residents >65yrs

- review the use of antibiotic prophylaxis for UTIs.

The UTI management tool linked well with the existing teaching package that was underway and helped meet the project's objectives of improving patient outcomes in terms of reducing AMR. As well as generating improvements in patient outcomes, it was intended that the education and UTI tool forming a 'package' which led to staff feeling empowered and informed. It was predicted that the increased knowledge and confidence of the staff would strengthen and streamline the liaising with GPs and give them power in their decision making when talking to residents and their relatives.

The UTI tool, which also provided an opportunity for academic evaluation and data gathering, was taken to the BUDDIE Steering Group, the Kernow Commissioning Group and various GP boards to be reviewed and commented upon before the project was launched on January 4th 2017.

Pilot phase

Four Nursing Homes (157 beds) were identified to be involved in a small pilot over three months. The managers of the Nursing Homes and the Lead Nurse Educators formed a focus group to plan the pilot and ratify the proposed UTI management tool.

The SIGN Guidance specifically does not include the use of a urine dipstick test in diagnosing UTIs.[11] Instead, it focusses on the knowledge of signs and symptoms, which highlights the necessity of the tool being accompanied by a comprehensive education package. The training package was delivered to staff in December 2016 in advance of the introduction of the UTI management tool.

Data was retrospectively in December gathered from the four Nursing Homes for the three months between October and December 2016. From these Nursing Homes baseline data was gathered which indicated that:

- 23 residents had a UTI diagnosed and treated

- 21 of these residents were diagnosed with a urine dipstick analysis and no signs and symptoms were documented

- 18 of these residents had their UTI treated with trimethoprim

- 12 residents were being administered prescribed prophylactic antibiotics given for the prevention of UTIs.

The UTI management tool was introduced in January 2017 at the start of the pilot and used throughout the three month period of January to March 2017. The same data types as indicated above were collected for this period.

Mathematical Modelling

The cost of diagnosing and treating a UTI in the Nursing Homes in the three months prior to the change in practice was estimated in terms of the human resource deployed and drugs consumed. Treatments were broken down into the stages of

Box 1: UTI management tool

examination and diagnosis, prescribing, and drug administration. Each of these stages had a time requirement for each staff group which, in turn, attracted an hourly wage. The staff groups comprised carers, nurses, pharmacists and GPs with the drugs used to include antibiotics, including prophylactic where necessary. A fixed prescribing cost was also assumed.

Following the change in practice a similar 'bottom-up' costing approach was applied to the number of UTIs presenting in the Nursing Homes, with the main difference being a urine test presented to every patient suspected of having a UTI and treatment withheld until the results were known.

In the conceptual model pre-change, the cost of GPs travelling to the Nursing Home was calculated at the GP's hourly rate. After the intervention was introduced, diagnosis was undertaken over the phone in consultation with nursing staff who had been trained to undertake the urine test.

Results

The Teaching Package
The hour-long teaching session was intended for Nursing Homes across Cornwall over a twelve month period. The Nurse Educators visited 50 Nursing Homes out of 53 (94%), and have spoken to over 600 healthcare staff in the Nursing Homes in the first 9 months of the project commencing.

The teaching session received 100% satisfaction in terms of meeting the expectations of delegates and them finding it clear, interesting and informative.

There was a reported 80% improvement in attendees' knowledge of AMR, and an 88% improvement in the knowledge of best practice for managing UTIs.

The UTI Management Tool
The data collected retrospectively and post-implementation showed that, over the three month period of using the tool, there were only 8 residents diagnosed and treated for a UTI (versus 23 pre-implementation; a 66% reduction).

In the three month period of using the UTI tool the use of prophylactic antibiotics reduced from 12 residents to just 1 resident (92% reduction).

The urine dipsticks that were used as the primary method of diagnosing UTIs reduced from 21 pre-implementation to 3 within this three month period (86% reduction).

