



Journal of Medicines Optimisation

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

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In this issue:

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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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The JoMO is made available on a controlled circulation basis to healthcare professionals (e.g. pharmacists, doctors, nurses, etc) and industry colleagues who work with them.

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The JoMO has a network of persons available to provide advice and undertake peer review of articles. Material that appears in the 'Practice Research' and 'Insight' sections will have been subject to peer review.

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A learned journal should open its pages to scholarly debate and we hope that readers will share their views and questions in the following ways.

LINKEDIN

Readers who use LinkedIn may like to know that there is a JoMO LinkedIn Group. It is a closed group but everyone who requests the JoMO will be permitted to join. Readers are encouraged to comment upon and discuss items about medicines optimisation.

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The JoMO aims to disseminate good practice about medicines optimisation to pharmacists, doctors, nurses and other healthcare professionals. The focus is on 'optimisation', which relates to quality and improving patient care, rather than cost aspects.

The JoMO aims to follow the 'Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals' published by the International Committee of Medical Journal Editors (ICMJE) and known as 'The Uniform Requirements' and the Committee on Publication Ethics (COPE) 'Code of Conduct'.

Guidance for Authors is available at <http://www.jmedopt.com>.

All material should be sent electronically to the Editor-in-Chief (alex.bower@pharman.co.uk).

It is important that new, significant models of pharmaceutical care are fully evaluated. This edition carries a report on the outcomes of introducing Consultant Pharmacist posts to provide a medicines optimisation service for older people in Northern Ireland. Two different models, each in a different NHS Trusts were evaluated. In one Trust the model involved developing an intermediate care pharmacy service whilst the other concentrated on delivering Trust outreach services to care home patients. Evaluation demonstrated positive clinical and economic outcomes such that the two models were refined and extended to each Trust, which demonstrated their reproducibility. This led to central funding to roll out the services across the region with the addition of a further workstream focussing on medicines adherence. This is a most impressive outcome with plenty of learnings that will help support the introduction of similar developments in other locations.

Could a significant proportion of patients reduce or stop the PPIs they are taking? PPIs are not without risk of harm so, in addition to unnecessary prescribing, that could be another reason for such action. The study reported in this edition involved pharmacists being trained to run dyspepsia review clinics in primary care. Successful step down/step off was achieved in 82% of those reviewed. That certainly gives 'food for thought' and suggests that, if similar schemes are not already being operated, then serious consideration should be given to doing so locally.

Is too much reliance placed on dipstick testing to diagnose urinary tract infections? Is the prescribing of nitrofurantoin for the treatment of urinary tract infection in older people at an optimum level in your locality? A study would suggest that the answer to the first question is 'yes' and the answer to the second question is 'no'. There would seem to be significant room for improvement. The methodology provided in the paper will be of interest to those who wish to undertake a similar review in GP practices locally.

What is a social internship? An interesting article outlines the experience of placing pharmacy students with charity organisations. This is not so they can undertake a clinical role but rather gain a better understanding of a group of people with whom they might not regularly associate. The students found it to be a most enlightening experience.

In the interests of keeping you up-to-date with key events, this edition carries a report of the presentations given, and posters presented, at the meeting of the Prescribing Research in Medicines Management (PRIMM) group, which was held earlier in the year.

HYPERLINKS

References and other resource material as appropriate can be accessed directly via hyperlinks in the Journal.

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Please click [here](#) to complete our
Reader Survey for this issue.**

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.

Medicines optimisation in older people (MOOP); the journey from pilot to permanent service

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Abstract

Title

Medicines optimisation in older people (MOOP); the journey from pilot to permanent service.

Author list

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Summary

In response to the proposed restructuring of health and social care in Northern Ireland in 2011, an ageing population with increasing pharmaceutical care needs and the need to create an enhanced career pathway for hospital clinical pharmacists working in the region, two Trusts piloted consultant pharmacist-led medicines optimisation case management services for older people in care homes and in intermediate care. Further to process mapping events attended by multiple stakeholders, the new models of patient care were developed and evaluated in 2012-2014. This evaluation mainly focused on medication appropriateness, clinical interventions made and their impact on quality of patient care, drug cost savings and healthcare resource usage post completion of pharmacist case management. Based on outcomes, the two models were further refined, reproduced in the other Trust and evaluated again in 2015/16. At all stages, robust evaluation yielded positive clinical and economic outcomes for both models. Based on the results of the pilots and demonstration of their reproducibility, the Department of Health in Northern Ireland permanently funded the roll out of these services across the region. An additional work stream was added in 2017 which focuses on medicines adherence in older people.

Keywords: consultant pharmacist, polypharmacy, case management, prescribing appropriateness, evaluation, service reproducibility.

Background

In June 2011, the Minister for Health, Social Services and Public Safety in Northern Ireland announced that a review of the provision of Health and Social Care (HSC) Services in Northern Ireland would be undertaken. The review team's findings and recommendations were outlined in the landmark document 'Transforming Your Care (TYC), a Review of Health and Social Care in Northern Ireland.'¹ TYC identified twelve major principles for change, which should underpin the shape of the future model proposed for health and social care (Box 1).

TYC ultimately became known as the 'shift left' as £83 million was redirected from hospital care to primary, community and social care services. Similar to all other healthcare systems, there was now also the recognition that any changes to the

healthcare system and service provision would need to cater for an ageing population with the need to deliver services nearer to home.

Around the same time, hospital pharmacy in Northern Ireland was considering the workforce and clinical career pathways; 48 consultant pharmacists were in post in England and Wales, but no similar posts existed in Northern Ireland.

This paper outlines the approaches taken to successfully test, reproduce and scale the consultant pharmacist-led medicines optimisation in older people (MOOP) service in Northern Ireland, which can be adapted to meet local needs as appropriate.

Introduction of New Services

Pharmacy in both the Western Health and Social Care Trust (WHST) and the Northern Health and Social Care Trust (NHSCT) responded to the principles of TYC, the need to serve an older population and the desire to establish consultant pharmacist posts in the province by introducing two new and innovative consultant pharmacist-led services. The WHST focused on developing an intermediate care pharmacy service whilst the NHSCT concentrated on delivery of Trust outreach services to care home patients. Initial work was funded for two years by the former Department of Health, Social Services and Public Safety in Northern Ireland (DHSSPSNI, now the Department of Health) via the Regional Innovations in Medicines Management fund.

Process Mapping

Lessons have been learned and challenges overcome throughout the development of what ultimately became the Medicines Optimisation in Older People (MOOP) pharmacy service (see Box 2). Initial lessons related to the need for early engagement with stakeholders across all sectors so as to 'win hearts and minds', and the need to 'assume nothing' and fully understand the system into which the service was being introduced.

One way of achieving this was via process mapping; the first process map was led by a non-pharmacist Lean-trained facilitator and attended by stakeholders from throughout secondary and primary care including medical consultants, directors of service, ward nursing staff, clinical pharmacists, community pharmacists and the project manager.

Process mapping has many potential benefits including:

- the provision of a starting point for an improvement project specific to your own place of work
- creation of an ownership culture
- provision of responsibility and accountability for a team
- illustration of a patient pathway or process
- understanding of a service from a patient's perspective
- acting as an aid to plan changes more effectively
- enabling the collection of ideas (often from staff who understand the system but who rarely have the opportunity to contribute to change)
- creation of an interactive event that engages staff
- delivery of an output and end product (a process map and action plan).²

This approach has been used many times during the ongoing development and refinement of MOOP patient pathways and originally informed the design of a consultant pharmacist-led case management model of care for patients transferred from acute into intermediate care within the WHST. There can be varying definitions of 'intermediate care' used by different Trusts with other terminology including 'reablement,' 'interim' and 'crisis response.' The general pharmacy case management model developed and refined by the team over a period of six years (Figure 1) can be delivered to patient cohorts in intermediate care settings including community hospitals and Trust purchased nursing/residential home beds regardless of the definition or description used. Prior to introduction of this service, pharmacy had a 'supply only' role but the subsequent positive impact of this pharmaceutical care model on patient

TYC 12 Principles for Change¹

1. Placing the individual at the centre of any model by promoting a better outcome for the service user, carer and their family.
2. Using outcomes and quality evidence to shape services.
3. Providing the right care in the right place at the right time.
4. Population-based planning of services.
5. A focus on prevention and tackling inequalities.
6. Integrated care – working together.
7. Promoting independence and personalisation of care.
8. Safeguarding the most vulnerable.
9. Ensuring sustainability of service provision.
10. Realising value for money.
11. Maximising the use of technology.
12. Incentivising innovation at a local level.

Box 1

Lessons from the MOOP Journey

1. Develop models of care in line with strategic direction and policy.
2. Engage early with all potential stakeholders.
3. Fully understand the system and context you want to introduce a new service to i.e. process map.
4. Identify potential service gaps and issues and then create an action plan in collaboration with all stakeholders.
5. Robustly evaluate with agreed relevant outcomes reflective of pharmacy input.
6. React to data and refine models of care in response to the evidence.
7. Disseminate at every opportunity i.e. share the learning.
8. Stay consistent with proven care models and demonstrate reproducibility.
9. Don't reinvent the wheel but know when to fix it.
10. Standardise practice to enable reproducibility and roll out.
11. Capture the patient 'voice' and service user experience.

Box 2

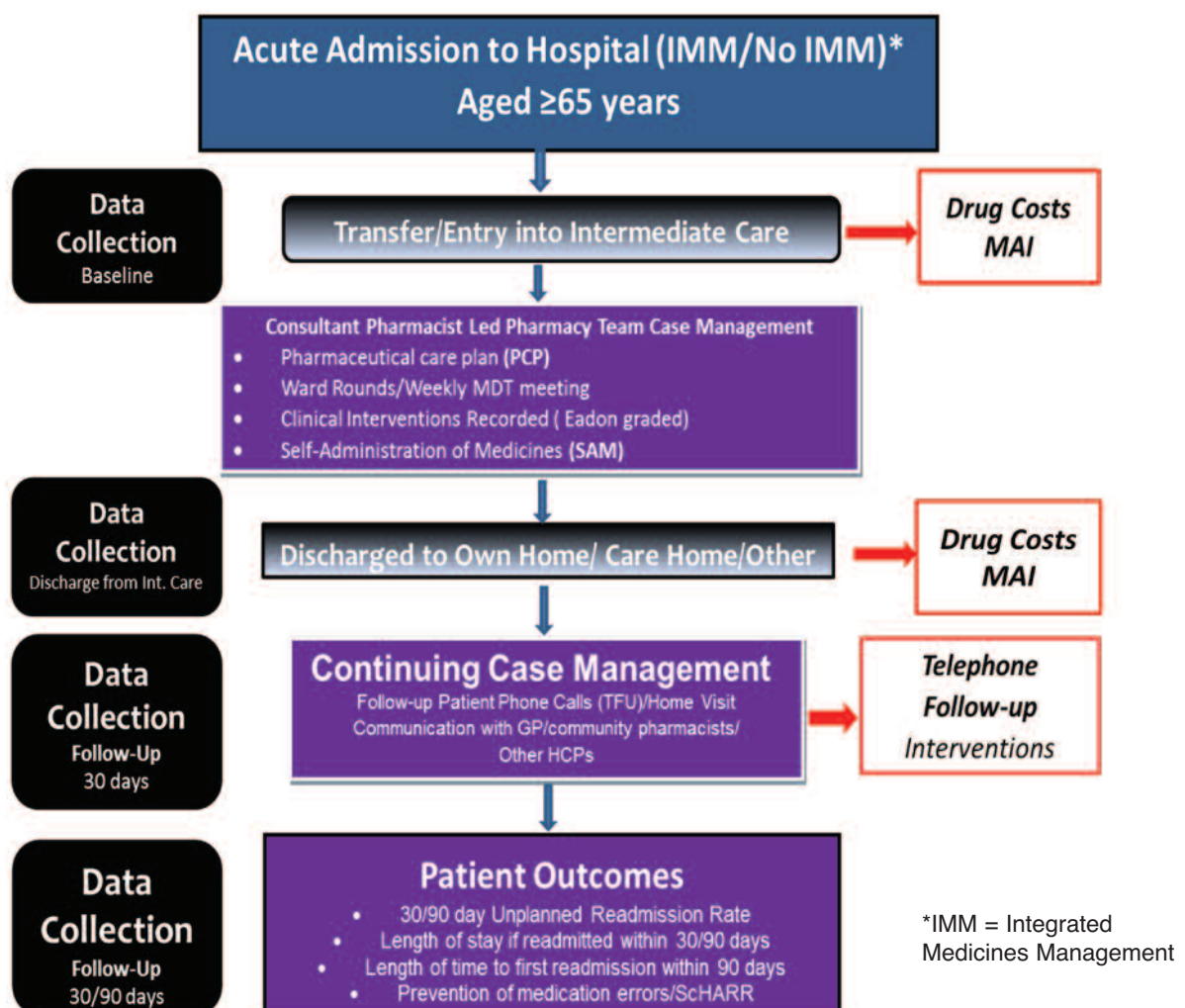


Figure 1: Consultant Pharmacist-led Pharmacy Team Case Management of Older People in Intermediate Care

outcomes and healthcare resource savings clearly demonstrated the need for this service in this particular healthcare setting. These included statistically significant improvement in appropriateness of prescribing (measured via application of the medication appropriateness index (MAI)³), annual drug cost savings of £68k, a decrease in intermediate care length of stay and a reduction in unplanned readmission rates.⁴

The NHSCT medicines optimisation care home model has also evolved over the years from the initial pilot work and is illustrated in its present form in Figure 2. From 2012 to 2014 Trust outreach medicines optimisation clinics were delivered by the consultant pharmacist working alone or in collaboration with a consultant geriatrician. This service to care homes also demonstrated significant drug cost savings, statistically significant improvement in appropriateness of prescribing and reduced healthcare resource usage including a 14% reduction in inappropriate A&E presentations.⁵ The outcomes from the pharmacist working alone did not substantially differ from those where the medical expert was present. The 'top heavy' service was therefore remodelled and refined to include a referral mechanism to the geriatrician which no longer required them to be physically present but available when deemed medically necessary.

