

# ONLINE MEDICAL CONSULTATION



LEARN MORE

iStock.com/CarmenMurillo



## Journal of Medicines Optimisation

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

Volume 3 • Issue 2    June 2017    [www.jmedopt.com](http://www.jmedopt.com)

### **In this issue:**

- Proactive Care in Care Homes: Role of Pharmacists
- Medicines Optimisation and Patient Safety  
NIHR CLAHRC Learning Event, held 16th January 2017
- Hypermobility Ehlers-Danlos Syndrome (hEDS)
- The potential for interactive IT to improve medicines management in the future

---

## 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.

---

## READERSHIP

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.

---

## EDITORIAL STAFF

The JoMO is supported with the staff shown at the end of the journal.

---

## CLINICAL EDITORIAL GROUP

A range of experience covering various clinical specialties, organisations and disciplines is available to help steer the development of the JoMO and ensure that it provides a useful resource for readers. Details of membership of the group are shown at the end of the journal.

---

## PEER REVIEW/CLINICAL CONSULTANCY NETWORK

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.

The emphasis in the JoMO is on disseminating best practice through good quality publications. The aim of the peer review process is to provide advice on the suitability of an article for publication as well constructive comment to assist authors, where appropriate, to develop their paper to a publishable standard.

Peer review is conducted on a single blind basis and authors are not informed of the name(s) of Peer Reviewers.

Peer Reviewers are required to declare any conflicts of interest they have regarding a particular manuscript and to exclude themselves from the peer review process if these could significantly complicate their review or inappropriately bias their opinion.

Manuscripts are treated as confidential and it is a requirement that Peer Reviewers do not share or discuss it with colleagues.

It is a requirement that Peer Reviewers should not use knowledge of the work they are reviewing before its publication to further their own interests.

Peer Reviewers provide advice to the Editor-in-Chief. Where there is a significant variation of views at least one other Peer Reviewer may be contacted for advice before a final decision is made regarding the outcome for the manuscript. The Editor-in-Chief is ultimately responsible for the selection of all content.

---

## COMMUNICATION CHANNELS

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.

### TWITTER

Readers are encouraged to follow Pharmacy Management on @pharman to use our dedicated Twitter hashtag (#jmedopt) to draw attention to and debate topical issues having to do with medicines optimisation.

### CORRESPONDENCE

Constructive comment to further understanding and debate about a topic is encouraged and welcomed.

Any competing or conflicting interests should be declared at the time that the correspondence is submitted.

Correspondence should be submitted within one month of the distribution date for the Journal.

Correspondence may not be accepted in certain circumstances e.g. if it is discourteous, inaccurate, potentially libellous, irrelevant, uninteresting or lacks cogency.

Correspondence may be edited for length, grammatical correctness, and journal style.

Authors of articles discussed in correspondence will be given the opportunity to respond.

The correspondence, together with a declaration of any interests and any subsequent comment from the author, may be published in the Journal and/or on the website.

Please submit your correspondence to the Correspondence Editor ([correspondence@jmedopt.com](mailto:correspondence@jmedopt.com)).

---

## PUBLISHING YOUR WORK

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](mailto:alex.bower@pharman.co.uk)).

## Developments in Practice

### Care homes

What contribution can a pharmacist make to the health care of patients in care homes? The answer to that is illustrated by a study in two London boroughs. Clinical pharmacists visited the care homes to provide level 3 medication reviews and other supportive services. The benefits achieved included the avoidance of harm to patients, avoidance of admissions to hospital and net cost savings. This is important evidence to add to other published work that is increasingly demonstrating that such clinical pharmacy input should be part of main-stream services.

### Learning event in North West London

Teams from the West Midlands, West of England and across London contributed to a learning event held in North West London to share experience and learn from each other. The summary of proceedings will be most useful to readers in covering developments in medicines optimisation, a medication passport, quality improvement, deprescribing, domiciliary medicine reviews, adverse drug reaction risks, reducing problematic polypharmacy, medicines in the dysphagia pathway and helping stroke patients with communication difficulties manage their warfarin therapy. This is a veritable 'pot pourri' of many medicines optimisation initiatives. The article provides a synopsis but there are helpful hyperlinks to websites and other resource materials. The event itself was clearly a most successful one – but the sharing of information like this will ensure that good practice is disseminated widely.