The expectation of the qualitative improvement from the UTI tool was confirmed. Some examples are:

- *"The decision algorithm gives very robust guidance on what to look for in terms of number and type of symptoms and how to exclude other infections which may be from respiratory, gastrointestinal or skin/soft tissue issues."* Nursing Home manager.

- *"The UTI Tool is clear and straightforward to use. The tick boxes give full guidance for all areas to assess and allow for evidence that these actions have been taken."* Carer.

- *"It would be incredibly useful if this same rationalised and detailed approach could also be established with the*

respiratory, gastrointestinal and skin use of antibiotics to guide and evidence the required actions in those areas." Senior Carer.

Cost savings
Results from the three month pilot phase were entered into a bottom-up, cost-saving model. Through examining the human resource cost of testing for UTIs, prescribing drugs for and treating, it was estimated that during the pilot phase, circa £3,700 was saved to the local NHS. This financial margin contained considerable GP, nurse and Carer time as well as a reduction from consumables, including medications.

Discussion

A comparison of the amount of diagnosed UTIs before and after the implementation of the UTI management tool indicates that the Nursing Homes were over-diagnosing and that the education and UTI management tool algorithm improved the strategy and thought processes of the staff. Further evidence of the improved decision making of staff is evidenced by the reduction of prophylactic antibiotics administered. The significant decrease in the number of urine dipsticks used provides confidence that the staff were increasingly basing their diagnosis on signs and symptoms.

This is a small data set over a short timespan as the project only had funding for twelve months. We can, however, gain confidence in our figures as they closely mirror the work reported for 'To Dip or Not To Dip', a similar project in NHS Bath and North East Somerset CCG[8] whereby the implementation of a UTI tool took place over 3 years in 26 Nursing Homes in Bath. In this trial the number of residents prescribed antibiotics for a UTI based on a urine dip stick test reduced by 56% (versus a 66% reduction in this project). The pilot of our tool reduced the number of prescriptions for antibiotic prophylaxis reduced by 92%, which compares favourably with the 82% reduction realised in Bath. The pilot of our methodology led to a 67% reduction in the number of antibiotic prescriptions, illustrating that the overall diagnosis of infection improved. The NHS Bath and North East Somerset CCG project also demonstrated a reduction in unplanned admissions to the acute setting for UTI, urosepsis and acute kidney injury.[8]

Conclusion

The BUDDIE project has passed through the planning, delivery and achievement stages since it began in September 2016. Delivering an education package and implementing a UTI tool into the Nursing Home Setting has been the main workstream and has had positive results. It has improved Carers' confidence and skill in managing UTIs, streamlined the process of sharing information and planning with GPs, improved patient outcomes and provided cost savings.

In the short-term future, our goal is to have the UTI tool widely used across Cornwall; GPs are supportive of this quality improvement. The tool has been added to the Care Home Standards and, together with GP support, an education package with some electronic learning and BUDDIE project nurses continuing their face to face training, we hope the tool will become part of the UTI management culture in both residential and Nursing Homes County wide.

The UTI management tool template has been adapted for use in residential homes, where staff may not be qualified to record vital signs, such as a resident's temperature. This makes the need for an understanding of the signs and symptoms of UTI and the development of competence in basing diagnostic decision on these even more vital in such settings. The roll-out of the tool to all nursing and residential homes (5,359 beds) will follow the same methodology and, if the extent of over-diagnosis of UTIs is similar in both settings, an extrapolation of cost-savings suggests a potential saving of £500,000.

The pilot has provoked growing support from GPs and Nurse Managers and is set to provide an example of innovative work that can be shared with other Trusts.

An acknowledgment must be given to the RCHT Board who have agreed for the BUDDIE scheme to continue. This is a big achievement for nurses, both in terms of leading Quality Improvement Projects and as a voice as Antimicrobial Stewards. It also recognises that AMR is an issue which needs backing at global, national and local level and is a great example of cross-boundary working. It is suspected that with the extension of this project its success could 'snowball' and, by using the same template of strategic management of other conditions such as Surgical Site Infection or Respiratory Tract Infections, we could have similar outcomes. There are many more situations and conditions that could be incorporated into the BUDDIE project that will improve AMR.