Another significant lesson at this stage in the journey related to the essential requirement for robust evaluation and evidence. Extensive data were collected by both services in the first two years. The first major challenge was encountered in 2014 when funding for these now embedded services from the Regional Innovations in Medicines Management ended; using the data collected, testimonials and evidence of the benefits to the local older populations, support from Local Commissioning Groups (LCGs) was sought and secured in both Trusts. This ensured the service could continue into 2015.

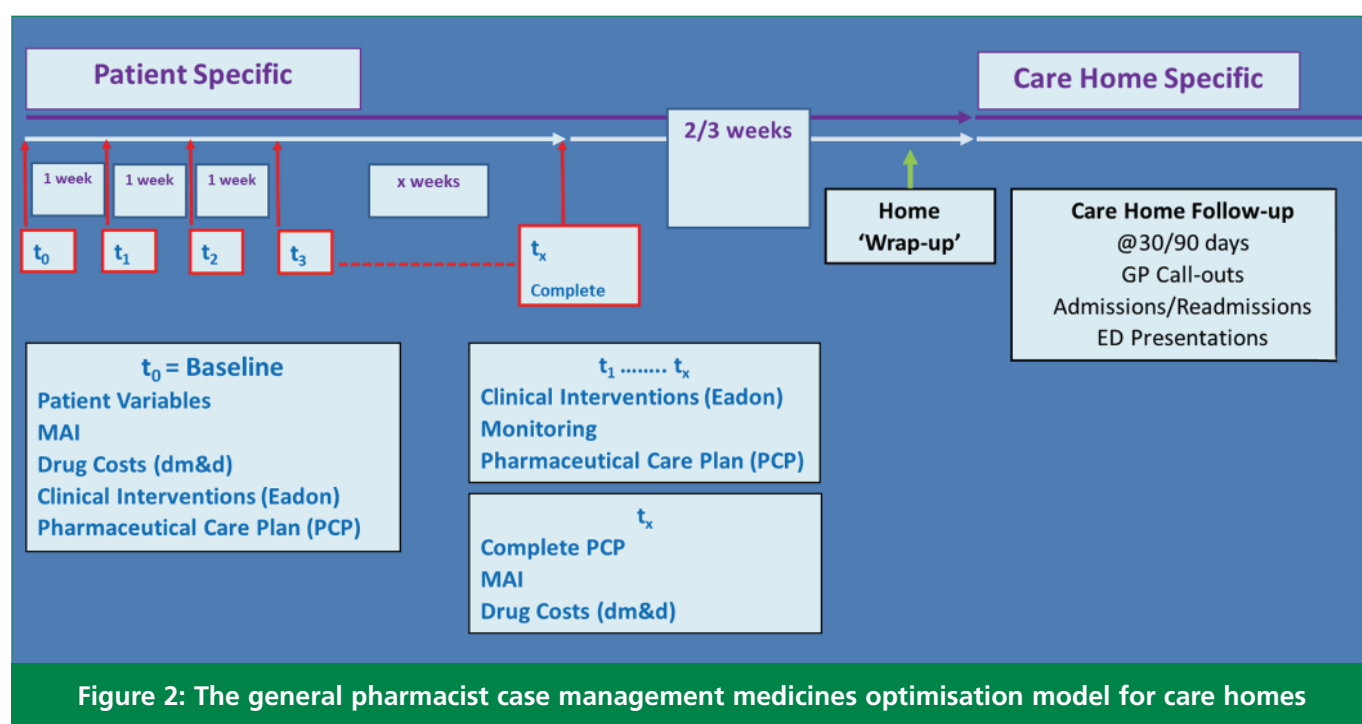
The Change Fund

In 2015 the DHSSPSNI launched the Change Fund seeking to fund pilot projects which already had demonstrable outcomes but needing to establish whether they were reproducible in another geographical area/healthcare setting. This funding was secured and the WHSCT introduced the care home model whilst the NHSCT introduced the intermediate care pathway to two community hospitals similar in size and demography to that in the WHSCT where the model had been developed.

Six Band 8a case management pharmacists (all of whom were independent prescribers) were recruited into the service and, under the mentorship of the consultant pharmacists, they implemented and delivered the intermediate care and care home MOOP models whilst collecting extensive data on all case managed patients. In addition, the WHSCT pharmacists tested different GP communication models for the care home service where clinical interventions and recommendations were actioned either via letter (original NHSCT approach), teleconference or direct access into GP systems. The type of communication varied throughout the Trusts and was ultimately found to depend upon both the size and location of the care home and the wishes of the GP responsible for patient care.

Team work across two Trusts

Throughout establishment of the services in both Trusts, the pharmacy teams worked collaboratively ensuring standardisation of approach and service delivery. Data collection and application of tools such as the MAI³ and the Eadon⁶ criteria (a scale from 1 to 6 reflective of quality of patient care with a score of ≥ 4 indicating improved quality) was peer reviewed and quality assured at monthly team meetings attended by the consultant pharmacists and chaired by the project manager. The teams collaboratively developed guidelines e.g. laxative prescribing and educational posters for display in care homes such as Acute Kidney Injury, thereby ensuring the same messages were being shared across a large geographical area serving approximately



700,000 people. Educational needs were identified and experts invited to these meetings to present on key topics.

Reproducibility

Reproducibility of outcomes for both models was demonstrated in 2016 with both producing similar, if not further improved results to that achieved in the pilots.^{7,8,9,10} The 'Invest to Save' returns of the original models per £1 invested were £2.35 to £4.00 for intermediate care and £2.39 to £3.00 in care homes; these returns were maintained. These models therefore demonstrated the extensive reproducible cost efficiencies which can be achieved using this patient-centered approach to medicines optimisation and pharmaceutical care in these vulnerable older patient cohorts (see Tables 1 and 2).

Capturing the Patient Voice and Service User Experience

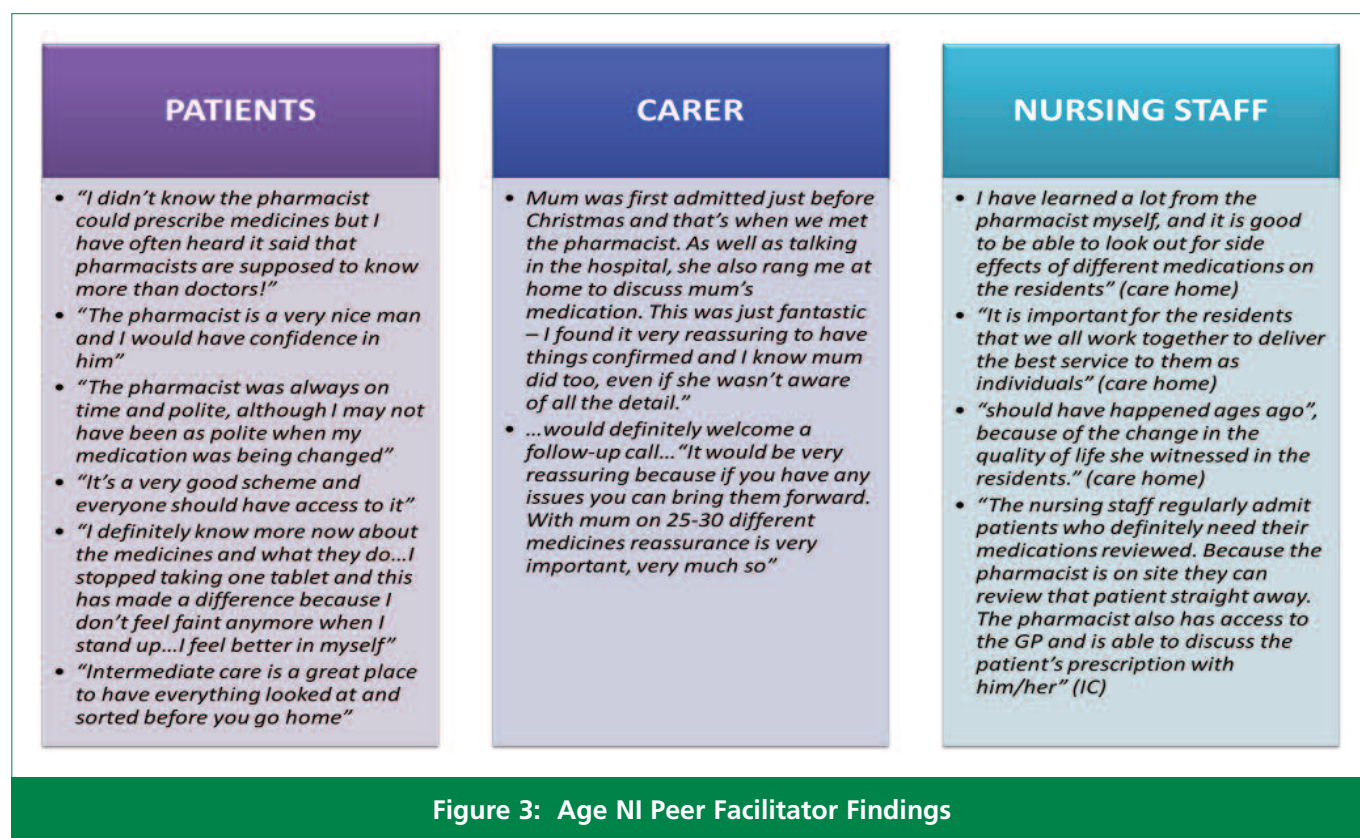
With the pressure to prove an 'Invest to Save' return throughout the years from 2012 to 2016 and the constant threat of funding removal, focus on outcomes was both quantitative and financial. The project team recognised this but with the guiding principle that medicines optimisation should be patient-centered, they sought to capture the patient voice and service user experience. The MOOP service commissioned the local charity Age NI (equivalent to Age UK) to achieve this with the following three main aims:

1. To gain insight into the experiences of older service users into this approach
2. To add value to ongoing evaluations being carried out by the project team
3. To reflect the patient journey in the process of medicines optimisation

Age NI has developed a unique programme where older people are recruited and trained in facilitation, listening skills and report delivery. Once trained, facilitators are engaged in carrying out bespoke, facilitated sessions with older people on key issues including health and social care, poverty and citizenship so that their voices can be heard, and their views and experiences can be used to influence and shape policy and practice on ageing issues. A total of 28 people were engaged as part of the process, comprising of patients in nursing home and community hospital settings, carers and a cross section of staff members. Some interview findings are shown in Figure 3.

Age NI made the following recommendations in their final report:

- Age NI supports the person-centred approach demonstrated by the consultant pharmacist-led pharmacy teams in the medicines optimisation project, and believes this to be a fundamental aspect in the delivery of excellent care to older people. The role of the specialist pharmacist in care homes and community hospitals should be adequately funded and provided in healthcare settings throughout Northern Ireland
- Older people and those caring for them should be included in discussions about their medicines, and information and support provided to make sure they are fully aware of the medicines they are taking, including side effects, so that any issues can be raised easily and at an early stage
- It is crucial that participation and engagement are factored into any project from the beginning. The use of the peer facilitator model of engagement has ensured that the voices of older people who are in care homes or on hospital wards can be heard, and can influence decisions about their care
- Systems should be in place to ensure that the medical and pharmaceutical needs of older people are regularly reviewed and are appropriate for them at any given time.¹¹



Future evaluation of the MOOP service will again aim to capture the service user experience and the development and use of appropriate Patient Reported Outcomes Measures (PROMs) is being considered.

The Medicines Optimisation Quality Framework

In May 2016, the Department of Health published the Medicines Optimisation Quality Framework¹² with the overall aim of maximising health gain for patients through the appropriate, safe and optimum use of their medicines. The framework contains ten quality standards and nine overarching key recommendations to

introduce and support a regional model for medicines optimisation. It complements the TYC principles' and recommendations made in the 'Donaldson Report – the Right Time, Right Place' published in 2014,¹³ which was an expert examination of the application of health and social care governance arrangements for ensuring the quality of care provision in Northern Ireland.

Figure 5 shows the Northern Ireland Regional Medicines Optimisation Model; within the framework document, this model outlines what should be done at each stage of the patient pathway in each of four different settings (hospital, general practice, community pharmacy and social care) to help gain the best outcomes from medicines.

	WHST 2012-2013 (n=453)	WHST SEP '15 – FEB'16 (n=210)	NHSCT SEP'15 – AUG '16 (n=322)
Age (years)	82.8±7.1	82.1±7.2	82.1±7.8
Mean Length of stay in IC (Days)	29.5	34.3	33.1
Origin of Admission to IC	100% Acute Care (WHST)	95.7% Acute Care (WHST) 0.4% Acute Care (Other Trust) 3.3% Older People Assessment Liaison Service (OPALS) 0.4% Rapid Access Clinic	56.2% Acute Care (NHSCT) 24.5% Acute Care (Other Trust) 17.7% GP Step-up Request 1.6% Other
Average number of clinical interventions made per patient during their stay in IC	2.5	5.5	3.9
% Clinical Interventions Eadon Grade ≥4	84.0	99.2	97.5
% Patients followed-up post discharge	32.7	64.4	49.4
% Patients with interventions at follow-up	45.9	20.1	40.9
Number of drugs taken on admission to IC	10.7±4.3 (Range = 0 to 25)	10.7±4.3 (Range = 2 to 23)	10.7±4.1 (Range = 1 to 24)
TOTAL MAI on admission to IC *	7.1±5.7 (n=355) (Range = 0 to 27)	13.45±10.07 (n=210) (Range = 0 to 46)	16.84±12.77 (n=322) (Range = 0 to 63)
TOTAL MAI on discharge from IC*	2±2.6 (Range = 0 to 14)	0.06±0.46 (n=210) (Range = 0 to 6)	0.67±2.35 (n=287) (Range = 0 to 16)
Drug cost savings per patient per annum	£150.11	£205.50	£229.13

Table 1: Intermediate Care (IC) Original Results and Change Fund Reproducibility Results (2015/16)

* p<0.001 Paired Samples Wilcoxon Signed Rank test

The Transformation Fund

In response to a recommendation made in The Donaldson Report, the DHSSPSNI appointed an expert, clinically led panel to lead on an informed debate on the future best configuration of Health and Social Care services in Northern Ireland. The resulting report 'Systems, not Structures: Changing Health and Social Care' in 2016 outlined the reasons and need for whole system transformation with significant integrated cultural and operational reform.¹⁴ Many of the recommendations made in this report were recognised as requiring additional, transitional funding. The panel therefore recommended that the Minister should establish a ring-fenced transformation fund to ensure this process was appropriately resourced.

The Minister for Health announced the £30 million

Transformation Fund with £2.3 million permanent and recurrent funding committed to implementation of the Medicines Optimisation Quality Framework. A decision was then made to use this fund to roll out the MOOP services to each of the five Trusts in Northern Ireland. The Medicines Optimisation and Innovation Centre (MOIC) was also resourced whilst remaining money was devoted to the much needed area of mental health.

Consultant Pharmacist Mentorship/MOOP Roll Out

Each MOOP Trust team is led by a consultant pharmacist (older people) with the team consisting of one case management care homes specialist pharmacist, one case management intermediate care specialist pharmacist, one medicines adherence case management pharmacist and one intermediate care technician. The consultant pharmacist has provided clinical expertise,

REFINED CARE HOME MEDICINES OPTIMISATION CASE MANAGEMENT MODEL			
	WHST (Northern Sector) (n=268)	WHST (Southern Sector) (n=297)	NHSCT (n=530)
Age (mean ± SD)	83.9 ± 7.7 years (Range 65 to 102)	84.1 ± 7.9 years (Range 66 to 100)	84.7 ± 7.1 years (Range 65 to 99)
Communication Model with GP	128 Real time access 91 Letter and telephone call 49 Letter to GP	294 real time access 3 Tele-conference with GP	529 Letters to GP 1 Letter and telephone call
No. of medicines taken on first pharmacist contact (mean ± SD)	9.9 ± 4.0 (Range 1 to 22)	13.3 ± 4.7 (Range 2 to 29))	9.9 ± 4.0 (Range 1 to 22)
Total MAI before pharmacist case management (mean ± SD)*	11.9 ± 10.4 (Range 0 to 67)	17.57 ± 14.46 (Range 0 to 79, n=560)	12.00 ± 10.80 (Range 0 to 63, n=528)
Total MAI after pharmacist case management (mean ± SD)*	0.2 ± 1.1 (Range 0 to 11)	1.11 ± 2.53 (Range 0-18, n= 560)	0.27±1.22 (Range 0 to 14, n=528)
Number of clinical interventions identified (week 1) (mean ± SD)	2.4 ± 1.4 (Range 0 to 7)	3.6 ± 2.1 (Range 0 to 12)	2.8± 2.3 (Range 0 to 12)
Total number of clinical interventions from baseline to review completion tx (mean ± SD)	2.7 ± 1.7 (Range 0 to 8)	3.7 ± 2.3 (Range 0 to 12)	2.8± 2.3 (Range 0 to 12)
% Clinical Interventions Eadon Self-Grade ≥4	95.4	83.3	96.1

Table 2: Results for Patients who were Case Managed in NHSCT and WHST Care Homes (2015/16)

* p<0.001 Paired Samples Wilcoxon Signed Rank test

experience and leadership to help guide the development and roll out. Medicines adherence forms a new MOOP work stream; this Trust based service is presently being developed and refined and is subject to ongoing evaluation having been initially informed by pilot work that was also originally funded by the DHSSPSNI Regional Innovations in Medicines Management fund.¹⁵ A medicines optimisation case management approach has again been adopted for this service which is being delivered to patients

with suspected adherence issues which are further explored via a home-based comprehensive adherence assessment.

There has been an extensive period of recruitment into the regional MOOP service with the ongoing establishment of the intermediate care, care home and adherence medicines optimisation models across Northern Ireland. Having learned from the benefits of team working across two Trusts during delivery of the 'change fund' work, the aim is to now establish and maintain a regional standardised approach across the entire province. The first regional MOOP meeting was held in October 2017 where the MOOP models were described to new staff, with plans to make this an annual event. The teams communicate both informally on a continuous ad hoc basis, and formally at monthly meetings with the consultant pharmacists and project manager. A MOOP steering group has overseen the work since 2012; with the move from pilots to a permanent regional commissioned service, this will provide a more strategic as opposed to operational steer to the direction of travel and future vision.

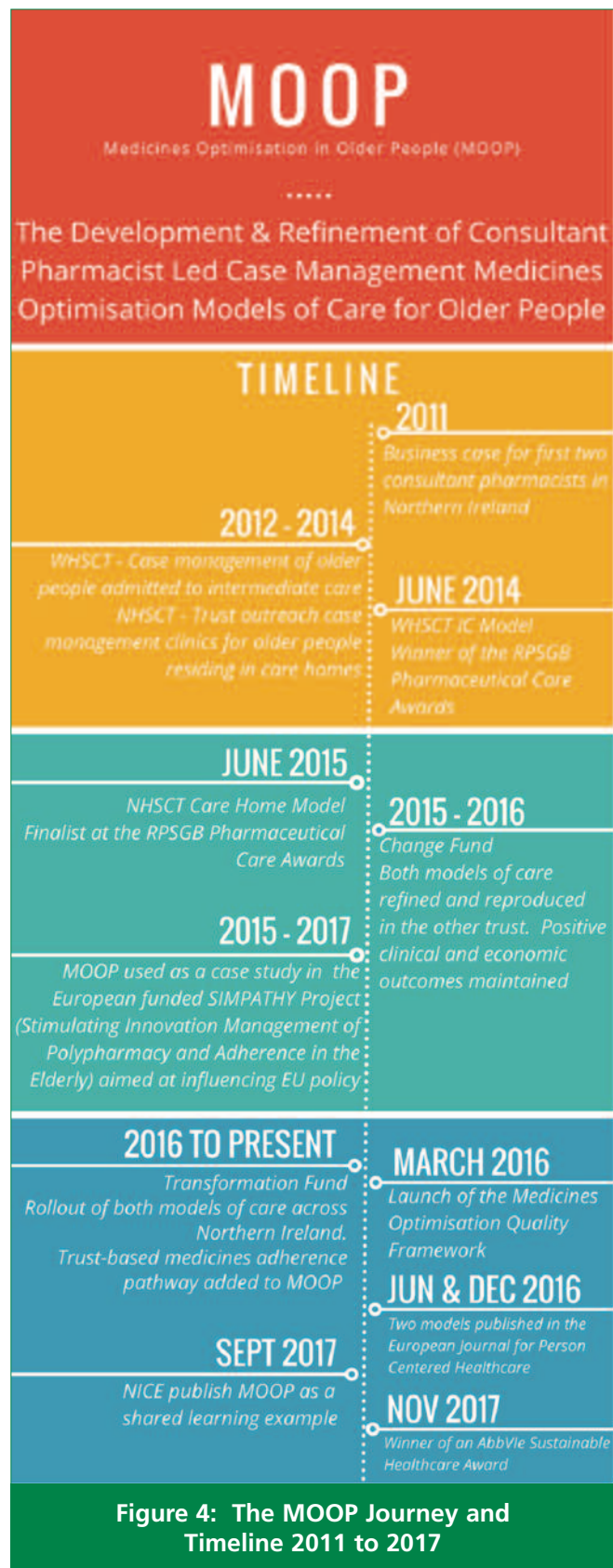
The models do 'fit' well into each Trust but some gaps and differences have been identified which will require further refinement and exploration. For example, one Trust has a scattering of individual patient beds located in care homes and also the patient's home as opposed to defined intermediate care cohorts. Pilot work will need to be performed to establish issues and benefits of delivering the general intermediate care model to patients who are geographically scattered in this manner. Although work has focused on the development of the adherence, care home and intermediate care services the consultant pharmacists continue to horizon scan and identify gaps in the entire healthcare landscape and challenge current structures and service provision.

Data Collection and Evaluation

There is a requirement for ongoing data collection and evaluation of the MOOP services for several reasons including:

- informing the development of new services
- informing the refinement of existing services
- meeting commissioner expectations of, mainly quantitative, outcomes
- ensuring we meet the expectations of all service users, especially our older patients.

Data collection has been robust and labour intensive with it taking up to 18% of pharmacist time during the 'change fund' project work in 2015/16. Permanent commissioned service delivery cannot reasonably enable this amount of time to be devoted to data collection, therefore moving forward there will be refined data capture periods with focus on the outcomes reflective of pharmacy intervention. Experience has also shown that our extrapolated data has been acceptably similar to that when it has been collected for every individual patient. The most recent data capture period was a four-week period in January 2018 with this cohort being followed up for 12 months post-completion of case management.



Changing Roles

Since early 2017, GP federations in Northern Ireland have been provided with Department of Health funding to recruit Practice Based Pharmacists (PBPs). At present around 200 PBPs are in post with recruitment continuing into 2019/20 with the ultimate aim that all GP practices will have a PBP. The introduction of the PBP role is welcomed by the MOOP service and has led to a natural and beneficial increase in communication between the secondary and primary care pharmacy services. The care home model of communication has, in response to the PBP presence in GP practices, evolved further with the care home case management pharmacists recently reporting closer joint working in response to their case management, recommendations, clinical interventions and follow-up. This now requires a formal mechanism with

further definition of the roles and responsibilities of each pharmacist, also including that of community pharmacists, as the MOOP services further embeds and refines in response to an ever-changing healthcare landscape.