As Nurse Educators it has been fulfilling to see the benefits of valuing our peers and empowering them to work according to guidelines with increased 'thought' and strategy. However, the cost-saving achieved with this project was an unanticipated outcome that will be of interest to those battling with budgets and 'cuts'. This project gives evidence that, by optimising our medicines management and being antibiotic stewards and ambassadors for positive change, we can actually save money. As mindful practitioners it is ultimately the quality of care provided to patients that is our main concern. Over-diagnosing or misdiagnosing UTIs is detrimental to the wellbeing of the global population and, on an individual basis, can result in patients being severely unwell. It can contribute to the well-publicised downfalls of the healthcare system by increasing preventable admissions to secondary care and delaying length of stay. The first year of this project has proved that our initial goal of protecting patients against both infection and inappropriate antibiotic use through delivering education and empowering staff is indeed beneficial to individuals as well as our healthcare system.

Renal function	Insulin dose adjustment
eGFR >50 ml/min	No dose adjustment is required
eGFR 10–50 ml/min	Reduce dose by 25%
eGFR <10 ml/min	Reduce dose by 50%
Table 4: General principle on insulin dose adjustment in CKD[60,63]	

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MATERIAL WITHDRAWN

7 February 2019

MATERIAL
WITHDRAWN

7 February 2019

Readership Feedback

Readership Feedback

If the JoMO is to continue to publish material that you would find interesting and helpful in your practice, it is clearly important that readers feedback their views. There are various ways in which feedback is currently obtained but, with effect from this edition, a short SurveyMonkey questionnaire that will take just a couple of minutes to complete will be available for each edition.

Pilot of a tool to assess patient satisfaction with the Pharmacy Integrated Care Service (PICS)

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Abstract

Title
Pilot of a tool to assess patient satisfaction with the Pharmacy Integrated Care Service (PICS)

Author list
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Summary
The Pharmacy Integrated Care Service (PICS) was developed to identify, manage and minimise the risk of preventable, medicines-related hospital admissions and re-admissions. Understanding patient satisfaction was highlighted as an area which was yet to be addressed by the PICS service. Current anecdotal evidence and case studies did not reliably contribute to patient feedback to improve the service.

A search was conducted to determine which validated patient satisfaction questionnaires were available that could be adapted for this work. A plan, do, study, act (PDSA) methodology was chosen to explore this work and decide which questionnaire style and method would obtain the most relevant data.

A pilot post-discharge follow-up phone call using the validated CSQ-8 questionnaire style was used to collect data about patient satisfaction. However, this method was time consuming, difficult to organise cross-site, and a high volume of data was lost to follow-up. A new questionnaire was therefore developed through reviewing the questions in a variety of tools and utilised during the inpatient stay. This method was more time effective and achieved a better response rate. It was therefore decided to embed this method in to routine PICS practice for one year, to run twice a year for two weeks. The questionnaire results and content will be re-evaluated in a year.

Keywords: medicine–related admissions, questionnaire, CSQ-8.

Introduction

The Pharmacy Integrated Care Service (PICS) was developed to identify, manage and minimise the risk of preventable, medicines-related hospital admissions and re-admissions. This secondary care-based service is a collaboration between the Integrated Care Ealing (ICE)[1] service and the Integrated Medicines Management (IMM) service,[2] which were merged in 2016 to provide equity for patients across all London North West Hospital (LWNH) hospital sites.