The creation of clinically focussed medicines optimisation cross sectoral roles within MOOP has resulted in a new and stimulating career pathway for hospital pharmacists in Northern Ireland which can ultimately lead to appointment at consultant pharmacist level. The intensive consultant pharmacist-led case management approach across the primary/secondary care interface has met the challenges and recommendations made in several government strategies making the transition from pilot to commissioned service a recognised necessity rather than just a desire or potentially 'good idea.'

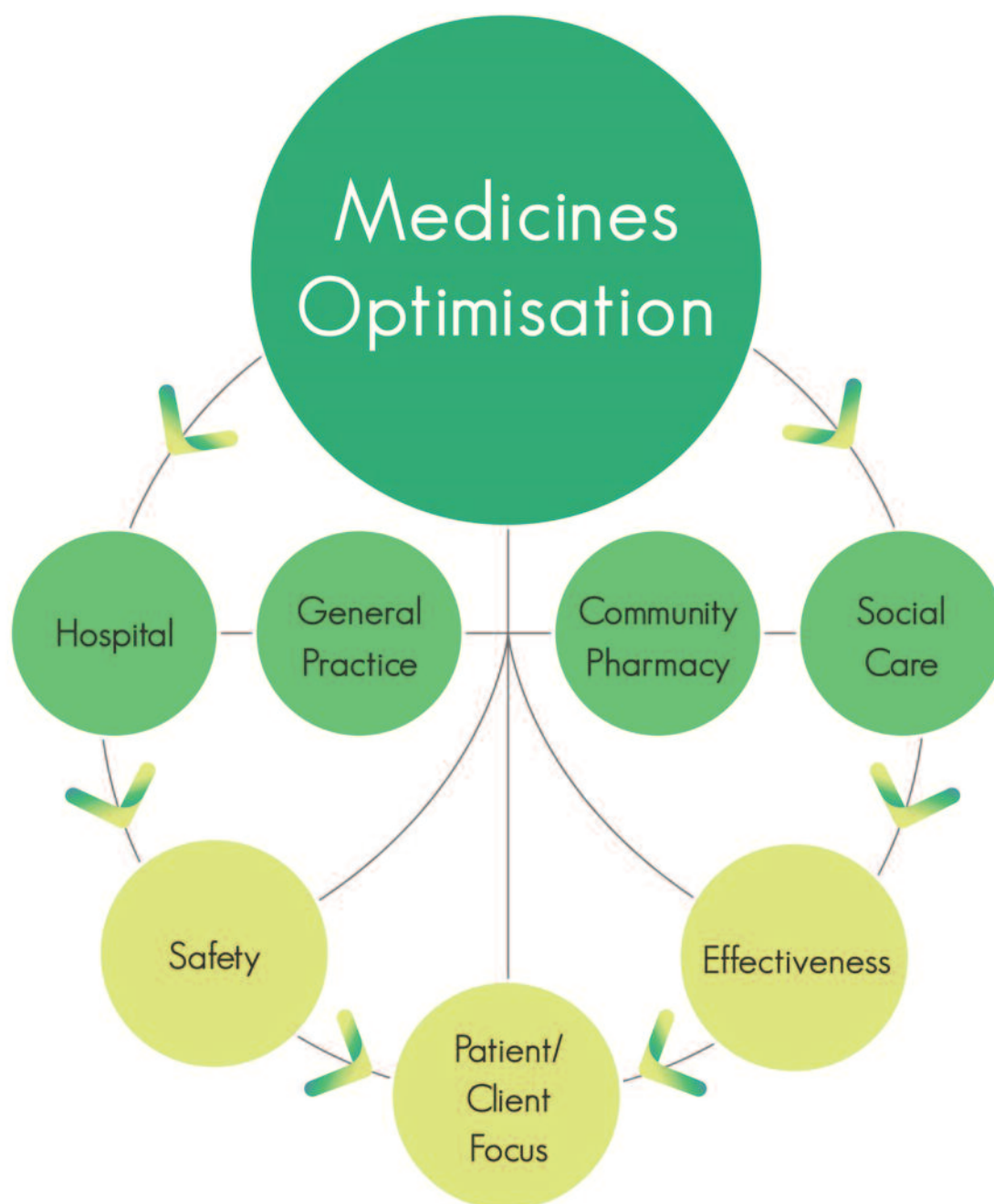


Figure 5: The Northern Ireland Medicines Optimisation Model

The approach, challenges overcome and lessons learned by the MOOP team as outlined here may be adapted and applied to other NHS services that need to be tested, refined and integrated into a transformational health service.

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Declaration of interests

The author has no declarations of interest to make.

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Inspired logic



CHTRI20170962h(1) Oct 2017

Prescribing Information

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Prescribing Information

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Hypokalaemia may increase the likelihood of arrhythmias in patients receiving digitalis glycosides. **Related to glycopyrronium:** Co-administration with other anticholinergic-containing medicinal products is not recommended. **Excipients:** Presence of ethanol may cause potential interaction in sensitive patients taking metronidazole or disulfiram. **Fertility, pregnancy and lactation:** Should only be used during pregnancy if the expected benefits outweigh the potential risks. Children born to mothers receiving substantial doses should be observed for adrenal suppression. Glucocorticoids and metabolites are excreted in human milk. It is unknown whether formoterol or glycopyrronium (including their metabolites) pass into human breast-milk but they have been detected in the milk of lactating animals. Anticholinergic agents like glycopyrronium could suppress lactation. A risk/benefit decision should be taken to discontinue therapy in the mother or discontinue breastfeeding. 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How effective are primary care pharmacists at running dyspepsia clinics for patients prescribed PPIs?

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Abstract

Title

How effective are primary care pharmacists at running dyspepsia clinics for patients prescribed PPIs?

Author list

Petty D, Allan J, Dawson R, Silcock J.

Introduction

As a consequence of the low cost and perceived safety, proton pump inhibitors (PPIs) are widely prescribed but they can cause long-term adverse effects and are often overprescribed. For most patients PPIs should not be continued long-term as patients can become dependent on PPIs and they are rarely stepped down/off treatment. We aimed to measure whether a dyspepsia review service could help patients on PPIs to step down/off treatment whilst still keeping them symptom free.

Methods

Pharmacists were provided with training on dyspepsia management. Four general practices were selected. Patients taking a PPI for more than two months were included. A list of exclusion criteria (e.g. active ulcers, newly initiated) was applied. Between six and eight dyspepsia review clinics were run at each site. Patients were booked into a 15-minute consultation. A concordance style consultation was held with clinicians providing information on dyspepsia management and exploring the patients' ideas, concerns and expectations about stepping down or stepping off treatment. A follow-up audit was performed at four months to determine if patients had remained stepped down/off. An economic evaluation of clinic costs and drugs savings was performed.

Results

A total of 508 patients were invited to a review; 136 did not attend and 58 were excluded due to not meeting the inclusion criteria, leaving 314 patients reviewed for step-down/step-off. Successful step down/step off was achieved in 257 people (82% of those reviewed).

The total cost savings of PPIs was £7,100. The additional cost of alginates was £1,207 giving a net saving on medicines of £5,893 per annum. Set-up costs were £1,194 and staff costs £3,524 to £5,156 giving total running costs, which vary dependent on the Agenda for Change (AfC) grade of pharmacist involved, of £4,720 - £6,351.

Conclusion

A dyspepsia review clinic is cost-neutral to run but, given that many patients are on polypharmacy, PPI step down might best be considered as part of a holistic medication review clinic.

Keywords: proton pump inhibitors, medication review, economic analysis.

Introduction

Proton pump inhibitors are generically available in the UK and are relatively inexpensive. As a consequence of the low cost and relative safety they are widely prescribed. In 2014 over 53 million items were dispensed in England at a cost of £116,359,000 (£2.19/item).¹ In 2010 around 40 million items were dispensed. Some studies suggest 1 in 10 of the population regularly take a PPI.² Despite being well tolerated PPIs can cause

long-term adverse effects such as osteoporosis, hip fracture, hypomagnesaemia, pneumonia, acute kidney injuries, myocardial infarctions and a potentially moderate increase in *Clostridium difficile* infections.³⁻⁹ PPIs are often overprescribed world-wide, with up to 70% having no indication.¹⁰

For most patients PPIs should not be continued long-term but stopping treatment can trigger gastric acid hypersecretion leading to the impression that the PPI is still required to treat

an underlying problem.¹¹ Patients could, therefore, become dependent on PPIs, which may explain why the numbers of items dispensed increases year on year. An additional explanation for the growth of PPI use is that reviews of PPIs are not occurring in general practice. Dyspepsia is not a long-term condition included in the Quality and Outcomes Framework (QOF - the annual reward and incentive programme detailing English GP practice achievement results).¹² Consequently, PPIs are less likely to be subject to an annual review. If prescribers also consider them to be cheap and safe and patients do not wish to stop taking them for fear of return of symptoms we have perfect conditions for unrestricted long-term prescribing. The National Institute of Health and Clinical Excellence (NICE) has produced guidance on the management of dyspepsia that advocates limiting the exposure to long-term prescribing of PPIs.¹³

We aimed to measure whether a dyspepsia review service could help patients on PPIs by stepping down or stepping off treatment whilst still keeping them symptom free. As the unit cost of PPIs is low we also wanted to perform an economic analysis of the cost-benefit to the National Health Service (NHS) of dyspepsia clinics. The specific objectives were to:

- identify patients prescribed PPIs as repeat medication
- determine the reason for the prescription for each patient
- identify those patients in whom it would be appropriate to step down treatment from a high dose* to a maintenance dose
- identify patients in whom stopping the PPI may be appropriate
- agree with patients a care plan for stepping down or stopping PPI treatments
- quantify the cost-benefit of the service.

* High dose is defined as omeprazole 40mg, 20mg, pantoprazole 40mg, lansoprazole 30mg, esomeprazole 40mg, 20mg and rabeprazole 20mg. Maintenance dose is defined as omeprazole 20mg, pantoprazole 20mg, lansoprazole 15mg or rabeprazole 10mg.

Method

Four practices in Bradford, UK were purposively selected to run the clinics. These practices represented a wide demographic of social and ethnic types. Searches were run on the practice's clinical systems to identify all patients prescribed a PPI as a long-term (repeat) medicine. From the lists the following inclusion and exclusion criteria were applied to identify patients suitable to invite.

Inclusion criteria

All patients taking a PPI for more than two months with an active prescription.

Exclusion criteria

- Patients on healing doses of PPIs < 1 month for uninvestigated dyspepsia.
- Patients on maintenance doses of PPIs < 1 month for non-ulcer dyspepsia.

- Patients on healing doses of PPIs < 2 months for GORD/peptic ulcer disease.
- Patients currently on H Pylori eradication therapy.
- Patients under review at a GI clinic or awaiting referral.
- Patients awaiting gastroscopy or review.
- Zollinger-Ellison Syndrome.
- Patients > 90 years old.
- Patients with terminal illness.
- Patients with grade 3 or 4 oesophagitis.
- Patients on high dose steroids with life threatening or chronic illness e.g. patients awaiting transplant, post-transplant patients.
- Patients receiving immune-suppression therapy.
- Patients undergoing chemotherapy or radiotherapy.
- Patients with oesophageal strictures or oesophageal dilation.
- Patients with a history of oesophageal varices.
- Patients with ALARMS signs and symptoms i.e. Anaemia, Loss of Weight, Anorexia, Recent onset of progressive symptoms, Melena, Swallowing difficulties

Available resources allowed between six and eight dyspepsia review clinics to be run at each site. As a result, not all patients could be invited to the clinics. Patients fitting the inclusion criteria were phoned by practice reception staff and booked into a 15-minute consultation at the general practice.

Clinic reviews

Pharmacists running the clinics were provided with training on dyspepsia management by a nurse experienced in dyspepsia review clinics and a GP with a Special Interest in gastroenterology (GPwSi Gastro). Training consisted of a half-day session on the management of dyspepsia and how to step down PPI treatments followed by mentoring of the pharmacists in their first dyspepsia clinic. The clinics were held between January and May 2015.

Clinic appointments were set at 15 minutes with 20 per day. At the review the clinician established the patient's understanding of the PPI indication and checked in the patient's record that the clinical circumstances pertaining to the use of PPI had not altered since the invite.

A concordance style consultation was then held where the clinician provided information on dyspepsia management and explored patients' ideas, concerns and expectations about stepping down or stepping off PPI treatment. If a patient agreed to step-down/step-off the patient's GP was asked to alter the repeat prescription. Where alginate therapy was required to 'bridge' the time period when acid hypersecretion (acid rebound) might be expected from stopping a PPI then the GP was asked to generate a prescription. Patients were also given advice and a leaflet on lifestyle advice (e.g. diet and weight loss).

Patients attending clinics were asked to complete a questionnaire about their symptom control. These were posted to patients at the end of the clinic with a stamped, addressed

envelope so it could be posted back anonymously. The questionnaire asked questions about whether the patient now had a better understanding of their condition, whether they now felt more in control of their condition and how well their symptoms were now controlled.

A follow-up audit of the clinic record was performed four months after the clinic on patients who had agreed to step down/step off to determine if they had remained on lower doses or were now off PPIs and to measure the change in alginate prescribing. This was done by checking clinical records for PPI (type and dose) and alginate prescription ordering.

Economic evaluation

The costs of screening lists of people prescribed PPIs to find suitable patients to invite was based on a mid-point Band 4 pharmacy assistant. Based on previous experience it was assumed that 250 records would need to be reviewed to find 150 suitable to invite and that screening could be done at a rate of 10 records per hour.

Suitable patients were invited by letter. An assumption was made that four hours of pharmacist assistant time was required to prepare and send out 250 invite letters by second class post.

The costs of a pharmacist to run the clinic was based on Agenda for Change (AfC) banding taken from the lower end of Band 6 to the top of Band 8B. Pharmacist costs were based on 15 minute appointments with two clinic sessions per day and 10 patients per clinic.¹⁴

Medicine costs were taken from the Drug Tariff.¹⁵ If a PPI was stepped down or stepped off or the patient had remained on at the lower dose or off treatment four months later the assumption was made that this was a long-term change and the medicine cost change based on one year of treatment. Alginate costs were calculated on the actual number of bottles ordered.

Results

A total of 1,000 patients prescribed a PPI were screened for suitability to receive an invite. A total of 492 patients were excluded before inviting, leading to 508 people being invited. At the clinic 136 patients did not attend and 58 were excluded because they did not meet the inclusion criteria, leaving 314 patients reviewed for step-down/step-off.

The outcome of the reviews is shown in Table 1. Successful step down/step off was achieved in 257 people (51% of those invited and 82% of those who attended and were reviewed).

Economic costs

The total cost savings on PPIs at the six month review was £7,100. The additional cost of alginates was £1,207, giving a net saving on medicines of £5,893 per annum. This equates to £11.60 and £18.70 savings for patient invited and attended respectively.

The costs of screening of records and inviting patients and running the clinics are shown in Table 2.

Patient feedback on symptom control

Patient feedback on their symptom control as a result of attending the clinic is shown in Figure 1. A total of 216 questionnaires were administered to patients and 89 (41%) were complete.

Discussion

Patients who attended a dyspepsia review clinic were very likely to have a step down of their PPI and to remain stepped down. These findings reflect those found previously.¹⁶⁻²¹ A previous study of PPI medicines optimisation reviews was able to show that the practices that reviewed their PPIs also achieved a reduction in upper gastro-intestinal (GI) referrals by 65% and a reduction in upper GI endoscopies by 82%.¹⁶ This unexpected

Outcome	Number achieving outcome	Proportion of those invited (n= 508)	Proportion of those reviewed (n= 314)
Stepped down	221	44%	70.5%
Stepped off	36	7%	11.2%
Refused to step down or off	23	4.5%	7.1%
Did not attend	136	27%	NA
Did attend but did not meet criteria	58	11%	NA
Reverted back at follow up	18	3.5%	6.2%
Had Left list or died at follow up	16	3%	5.0%
Total	508	100%	100%

Table 1: Outcome of the reviews

result was attributed to the education of patients and practice staff about dyspepsia management, reduced non-steroidal anti-inflammatory (NSAID) use or possibly increased/optimised PPI use in at-risk patients.¹⁶ Whilst the impact on referral rates was not measured in this study, it is possible that a similar result could be achieved due to the education of patients and staff in the same way.

The numbers of patients providing postal feedback on their symptom control as a result of attending the clinic was 89 (41% response rate). It may be that those who were satisfied with the clinic did not feel the need to respond. Most patients commented that they 'neither agreed/disagreed' or 'agreed'

with the statements (Figure 1). Around half of those who responded felt their symptoms had improved i.e. 22/40 (55%). However, half 'disagreed' or 'totally disagreed' showing that step down did not suit all patients. We do not know, however, if their symptoms worsened but, at review, only 6% had reverted back to their original dose. This shows the difficulty clinicians face when attempting to deprescribe or step down already established treatments where the patient may not want to undergo a change.

Prescriptions for non-attenders were not analysed so it is not known if any changes were made to their prescriptions without the intervention.

Screening records/inviting patients		Clinic costs	
Item	Data	Item	Data
Records screened	935	Pharmacist cost per day (range Band 6 to 8b) before on-costs	£101.10 to £221.62
Cost per hour of Band 4 midpoint (before on-costs)	£10.79	Room rent based on four hour clinic session (£10/hour)	£80.00
Cost at 10 records per hour	£874.23	Number of clinics held	£ 27
Patients invited	442	na	na
Time needed to send out letter	8 hours	na	na
Cost of sending letters with a second class stamp	£320.42	na	na
Total invite costs	£1,194.65	Total clinic costs	£3,525 to £5,156

Table 2: Economic costs of running the clinics

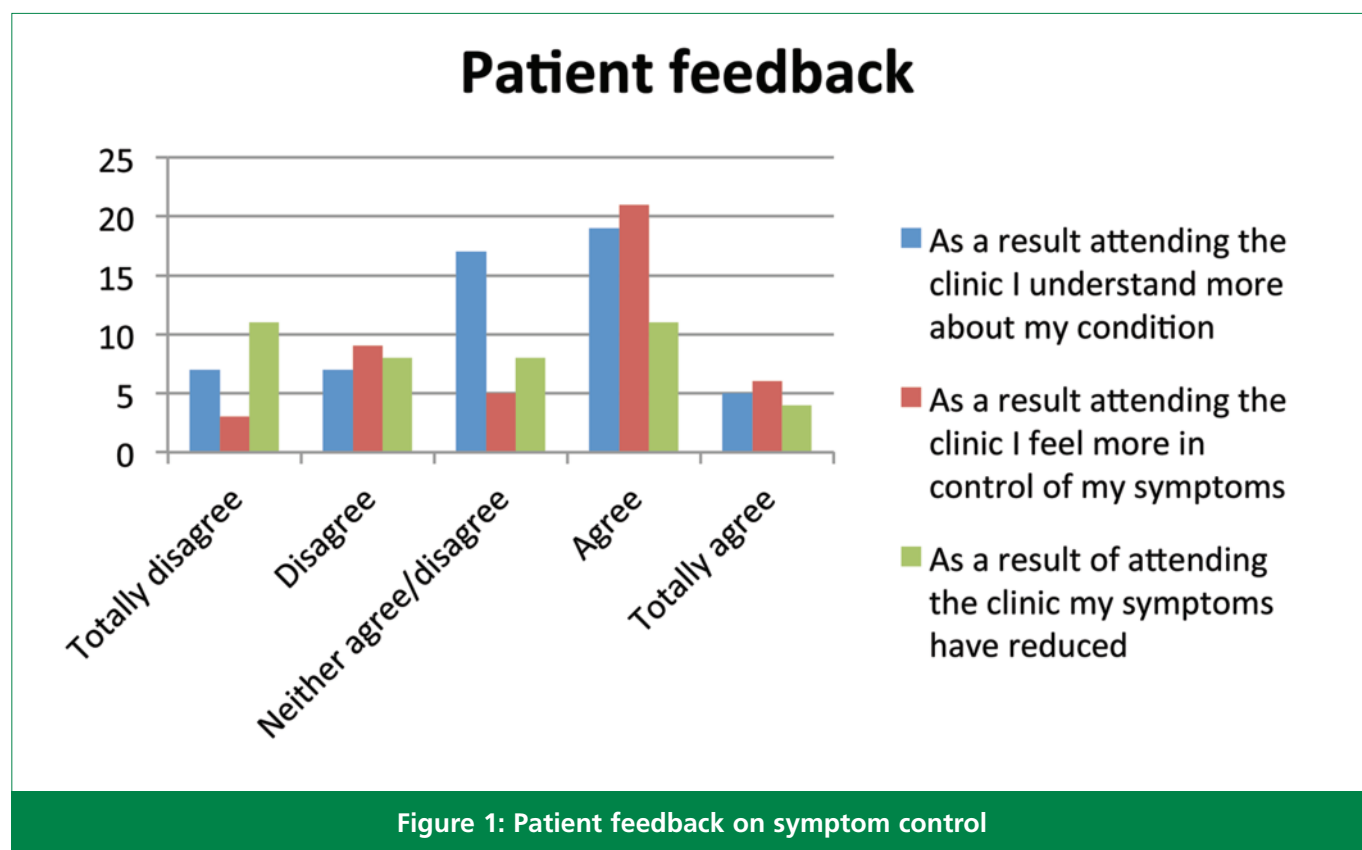


Figure 1: Patient feedback on symptom control

Whilst it is possible to step down PPI doses and step off PPIs, prescribing in England continues to increase.^{1,2} The likely explanation for an increase in prescribing volume is that patients are being initiated on PPIs and that patients currently prescribed PPIs are not having treatment stopped at the end of a course. PPIs are often prescribed for non-ulcer dyspepsia, an unlicensed indication in which PPIs are mostly ineffective.¹³ NICE recommend that, for Gastro Oesophageal Reflux Disease (GORD) and peptic ulcers, treatment doses are for short courses followed by a step down or off.¹³

One explanation as to why PPIs are maintained as repeat prescriptions is that they are perceived by prescribers to be relatively harmless, highly effective and low cost. However, whilst the unit cost of PPIs is low the cost of treating adverse events can be high. For example, the mean cost of a hospital admission for bacterial intestinal infection is £3,819, for a fracture of femur £6,312 and for a myocardial infarction £3,571.²² Estimates of the numbers needed to harm (NNH) from adverse effects with PPIs is shown in Table 3.

In the busy environment of general practice there may also be a reluctance to create potentially more work by reviewing PPIs. We have found a similar problem with the long-term prescribing of antidepressants where there is a reluctance by both the patient and the GP to discuss discontinuation of the medication because of fears about the consequences of doing so.²⁷ We have also found that when opioids are prescribed for non-cancer pain, where opioids are largely ineffective, they are often continued long-term.²⁸

Whilst we found that the majority of patients who attended could successfully have a step-down the running of dyspepsia clinics requires an investment in clinician and patients' time and resources. Our findings show that stand-alone dyspepsia clinics have set-up costs of £1,195 and staff costs of £3,525 to £5,156, dependent on the AfC grade of pharmacist involved. This gives total costs of £4,720 - £6,351 compared to savings made from step down of PPIs after allowing for additional alginate costs (£5,893). Quality of life scoring was not conducted.

Stopping PPIs can help reduce and could reduce costs to the NHS of these associated conditions such as Acute Kidney Infection, C difficile, pneumonia and osteoporosis, which may worsen with a PPI (Table 3).^{23,24,25,26} This significantly helps

strengthen the rational for encouraging dyspepsia review clinics. It is possible to estimate the cost implications of the current prescribing of PPIs at practice or CCG/HB level. Based on published clinical incidence data and Hospital Episodes Statistics (HES) data to give an indication of the complication related cost savings. The potential savings on avoidance of complications is based on incidence of such complications in patients on PPIs and what reduction in these complications is expected if a proportion of patients are stepped off a PPI. Supporting clinical evidence is shown in Table 3.

It was also identified through a baseline audit of PPI patients¹⁶ that patients were found to be taking an average of seven medications including their PPI, with 79% on four or more medications, making this group an ideal target for polypharmacy medicines optimisation reviews.

Given that PPI reviews are important, how could they be achieved? There are three potential models for reviewing and stepping down PPIs that could apply to routine general practice care in the UK (Table 4). This study has demonstrated the benefit of having a pharmacist run dyspepsia clinics but including a dyspepsia review as part of a practice pharmacist holistic medication review may provide additional benefit. Dyspepsia is commonly found in patients who also have comorbidities such as diabetes, cardiovascular disease and depression.²⁹ PPIs could therefore be used as an 'index drug' to target patients for multi-morbidity polypharmacy reviews. The key to success would be training for pharmacists on dyspepsia reviews.

When a medicine is prescribed often, only the unit cost of the medicine is considered as the cost but there are other associated costs with prescribing such as initial diagnosis,¹⁰ decision making about the best treatment option, agreement with the patient about their preferred choice of treatment, review of efficacy and adverse effects on an ongoing basis.