Specialist pharmacists support patients with unmanaged, complex, medicines-related issues providing medicines reconciliation, medication review, adherence support and discharge planning to address medication-related patient and clinician concerns in hospital and across the primary-secondary care interface. The service has been shown to deliver evidence-based, safe medicines support and embeds medicines optimisation as part of routine practice, aligned with three of the four Royal Pharmaceutical Society medicines optimisation principles.[3] Prior work in this locality identified the need to address patient satisfaction, which relates to the fourth principle of medicines optimisation.[2]

The literature shows that there is a correlation between patient satisfaction with communication, and patient compliance with advice.[4] Therefore, satisfied patients are more likely to use and take their medicines as agreed, contributing to reduced medicines-related hospital admission, with associated cost savings.[5]

From a local perspective, improving the service in accordance with patient needs to optimise patient satisfaction reflects LWNHT organisational values known as 'HEART' - Honesty, Equality, Accountability, Respect and Teamwork. At present, case studies and anecdotal evidence are the only available evidence of patient satisfaction within PICS. However, these do not reliably contribute to service development through patient feedback. Measuring patients' satisfaction with care and treatment was

highlighted as an area requiring evaluation to contribute to provision of a more patient-centred service.

Background

A search was conducted to determine which validated patient satisfaction questionnaires were available that could be adapted for this work. The results of this search identified that the 'friends and family test',[6] Client Satisfaction Questionnaire 8 (CSQ-8)[7] and 'WardPro'[8] could be considered as potential tools.

'WardPro' is aimed at assessing patient satisfaction with the general pharmacy service and mainly focusses on information given during discharge counselling. However, including questions specifically about a PICS review within this may confuse patients about which 'pharmacy service' is being referred to, potentially causing misleading results. Furthermore, every patient given the 'WardPro' questionnaire has not necessarily had a PICS review; therefore the questions may not be applicable and may lead to unreliable data.

Similarly the 'friends and family test' poses the same problem. In addition, it is time consuming, difficult and costly to amend an existing survey to reflect PICS requirements. Since all hospitals do not offer a PICS service to their patients, amending a national survey would not have been applicable to the wider cohort of patients and may have caused confusion.

As there was no consensus regarding the 'best' questionnaire to use, a 'Plan, Do, Study, Act' (PDSA) methodology was chosen to explore this work and decide which questionnaire style and method would obtain the most relevant data. The PDSA cycle, promoted by the Institute for Healthcare Improvement Model for Improvement,[9] is a simple yet powerful tool which is commonly used in a healthcare setting to assess new small scale changes which are introduced (see Box 1). Testing change before implementation can save money and reduce risk and time in developing a new idea, which may not be successful.

PDSA 1: CSQ-8 questionnaire used post-discharge

Plan
The CSQ-8 tool was chosen as the first method of assessment as it is a validated general satisfaction measure with a high internal consistency, it contains a brief scale and is easy to complete.[7] There is also the option to supplement the tool with open-ended questions. The questions were adapted by replacing the word 'program' to 'service' and changing question 6 to ask directly about medicines rather than a general 'problem', in order to focus the questionnaire for PICS patients (see Figure 1).

Do
A PICS pharmacist identified undertook medication reviews for patients during their inpatient stay over a two week period in May 2017. Patients received a post-discharge follow-up phone call from a pharmacist who did not undertake the PICS review to conduct the survey as part of service evaluation. Patients were asked if they would like to complete the survey on the telephone, thus consent was gained at the time of the review.

Study
8 patients were recruited to pilot the questionnaire. 2 patients responded to the questionnaire, the remaining 6 were lost to follow-up (admitted in to hospital, unable to get to the phone). A total of 120 minutes was spent recruiting patients, obtaining consent and phoning up patients to obtain results. One patient reported that they were not expecting to see a PICS pharmacist and therefore did not answer questions 2 and 3, which focussed on patient needs and wants from the service. The second patient reported they did not understand all the questions and asked for them to be rephrased or felt the options on the scale did not reflect how they felt.

Act
This method was time consuming, difficult to organise cross-site, and a high volume of data was lost to follow-up. Putting this in to practise would, therefore, be unrealistic. Upon discussion with the PICS team, it was decided that another method should be trialled with a second PDSA cycle.

The four stages in a PDSA cycle

- 'Plan' involves the change to be tested or implemented.

- 'Do' requires the test to be carried out or changes.