Conclusion

In the case of PPIs it is our experience that little or no time is given to patient involvement and development of self-care in treatment decision or ongoing review, which makes these treatments less expensive to prescribe but is also resulting in the large rise in PPI prescribing across the UK. Whilst a 'stand alone' dyspepsia review clinic is cost effective, it could be a more cost

Diagnosis	Numbers needed to harm (NNH)
Hospital-acquired pneumonia (HAP)	200 (relates to all acid suppressing drugs) ²³
Community-acquired <i>C. difficile</i>	899 ²⁴
Hospital-acquired <i>C. difficile</i>	67 (unselected hospital admissions) ²⁴
Hip fractures	1,960 ²⁵
Acute Kidney Injury	120 in patients aged 66 years and above ²⁶
Acute interstitial nephritis	4,761 in patients aged 66 years and above ²⁶

Table 3: Estimates of numbers needed to harm

Method	Description of method	Advantages	Disadvantages
Stand-alone dyspepsia clinics	Patient on PPIs identified and invited into a dyspepsia review clinic.	<p>Step down rate for patients who attend is high.</p> <p>Patients given quality time to explain dyspepsia and self-management, which could improve long-term quality of life.</p> <p>Staff running clinic are trained and skilled in dyspepsia reviews.</p>	<p>Resources required to identify and invite patients.</p> <p>High 'DNA' rate.</p> <p>Inconvenience for patients as only having one condition reviewed and they may not consider it a problem.</p> <p>Not a cost-effective model of care.</p>
Inviting in individual 'high risk' patients for GP or practice pharmacist holistic medication review.	<p>Patients on PPIs are invited in for a holistic medication review of all of the medicines and medicine needs, which is done at their normal annual or biannual medication review date.</p> <p>Focus is on patients with polypharmacy and patients who are on high risk medicines such as NSAIDs, anticoagulants, DMARDs, etc</p>	<p>Patients gain more from a holistic review than just from a review of one of their medicines.</p> <p>Patients would be seen anyway so does not unduly inconvenience them.</p>	<p>GPs and pharmacists are not skilled to do dyspepsia reviews and training would be necessary.</p> <p>Behaviour change techniques would need to be applied to motivate and remind staff to review PPIs.</p> <p>Sufficient time would need to be set aside to provide a useful review that engages the patient.</p> <p>It may not be possible logistically to invite in all PPI patients, especially if not on other medicines that would warrant a face-to-face review.</p>
GP or practice pharmacist reviews as part of a multi-morbidity holistic review	<p>In this type of review patients with multi-morbidity and polypharmacy are invited in for a review of all of the medical conditions rather than piecemeal reviews of individual conditions.</p> <p>At the multi-morbidity review the pharmacist concentrates on reviewing and optimising the medicine for each condition including for dyspepsia. GPs and nurse concentrate on clinical assessments and diagnosis of new problems.</p>	<p>Dyspepsia can be reviewed within the context of the patient's medical conditions and wishes for future care.</p> <p>Patients gain more from a holistic review than just from a review of one of their medicines.</p> <p>Patients would be seen anyway so does not unduly inconvenience them.</p>	Multi-morbidity reviews are not yet widely adopted into the NHS and best models of delivery have yet to be tested and established.

Table 4: Potential models for reviewing and stepping down PPI doses showing advantages and disadvantages of each approach

effective approach, and less inconvenient for patients, if PPI reviews formed part of a holistic medication review. Clinical Pharmacists in general practice should be trained on how to undertake dyspepsia reviews.

Declaration of interests

Dr. Petty reports grants from Reckitt Benckiser, during the conduct of the study.

Jane Allan reports a salary payment during the conduct of the study (employed by Ashfield Healthcare) and that the education project was sponsored by Reckitt Benckiser.

Dr. Silcock reports grants (National Institute for Health Research, Health Education England) and personal fees (University of Manchester, University of Bergen, Medway School of Pharmacy, Queen's University Belfast) outside the submitted work.

Dr. Dawson reports grants from Reckitt Benckiser, during the conduct of the study.

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A dip into GP management of urinary tract infection in the elderly

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Abstract

Title

A dip into GP management of urinary tract infection in the elderly.

Author list

Wisner K, Wilcock M, Philp K.

Introduction

The diagnosis of urinary tract infection (UTI) in older people is seen as an area for improvement, with the aim of reducing reliance on dipstick testing and subsequently rationalising the use of antibiotics. As part of the 2016/17 annual General Practice Prescribing Quality Scheme, NHS Kernow Clinical Commissioning Group (CCG) wished to have a primary care focus on prescribing for UTI.

Method

Every practice in Cornwall was asked to review a sample of their older patients (>65 years) who had been prescribed trimethoprim or nitrofurantoin for a UTI in any two week period (minimum of 10 patients, maximum of 30 patients).

Results

Between October 2016 to March 2017, 62 (96.9%) of 64 practices completed this UTI review with 1,146 patients reviewed. Six hundred and twenty-five (54.5%) patients had their urine tested using a dipstick. As regards antibiotic choices, 582 patients (51.8%, range 8 to 90%) were prescribed the first-line choice of nitrofurantoin, and 541 patients (48.2%, range 10 to 92%) were prescribed the second-line choice of trimethoprim. Many practices recorded that the review had prompted them to reconsider their processes and protocols for dealing with urine samples and to ensure that details of symptoms are collected in addition to any sample.

Discussion

This review has identified opportunities for improving the primary care management of UTI in older people in one CCG when comparing current practice with national guidance.

Conclusion

Practices have reflected on and acknowledged specific areas for changing behaviour in UTI management, though maintaining their motivation and impetus will require additional support and facilitation.

Keywords: Urinary tract infection, antibiotics, primary care, elderly.

Introduction

Antibiotic resistance is a global public health issue, and inappropriate use of antibiotics is central to the development of antibiotic resistance. Urinary tract infection (UTI) is the second most common clinical indication for empirical antibiotic treatment in primary and secondary care, and urine samples constitute the largest single category of specimens examined in most medical microbiology laboratories.¹ Clinicians regularly have to make decisions about the prescribing of antibiotics for

UTI. Both nationally and internationally, there is considerable evidence of practice variation and deviation from guidelines in the use of diagnostic tests, interpretation of signs or symptoms and initiation of antibiotic treatment for UTI management.^{2,3,4}

The diagnosis of UTI is particularly difficult in elderly patients, who are more likely to have asymptomatic bacteriuria as they get older. Older people in long-term care (for example, people in care homes) frequently have unnecessary antibiotic treatment for asymptomatic bacteriuria despite clear evidence of adverse

effects with no compensating clinical benefit. In this older population the prevalence of bacteriuria may be so high that both the accuracy of urine culture and of dipstick testing can vary. For primary care in particular, where dipstick testing has historically been relied upon as an aid to diagnosis of UTI, it is important that factors other than test results are taken into consideration to ensure appropriate management and avoid the unnecessary use of antibiotics, which can lead to a significantly increased risk of clinical adverse events, including *Clostridium difficile* infection or methicillin resistant *Staphylococcus aureus* infection, and the development of antibiotic-resistant UTIs. In addition, dipstick testing is not an effective method for detecting urinary tract infections in catheterised adults. This is because there is no relationship between the level of pyuria and infection in people with indwelling catheters (the presence of the catheter invariably induces pyuria without the presence of infection).

Guidance relevant to primary care management of UTI is available from Public Health England,⁵ and elsewhere.⁶ The SIGN (Scottish Intercollegiate Guidelines Network) guideline 88 algorithm for diagnosing UTI in older people provides a useful decision aid for prescribers and is used widely across the UK.⁷

As part of the 2016/17 annual General Practice Prescribing Quality Scheme (GPPQS) and, in anticipation of the quality premium expected in 2017/18,⁸ NHS Kernow CCG wished to have a primary care focus on prescribing for UTI. Due to increasing concern regarding patients, especially the elderly, developing *E. Coli* bloodstream infections, this National Quality Premium aims to reduce the ratio of trimethoprim to nitrofurantoin prescribing by 10% and the number of patients >70 years prescribed trimethoprim by 10%. Achievement of the Quality Premium should increase the appropriate use of nitrofurantoin as first line choice for the management of UTI in primary care settings, and support a reduction in inappropriate prescribing of trimethoprim which is reported to have a significantly higher rate of non-susceptibility in 'at risk' groups.

In the year prior to this review in NHS Kernow CCG, the local microbiology laboratory was reporting susceptibility of *E. Coli* isolates from urine samples from primary care of 97% for nitrofurantoin, and 64% for trimethoprim. However, it is unclear at what stage of a patient's management for UTI that a sample would be taken – it is assumed that in general this does not occur when the patient first presents to their practice but a sample may be collected if the patient does not respond to first choice empirical therapy.

Method

The aim of the GPPQS was for every practice in Cornwall to review a sample of their older patients (>65 years) who had been prescribed trimethoprim or nitrofurantoin for a UTI in any two week period (minimum of 10 patients, maximum of 30 patients). Practices had between October 2016 and March 2017 to complete the review. Information was gathered from the practice clinical system about the diagnosis and management of these patients to find out whether the prescribing was in line with the SIGN 88 algorithm. The search strategy involved identifying patients aged over 65 years prescribed trimethoprim or nitrofurantoin over the most recent two weeks. Relevant

details for a minimum of 10, and a maximum of 30 patients were recorded in a data collection form. Summarised results were provided to the GP prescribing lead for the practice with the expectation that results be discussed with all prescribers at a practice meeting, with the aim of reflecting on the results and agreeing key action points to improve the future diagnosis and management of UTI in older patients. The purpose of the audit was to capture practice-specific data on clinical indicators that have a proven link to outcomes, and encourage reflection and behaviour change within the practice.

Results

Over October 2016 to March 2017, 62 (96.9%) of 64 practices completed this UTI review with 1,146 patients reviewed (range 8 to 32 per practice), of which 146 patients (12.7%) were living in a care home. Nine hundred and two (78.7%) patients had their UTI symptoms recorded in their notes, though the inter-practice rate of recording varied from 100% to 30%, with 21 practices recording symptoms in less than three-quarters of relevant patients. Six hundred and twenty-five (54.5%) patients had their urine tested using a dipstick, and 622 (54.3%) patients had their urine sent for culture. As regards antibiotic choices, 582 patients (51.8%, range by practice from 8 to 90%) were prescribed the first line choice of nitrofurantoin, and 541 patients (48.2%, range by practice from 10 to 92%) were prescribed the second line choice of trimethoprim. One practice (23 patients) did not record which antibiotic was chosen. Two hundred and seven (18%) patients were prescribed long term UTI antibiotic prophylaxis, whilst 274 (23.9%) patients had their antibiotic prescribed via a telephone consultation.

The free text comments entered by the lead GP described the key points from subsequent discussions in practice. The themes described in the practice actions plans were:

- Some practices recognised that they were still prescribing more trimethoprim (a second line choice) rather than the first line choice of nitrofurantoin.
- A few practices noted that they were not prescribing shorter 3 day courses for female patients, as recommended in local guidelines.
- Many practices acknowledged that dipstick testing was being used alone in the decision to prescribe antibiotics but they knew this should not be done routinely in this age group (>65 years), and discussions noted trying to reduce routine dipstick testing.

Some practices noted that whilst face-to-face assessments were recommended in the NICE Quality Standard this is not always practical but they aimed to increase the numbers of these assessments in the future. Some practices were surprised by the number of patients identified taking prophylactic antibiotics and that patients had not been reviewed within the last six months.

Many practices recorded that the review had prompted them to reconsider their processes and protocols for dealing with urine samples and to ensure that details of symptoms are collected as well as the sample. Some practices said they would introduce a form or checklist for use with care homes.

At the time of the audit, 36 practices reported that the CPD module on UTI via the TARGET toolkit had not been completed by any of the GPs, 4 did not answer this question and for the other 22 practices the indication was that at least one member of the practice team (e.g. GP prescribing lead, other GP, or nurse practitioner) had completed it.

Discussion

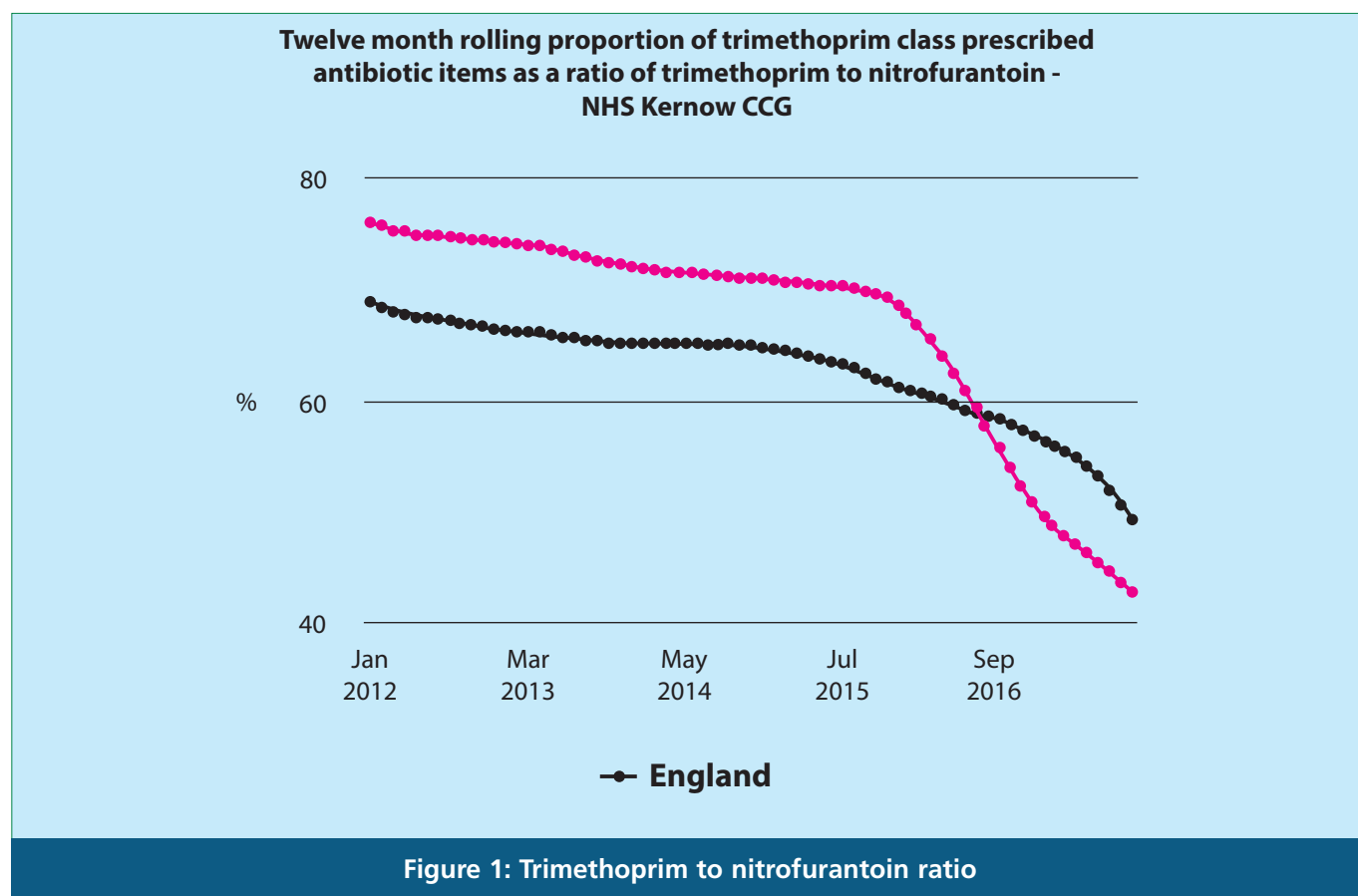
This review has identified opportunities for improving the primary care management of UTI in older people in one CCG when comparing current practice with national guidance,⁹ as reported by others both nationally and internationally.¹⁰ At the time of the review, trimethoprim had only recently moved from first to second line choice for UTI in the local antibiotic guidelines, so it is not surprising that on average many practices were still prescribing trimethoprim (for a mean of 48.2%

patients) though eight practices used trimethoprim in less than 30% of their patient.

Some of the reflection notes made by the lead GP alluded to a recognition that trimethoprim was still being prescribed as first choice due to familiarity and habit, though prescribing was also justified in those patients with renal impairment. A study into antibiotic choices in English primary care for a slightly earlier time period than our review reported that of those antibiotic prescriptions linked to a code for UTI, the proportions of prescriptions of trimethoprim was 50.0% and for nitrofurantoin was 26.3%, though the authors comment that prescriptions for first-line UTI treatment (nitrofurantoin, trimethoprim) were poorly documented to a diagnostic code. Others have shown that historically trimethoprim was consistently the most commonly prescribed antibiotic for community acquired UTI, accounting for about 50% of all prescriptions in older patients.¹¹

NHS England measure	Target	12 months to October 2016	12 months to October 2017
Antibacterial items per STARPU	1.161	1.053	1.022
Co-amoxiclav, cephalosporins and quinolones as percentage of all antibiotics	≤ 10%	10%	9.89%
NHS England measure	Target	12 months to May 2016	12 months to May 2017
Trimethoprim: Nitrofurantoin ratio	1.504	1.671	0.863

Table 1: CCG Improvement Assessment Framework AMR indicator



Just over half the patients had either urine culture or urine dipstick testing undertaken. Though there is an emphasis on avoidance of relying solely on dipstick testing in older patients in particular, we do not know if this extent of sending off cultures in this age group is appropriate or not. A 2012 survey in the West Midlands gathered information on policies used within the practice for urine sampling for microbiological examination, and found only 50% of GPs reported having a practice policy for urine sampling.¹² Some of our practices recognised the need to better manage how UTI is diagnosed and managed within a care home setting, and this has now become a focus for work across the whole of the CCG.¹³ There had been some uptake of the TARGET toolkit UTI module by the end of the review period though, as others have found, time, workload and competing priorities of other initiatives are possible barriers to GP staff not fully utilising this resource.¹⁴

Others have reported success with a broader UTI management stewardship initiative, leading to a dramatic reduction in inappropriate prescribing for UTIs, and a subsequent drop in local resistance rates in UTI organisms.¹⁵ We did observe an improvement in the NHS Kernow CCG position for relevant antimicrobial resistance (AMR) prescribing measures (Table 1) prior, and subsequent to, the review, though there were many influences - both local and national - affecting GP antibiotic prescribing at the same time as our review.

More recently, the Public Health England Antimicrobial Resistance local indicators¹⁶ which express the NHS England measure differently, show that NHS Kernow CCG had a value for a twelve month rolling proportion of trimethoprim as a ratio of trimethoprim to nitrofurantoin of 62.5% in May 2016 falling down to 42.6% by September 2017. Values for England were 59.7% down to 49.3% respectively (see Figure 1).

This continued fall in our CCG may be because audit and reflection are believed to contribute to change in behaviour, though a relevant topical news story in the medical literature may facilitate and contribute to the necessary ongoing change.¹⁷

Limitations of this review include reliance on GPs reporting back to us on how they perceived the quality of their management; we did not look at whether the chosen empirical antibiotic was the correct one in those instances where a culture had been sent off, nor if the patient's renal function influenced the antibiotic choice, nor did we examine the duration of antibiotic treatment. We accept that the reported percentage of patients whose urine was dipstick tested (54.5%) includes in the denominator those receiving long term antibiotic prophylaxis as we were unable to separate these patients out from our results, however we suspect that dipstick testing would still have occurred in many of these patients. We have not yet been able to ascertain if practices recognise that a urinalysis result is irrelevant to their clinical assessment and is therefore pointless. Results of this review have been shared with each GP practice, and a continuing focus on this topic is aligned with the educational intervention occurring in care homes.¹³

Conclusion

We report on a review into GP management of UTI in the elderly in one CCG and, as others have noted in other primary care studies, there was scope for improvement both in terms of diagnosis and treatment. The key messages from the review were a reduction in the reliance on use of dipstick testing in this age group (diagnosis should be based on a full clinical assessment, including vital signs), and a move away from trimethoprim as default first line antibiotic of choice to nitrofurantoin. Certainly the latter element of this review can be measured through prescribing data, whereas identifying any actual improvement in the practices' approach to UTI diagnosis will require further audit.

Declaration of interests

The authors have no declarations of interest to make.

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Undergraduate Education for Medicines Optimisation Principle 1: The 'Socialisation Internship' and views from Mosaic Clubhouse, one of the partner organisations

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Abstract

Title

Undergraduate Education for Medicines Optimisation Principle 1: The 'Socialisation Internship' and views from Mosaic Clubhouse, one of the partner organisations.

Author list

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Summary

This article describes the development of a Social Internship, which involves pharmacy students working on a volunteer basis with one of a range of partner organisations. This placed students in an environment and people that may have been 'out of their comfort zone'. The work of one partner organisation (Mosaic Clubhouse) with the experience of students who undertook their internship there is described. It is hoped that their experience will motivate other pharmacy stakeholders and education policy-makers to consider mandating this type of experience more widely.

Keywords: patients, volunteer, charities, King's College.

Introduction

The Royal Pharmaceutical Society's (RPS) principles of medicines optimisation¹ have been embraced by NHS England as having the potential to improve patient outcomes and to promote the best use of medicines. It is clear that NHS England and the Department of Health sees a future for pharmacy in providing clinical services to patients. The pharmacy profession needs to urgently capitalise on this mandate and ensure that medicines optimisation activities are firmly integrated into transformation plans and local development.² The lead author of the RPS principles of medicines optimisation document has said previously that "...the real challenge for all healthcare professionals is in Principle 1 (i.e. understand the patient experience), having an ongoing, open dialogue with the patient and/or their carer about the patient's choice and experience of using medicines to manage their condition. It sounds straightforward but it's a change in mindset."²

Pharmacy educators must play their part in 'changing the mind-set' of the profession by helping pharmacy students and novice practitioners to take Principle 1 seriously, recognise that this is

arguably the weakest area of pharmacy practice, and to overcome the influence of poor in-practice role-modelling that some students report being exposed to in their formative years.

A typical MPharm degree contains placements, most of which are set within pharmacy practice environments. We would argue from experience that the main purpose of these placements is for students to gain an understanding of how pharmacy works in practice and to experience the use of medicines and the processes surrounding this. Whilst many schools of pharmacy have increased the exposure of their students to real patients, we suggest that there is an urgent need to 'immerse' students in environments that give them first-hand experience of the 'life world'³ of people, whether or not they are patients. This is in order that they develop the clinical empathy⁴ that we believe is central to an ability to 'understand the patient experience.'

The aim of this article is to share one initiative from King's College London and the perspective of one of our placement providers, the Mosaic Clubhouse.⁵

What is the 'Socialisation Internship'?⁶

We contend that the imperative to understand the patient experience suggests that pharmacists should display a certain level of clinical empathy within their practice. By understanding why a patient does or does not take certain actions regarding their health, life or lifestyle, clinicians such as pharmacists are better able to negotiate a plan of care with the patient.

In order to help our students at King's College experience how people think and make life-decisions, a 30 hour, non-clinical self-directed internship was integrated into the 3rd year curriculum. Students were instructed to apply for a volunteer position, choosing from a list of organisations who had agreed to partner with the university, to complete a minimum of 30 hours volunteer work. The aim was to put the students in an environment that may be 'out of their comfort zone', with people that they would not necessarily choose to be with. By making the internship non-clinical, we removed the restrictions related to patient safety that normally apply. Moreover, we were influenced by a similar successful experience from the Welsh School of Pharmacy.⁷

A range of organisations were identified via a web search for charities working with people in our local area, which was defined as within half an hour's travel of King's College London Waterloo campus. Contact was established via email, explaining the aims and objectives of the internship, and site visits were conducted to organisations who expressed an interest in being involved for a more comprehensive discussion, including a risk assessment and other governance and practical arrangements. The following organisations agreed to host students for the first iteration of this initiative:

- Mosaic Clubhouse - provides support and opportunities to people living with a mental health condition
- Ace of Clubs - this is a family-like community providing transformative support for those who are homeless, vulnerable and otherwise marginalised in our area
- Dragon Hall – a Community Centre, focussing on youth work
- Coach Bright – mentoring of secondary school students
- Body and Soul – a charity supporting those with and affected by HIV
- Age UK Islington - working with potentially vulnerable adults

Students were fully briefed, during which they were informed of the requirement to keep a log of their interactions with clients and colleagues during their internship hours, and to reflect on how they met the learning objectives. These objectives were based on RPS Medicines Optimisation Principle 1 and GPhC performance standards for pre-registration trainees:

- Develop skills to understand the patient experience for use in your future practice.
- Develop the skills to remain composed and personally effective in all situations.
- Develop the skills to amend your behaviour, when necessary, based on evaluation of your performance by yourself or others.
- Discuss the personal impact of the internship on you and how you manage this.

- Replicate the work ethic that will be expected of you as a professional.

At the end of the 30 hours, a debrief session was held at the College, where the students shared their experiences with each other and facilitators. Following this, a group oral examination formed the assessment for the internship.