- 'Study' involves evaluation of data before and after the change to reflect on what was learned.

- 'Act' requires the next change cycle if this method was unsuccessful or full implementation if it was successful.

Box 1: Stages of a PDSA cycle

PATIENT SATISFACTION QUESTIONNAIRE

Hello, I am X, you might remember my colleague Y, the pharmacist, had a conversation with you on "DATE" in "PLACE" at Northwick Park about your medicines. I'd like to ask you a few questions about what you thought of this conversation so we can improve what we do. Is that ok?

Circle the answer:

1. How would you rate the quality of service you have received?

4	3	2	1
EXCELLENT	GOOD	FAIR	POOR

2. Did you get the kind of service you wanted?

1	2	3	4
Yes, definitely	Yes, generally	No, not really	No, definitely

3. To what extent has our service met your needs?

1	2	3	4
Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	None of my needs have been met

4. If a friend were in need of similar help, would you recommend our program to him or her?

1	2	3	4
Yes, definitely	Yes, I think so	No, I don't think so	No, definitely not

5. How satisfied are you with the amount of help you have received?

1	2	3	4
Very satisfied	Mostly satisfied	Indifferent or mildly dissatisfied	Quite satisfied

6. Has the service you received helped you to deal more effectively with managing your medicines?

1	2	3	4
Yes, they helped a great deal	Yes, they helped	No, they really didn't help	No, they seemed to make things worse

7. In an overall, general sense, how satisfied are you with the service you have received?

1	2	3	4
Very satisfied	Mostly satisfied	Indifferent or mildly dissatisfied	Quite dissatisfied

8. If you were to seek help again, would you come back to our service?

1	2	3	4
Yes, definitely	Yes, I think so	No, I don't think so	No, definitely not

Thank you for participating in this survey. We would appreciate hearing from you, so please let us know about your experience.

Comments (optional):

_____

_____

_____

Figure 1: CSQ-8 adapted questionnaire

PDSA 2: new questionnaire used during inpatient stay

Plan

A new questionnaire was developed through reviewing the questions in a variety of tools and this was then offered to PICS patients immediately after the review. This was due to feedback from both patients in PDSA 1 reporting misunderstandings with the questions. Additionally, since the questionnaire would be offered immediately after the review, questions relating to whether the service helped patients deal more effectively with their medication would no longer be applicable as this requires a follow-up review. Furthermore, referral to a friend in a similar situation was not, for example, deemed as relevant as patients cannot self-refer to the service and this does not directly measure the PICS patients' satisfaction levels. The aim of this new questionnaire was to focus directly on information relating to satisfaction with PICS. The single side of A4 questionnaire mainly contained 'tick boxes' and included options for patients to make suggestions about how the service can be improved was produced (see Figure 2).

Do

A PICS pharmacist undertook medication reviews for patients during their inpatient stay and consent was obtained over a two week period in June 2017. The paper-based questionnaire was given to patients immediately after the review and patients were told that completion helped with service evaluation and was optional. Another member of staff collected the questionnaire from the patient later that day to help minimise bias.

Study

10 patients were recruited to pilot the questionnaire. There was a 100% response rate. 6 patients reported that they felt the service was excellent, definitely got what they wanted, helped a lot with what they wanted to know about their medicines and were very happy. The remaining 4 patients reported that they generally got what they wanted, and the service partly helped. A total of 15 minutes was spent recruiting patients and collecting the questionnaires.

Act

This method was more time effective with a smaller potential for lost to follow-up.

Discussion

It has been shown that post-discharge follow-up contributes to improving care through patient satisfaction[10] Using a different member of staff to contact the patient to ask about their satisfaction reduces bias. Patients also have the opportunity to have the question rephrased and to ask additional questions if they do not understand something. However, using post-discharge follow-up for patient satisfaction, rather than just for continuing clinical care, was extremely time consuming. It was difficult to arrange for a different member of staff to call patients when there was no clinical reason to call the patient. In addition, it is difficult to manage as PICS pharmacists are based at different sites. Contacting patients presents a number of challenges: they may not be able to get to the phone, have hearing difficulties, or their social situation may have changed e.g. admission into a nursing home. There is, therefore,

potential to lose a large amount of data.

The use of a previously validated questionnaire tool can save time and resources and direct comparisons can be made with other studies using the same tool. It is acknowledged, however, that the use of closed questions will limit the range of responses and does not allow respondents the opportunity to fully express their views, which may also vary between different groups of respondents.[11] Both respondents in PDSA 1 were unable to answer all the questions without prompting or rephrasing of the questions. This indicated the need to produce a new questionnaire, though interpretation of this finding is limited by the poor response rate.

Although the second questionnaire (PDSA 2) was self-designed and did not utilise a validated tool, it was easier to conduct as patients were asked to give their views immediately after the review. Time spent was less for both the patient and pharmacist due to fewer questions, patients self-filling their answers and eliminating the time spent arranging for a second member of staff to telephone patients at a time when they are available. PDSA 2 required 87% less time to conduct than PDSA 1. Furthermore, the questions focussed directly on what was required for the study: to find out whether patients are satisfied with PICS and, if not, what do they think should be done to improve the service.

This is a pilot study to explore realistic targets for data collection. Various limitations have been acknowledged, including tools, sample size and potential bias. Despite the fact that a second pharmacist is involved in collecting data from patients, the patients might be less likely to report negative comments verbally or on paper directly to a pharmacist. Data suggests that response bias may significantly impact the results of patient satisfaction surveys, leading to overestimation of the level of satisfaction in the patient population overall.[12] The risk of PDSA 2 questionnaire is has only face validity.

Summary

Understanding patient satisfaction was highlighted as an area which was yet to be addressed by the PICS service. Current anecdotal evidence and case studies did not reliably contribute to patient feedback to improve the service. A search was conducted to determine which patient satisfaction surveys and validated questionnaire tools were available that could be adapted for this study. A PDSA cycle was used to decide which questionnaire style and method would obtain the most relevant data. A pilot post-discharge follow-up phone call using the validated CSQ-8 questionnaire style was used to collect data about patient satisfaction. However, this method was time consuming, difficult to organise in practise and a large number lost to follow-up data. Therefore, a pilot paper questionnaire was produced focussing directly on patient satisfaction with PICS. This produced a 100% response rate. It was therefore decided to embed this method in to routine PICS practice.

Next steps

Patient satisfaction measurement will be embedded in the PICS service through the establishment of bi-annual PICS patient satisfaction surveys running for two weeks every six months.

Pharmacy Integrated Care Service (PICS)
Pharmacy patient satisfaction survey

We want to know what you think about **our pharmacy service.**

We will use what you tell us to make the service better.

Everything you tell us is confidential.

Thank you for helping us. Please tick ✓ one box for each question

1. **Please tell us who is filling out this form?**

   The patient (you) ☐   The patients carer/relative ☐

2. **What did you think of our service?**

Excellent	Good	Fair	Poor
☐	☐	☐	☐

3. **Did you get what you wanted?**

Yes, definitely	Yes, generally	No, not really	No, definitely not
☐	☐	☐	☐

4. **How much did we help you with what you wanted to know about your medicines?**

Helped a lot	Partly helped	Helped a little	Didn't help at all
☐	☐	☐	☐

5. **How pleased were you with the help we gave you?**

Very happy	Happy	Not very happy	Not at all happy
☐	☐	☐	☐

6. **Has the service you received helped you to deal more effectively with managing your medicines?**

   _____

   _____

   _____

   _____

   _____

Thank you for helping us give you a better service

Figure 2: new questionnaire

Furthermore, regular PICS team meetings every six months are to be established for reviewing results of the patient satisfaction survey where action plans are developed to improve patient satisfaction and the way the service meets patient needs.

The questionnaires will be analysed for suggestions as to how to improve practice and will be discussed between the PICS team to ensure changes are made to optimise the service.