The Mosaic Clubhouse

Such was the success of the internship, as measured by debrief feedback and evaluation forms, that we wanted to provide a specific socialisation internship narrative from one of our partners, the Mosaic Clubhouse.

About Mosaic Clubhouse

We are not a traditional health setting, nor are we a traditional day hospital. Our model is deliberately understaffed so that we need our members, people living with serious mental health conditions, to volunteer their skills and talents to keep the organisation running. It is important, therefore, that the model is never diluted if we have an influx of volunteers or supernumerary students. We believe that recovery from a serious mental health condition is made possible by the positive impact that volunteering has on our member's self-esteem and confidence. We are organised into three work units that are open from 9.00 – 5.00pm. Members choose how often they come, when they come and what they do when they are here. We have three work units; the business and administration unit; the cafe and maintenance unit and the employment, education and information unit. We also offer an out-of-hours social and wellness programme and we run an evening sanctuary five nights a week from 18.00 - 02.00 for anyone experiencing a mental health crisis. A strength is our wide and varied partnership programme that brings many different organisations through our door and as a result provides lots of opportunities for members; they meet and greet, provide IT support for meetings and away-days; cater for lunches, and are sometimes invited to join meetings to give their opinions on local issues by local decision makers.

How our Partnership with King's College began

When we were approached by Kings, it was a surprise. They explained that pharmacy students did not acquire the skills necessary to engage with members of the public as part of their degree. They felt that this was an essential component of their training, especially in relation to Principle 1 of the four principles of medicines optimisation. They asked whether we would be willing to provide placements. We considered this request very carefully, and we said yes! Our initial intake was 19 students spending 30 hours each at the Clubhouse.

They have fitted right in! Attending our morning planning meetings, pitching in with the work day, working 'side-by-side' with members – the Clubhouse mantra! Working at a member's pace, always showing the member how something is done and letting the member try it out. They have warmth, patience, inquisitiveness, knowledge and skills – the perfect combination. It has been impressive watching them tackle anything asked of them with enthusiasm and humour. Members love meeting new people, they love hearing about other people's lives and journeys. The informal nature of the Clubhouse and the close

side-by-side working often encourages very meaningful conversations to take place spontaneously; this is the nature of the recovery journey here.

We deliberately avoid discussions about diagnosis and treatment at the Clubhouse; we are a non-clinical environment that engages with the person not the illness. Wellness, however, is very much our business. We have healthy eating sessions, keep-fit, yoga and Pilates for instance. So we decided to ask some of the students to work on a wellness project with members; to research some facts and put a notice board together with lots of information to educate members and enable them to make healthy choices. This is something that we have not been able to dedicate enough time to so we are really pleased to have their expertise.

We pride ourselves on being an open, outward looking community that is keen to embrace new ideas and initiatives. Thank you for asking us to join this initiative it has been incredibly positive and we will continue without hesitation to work together in the future.

Pharmacy Students' feedback post-placement at Mosaic Clubhouse

Here, we reproduce the testimony of two of our third year students on their experience at Mosaic Clubhouse, followed by some feedback gained from the evaluation conducted amongst the third year cohort during the student debrief and through a short written evaluation.

Student 1

Mosaic Clubhouse is a completely different experience from what I expected. I had anticipated staff leading various activities for the members in this Clubhouse and I would find a distinct segregation between the two groups. Instead, the members and staff both work side-by-side to run the Clubhouse so that it can flourish, which in turn helps to integrate the members back into the community. For example, in the employment and education unit, I assisted a member to develop his word processing skills and hunted for job vacancies so that the members could find part-time employment. I collaborated with the members within the business and administration unit to create a poster promoting the importance of well-being. There was also an opportunity to work in Mosaic's night service, the sanctuary where we interacted with Lambeth residents in crisis.

Although my volunteering was short, it was filled with amazing opportunities to work within a heart-warming place where it is indistinguishable to tell the members and staff apart from each other. Mosaic Clubhouse is one of many clubhouses internationally. It is astounding that they are able to co-operate together to improve and ensure that their clubhouses thrive. This experience will be remembered as I continue to strive to be a pharmacist with good patient rapport and I would definitely recommend to anyone to spare some time and volunteer.

Student 2

Prior to coming to the Mosaic Clubhouse, I had various expectations of what the experience would be like, whilst still being anxious about entering this new environment. Knowing that the Clubhouse is a facility for mental health patients, I expected the environment to be more clinical with a greater

distinction between the club members and the support workers. However, my assumptions were proven wrong. I arrived to a warm and hospitable welcome by people at reception thinking that they were support workers but, to my surprise, they were members. One of the things I admired the most about the Mosaic Clubhouse was that the members were so well integrated with the staff and the whole culture of helping one another and the sense of one community. Also, I found that all the members play a part in the day-to-day running of the Clubhouse and after speaking to them I found that they feel a great sense of satisfaction and accomplishment due completing these various tasks.

Student evaluation

The face-to-face group debrief at the College was a rewarding experience for the facilitators and students. The session included a structured and facilitated sharing of experiences, implications for personal development, and wider application to future practice as a pharmacist. At the end of the session, students completed a written evaluation form. Key feedback received is summarised as follows:

89% of students felt that their experience would benefit their future practice, including a greater awareness of their responsibility to treat their future patients holistically:

"The internship reminded me how lucky I am to be training to be a professional who has the ability to provide care, not only in terms of drugs, but a responsibility for their lifestyle and support outside of appointments"

Another student stated that this was an experience they would not have had through their traditional university experience:

"The internship allowed me to work with groups of people who I probably wouldn't have before ... I can understand people better and this is an experience you cannot teach"

86% of students recommended that the internship should continue to be part of the MPharm programme, with many believing that all healthcare degrees should incorporate similar experience:

"Before, I felt [the internship] was pointless. Now, I think that it's really good and should be part of the course for students in other healthcare degrees as well... it opens up the world out there"

80% of students reported personal development gains in a variety of ways:

"[I am] more confident in my abilities to speak up in larger groups of people... [I have] better insight into working with a team of people from different backgrounds with different experiences – listening to each other and building upon each other's ideas"

"It's good to get some perspective... [the internship] allowed me to grow before being thrown in the deep end"

61% of students reported that the internship had led them to amend their behaviour in some way:

"I came out of the experience a more active listener... it really

improved my communication skills – not in the way I talk to people, but more in the way I listen to others now. I listen not to reply but to understand what they mean”

72% of students reported that the internship had helped them to ‘see patients as people’, with mentions of development of empathy in the feedback received:

“I noticed that I had a prejudice about addicts that I hadn’t known about, until my opinion was completely changed after day one. From this internship I have gained perspective and empathy, it was truly an eye opener – I gained more information in this internship than I would in any lecture”

Summary

For pharmacy to become a truly clinical profession, a key element is an ability to understand the patient experience. Development opportunities are limited within MPharm degrees due to limited clinical exposure. The Socialisation Internship is one contribution that has, in its first year, changed the way in which our students think about people, communicate with them, and see themselves personally and professionally. We hope that our experiences will motivate other pharmacy stakeholders and education policy-makers to consider mandating this type of experience more widely.

Acknowledgements

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PRIMM 29th Annual Scientific Meeting, 26th January 2018, London

Optimising Medicines – Factoring in Frailty

Submitted by Janet Krska, *PRIMM Committee Member*.

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Introduction

The 2018 Annual Scientific Meeting of PRIMM (Prescribing Research in Medicines Management), was held at the National Council for Voluntary Organisations (NCVO), London, attended by 42 delegates. Attendees have come to expect a high standard of speakers at PRIMM meetings and they were not disappointed. We were treated to three excellent entertaining presentations accompanied by robust discussion on the subject of reducing medicines and ensuring that we target the right people in the right way.

Invited speakers

Professor Adrian Blundell, Consultant Geriatrician and Honorary Associate Professor at Nottingham University, described polypharmacy and frailty as ‘the perfect paradox’. The reason being that frail older people need drugs but, conversely, they don’t need drugs because of the problems they cause, such as adverse reactions, which contribute to frailty.

In order to manage medicines in older frail patients, Adrian outlined the need to develop a stratified problem list and map the medicines to it, then formulate a bespoke management plan with goals. He also gave us ten top tips for managing such patients:

- 1) Undertake the medication mapping described above.
- 2) Prescribe in the current clinical context of what the patient is actually doing with their medicines.
- 3) Confirm evidence of the diagnosis for all medicines (often there isn’t one!).
- 4) Ensure risk benefit balance is still appropriate, remembering that it changes over time (a medicine which presented little risk when it was started may be too risky to continue in the same patient ten years later).
- 5) Review the evidence in the context of the patient – frail older patients may not be included in trial evidence.
- 6) Remember that function and cognition may be more important to the patient than ‘health’.
- 7) Think about side effects and interactions – don’t start a prescribing cascade.

- 8) Consider symptom control as opposed to prognostic benefit – may be more important to the patient.
- 9) Individualise doses and the overall management.
- 10) Monitor responses regularly.

Andy Clegg, Consultant Geriatrician and Senior Lecturer at the University of Leeds, talked us through his seminal work on enabling the identification of frailty in routine care. He encouraged everyone to consider frailty as a condition, which he defined for us as being “characterised by a loss of biological reserves, failure of homeostatic mechanisms and vulnerability to adverse outcomes.” The key thing he explained for us was that, in an individual with reduced physiological function, frailty can easily be precipitated by a stressor event. This could be introduction of a new drug or an adverse drug reaction, which in others would have little consequence. He also emphasised that frailty is a spectrum and importantly that it is possible to reduce frailty in individuals.

Andy has developed the electronic frailty index (eFI), which uses routine data in medical records to identify those with frailty. This is now implemented across practices in England and it is a contractual requirement for them to identify frailty in their patients.

Dr Tessa Lewis, a GP and Medical Adviser in Wales, led us through her two methods for individualising medication to reduce problems in frail older people. The first is the well-known NO TEARS tool, which acts as a reminder of what GPs (and others) need to consider in a consultation about medicines:

Need and indication

Open questions

Tests and monitoring

Evidence and guidelines

Adverse events

Risk reduction or prevention

Simplification and switches

She also applies another easily remembered method of prioritising what to do during a consultation: “*Stop, Sorted, Specials*”. She suggests there are often medicines which is it obvious you can simply Stop – for example if the patient is actually not taking them or they are meant for short term use and shouldn’t be on the repeat system. There are others which are *Sorted*, because someone else is monitoring these – for example when the patient is attending a regular clinic where their medicines for diabetes or asthma are being monitored already. The rest are the *Specials* – the ones you have to decide to do something about. These are the ones to prioritise in a medication review consultation. The take home message from Tessa which we must all remember was: People have priorities beyond living longer – but you won’t know what they are if you don’t ask!

Research highlights

There were 14 posters presented, plus five oral presentations. The winner of the Hugh McGavock¹ bursary, was Professor Janet Krska, Medway School of Pharmacy, for her team’s work on assessing factors which contribute to medicines burden. Their study showed that, in contrast to what may be expected, older people perceive medicines to be less of a burden to their everyday lives than younger people. Janet received a cheque for £200 to use to support junior members of her team in furthering this research.

The winner of the poster prize was Andrew Campbell and colleagues from Dudley and Walsall Mental Health Partnership NHS Trust and Keele University School of Pharmacy. This team’s work demonstrated a dramatic reduction in hospital admissions and bed days due to the use of both paliperidone and aripiprazole long-acting injections in schizophrenia/schizoaffective disorder.

The posters and presentations demonstrated the diversity and quality of research going on in the area of medicines use in the UK and Ireland. Abstracts will be published in ‘Pharmacoepidemiology and Drug Safety’ later this year.

Date for your diary

The next meeting, the 30th Annual Scientific Meeting will be on Friday December 14th 2018 with the theme: Person-centred care in a digital world – nudge, nudge, tweet, tweet. It promises to prove a very exciting and innovative meeting, so hold the date!

DUR book

PRIMM committee members have contributed to the writing and editing of a major reference textbook titled ‘Drug Utilization Research: Methods and Applications’. The book is published by Wiley at a cost of £99 (€125) and was a EuroDURG initiative. See <http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1118949781.html>. It replaces the 1st edition of the Drug Utilisation Research Handbook, produced by PRIMM (formerly known as DURG UK and Ireland) in 2000, which was edited by Prof Hugh McGavock.

Declaration of interests

Nothing to declare.

1. Professor Hugh McGavock was Professor of Prescribing Science at Ulster University and a founding member of the Drug Utilisation Research Group, the forerunner of PRIMM. He made many major contributions to the safe and effective use of medicines in the UK.

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