The questionnaire will be re-evaluated in one year with hope of validating this tool.

Declaration of interests

The authors have nothing to disclose.

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In this issue:
• The impact of Independent Prescribing Pharmacists during admissions to hospital
• Improving the management of Urinary Tract Infections (UTIs) in Nursing Homes: an antibiotic stewardship intervention
• Pilot of a tool to assess patient satisfaction with the Pharmacy Integrated Care Service (PICS)

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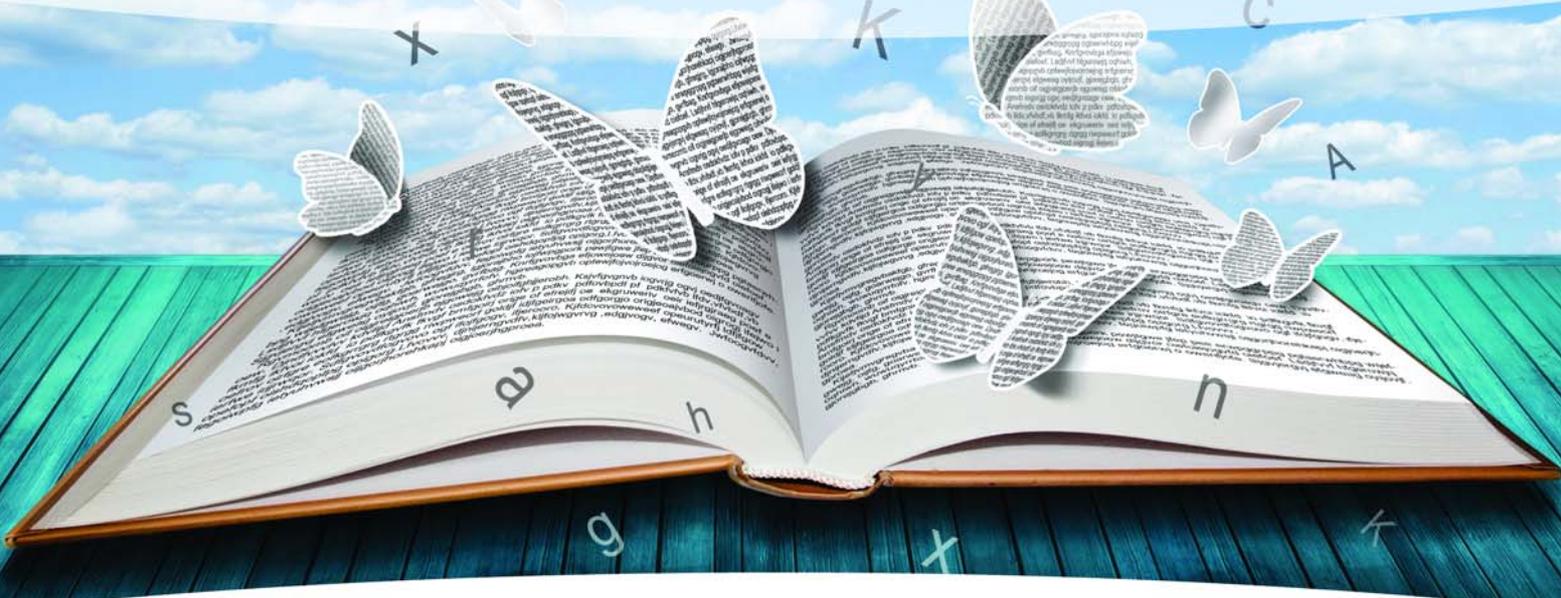
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Is it about managerial good practice, service developments and processes involved in the **management** of medicines?

THINK JOURNAL OF PHARMACY MANAGEMENT (JoPM)!
This is distributed quarterly throughout the UK to senior pharmacists in primary and secondary care.

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Is it about good practice in medicines optimisation with a focus on **'optimisation'**, which relates to quality and improving patient care, rather than cost aspects?

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