### Patient Perceptions

Ehlers-Danlos Syndromes (EDS) are a group of rare, inherited conditions that affect connective tissue that, dependent on the

specific condition, may result in joint hypermobility, stretchy skin and easy bruising. In this edition of the JoMO, a patient describes their symptoms of Hypermobile Ehlers-Danlof Syndrome (hEDS) and how it affects their daily living. This is a relatively rare condition of which many pharmacists and other healthcare professionals may be aware. The condition can be particularly frustrating for patients who do not feel well but who do not know why this is so since they have not had a diagnosis. It is hoped that the 'Patient Perspective' will enable healthcare professionals to be aware of the condition so that appropriate referral and long-term management can be provided as appropriate.

### Insights

How will IT be harnessed in the future to develop and improve medicines optimisation? Whilst no-one can know for sure it is good to have the thought processes stimulated with some thinking about how different things could be as the use of mobile phones, TVs and other devices become an integral part of healthcare and enable patients to self-manage their condition or establish effective electronic links with healthcare professions. Take a trip into the future in a fictional scenario in which a patient describes interacting with their health record via voice recognition technology and a 'smart' TV device to record their medicine taking and reordering. A Medicine Reminder Chart is seen to be a key component in the development. As the author says, 'Innovative IT solutions can bring about major changes in the management of medicines. Now is the time to explore how those changes could be implemented to maximise the potential benefits from medicine optimisation for patients in the future'. Food for thought?

## HYPERLINKS

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

## SUBSCRIPTION

The JoMO is free of charge to health professionals working for the NHS. To obtain a subscription, please go to [www.pharman.co.uk](http://www.pharman.co.uk) and click on the 'PM Journals' tab where subscription rates can be found.

## REGISTRATION

To receive the JoMO, please go to [www.pharman.co.uk](http://www.pharman.co.uk), click on the 'PM Journals' tab and follow the process for registration.

## ADVERTISEMENTS/ADVERTORIALS

Please contact the Advertising Editor (see end of journal) for more information.

## ACCREDITATION

The JoMO has been Faculty accredited by the Royal Pharmaceutical Society. By achieving Royal Pharmaceutical Society Faculty accreditation it has been demonstrated that our published material meets the recognised Royal Pharmaceutical Society standards for quality and content and that we are committed to pursuing excellence.



## DISCLAIMER

Published by: Pharman Limited, 75c High Street, Great Dunmow, Essex CM6 1AE  
Tel: 01747 829501

Homepage: [www.jmedopt.com](http://www.jmedopt.com)

Email: [pharm@pharman.co.uk](mailto:pharm@pharman.co.uk)

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of Pharman Limited.

The views represented in the Journal are those of authors and not necessarily those of the Editor or Pharmacy Management.

Pharman Ltd is not responsible for the content or accuracy of commercially generated material (e.g. advertisements, sponsored articles) but has the expectation that the originators of such material will ensure that it meets the requirements of the ABPI 'Code of Practice for the Pharmaceutical Industry' or other relevant guidance.

Although great care has been taken to ensure the accuracy and completeness of the information contained in this publication, Pharman Limited nor any of its authors, contributors, employees or advisors is able to accept any legal liability for any consequential loss or damage, however caused, arising as a result of any actions taken on the basis of the information contained in this publication.

Pharman Ltd is not responsible for the content of material that is available through hyperlinks.

Pharman Limited welcomes requests for reproduction of the publication, in particular for educational purposes. Please contact the publishing office for information.

Copyright© Pharman Limited



The above composite logo is a registered Trade Mark owned by the publishers Pharman Limited

## Developments in Practice

23

### **Proactive Care in Care Homes: Role of Pharmacists**

*Krupa Dave and Caroline Goh*

30

### **Medicines Optimisation and Patient Safety**

**NIHR CLAHRC Learning Event, held 16th January 2017**

*Susan Barber and Barry Jubraj*

## Patient Perspectives

34

### **Hypermobile Ehlers-Danlos Syndrome (hEDS)**

## Insights

38

### **The potential for interactive IT to improve medicines management in the future**

*Ian Nash*



## **WOULD YOU LIKE TO PUBLISH YOUR WORK IN THE JoMO?**

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.

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](mailto:alex.bower@pharman.co.uk)).

## Proactive Care in Care Homes: Role of Pharmacists

**Krupa Dave**, *Proactive Care Homes Pharmacist*; **Caroline Goh**, *Proactive Care Homes Pharmacist: Central London Community Healthcare NHS Trust*.

Correspondence to: [krupa.dave@nhs.net](mailto:krupa.dave@nhs.net)

### Abstract

#### Title

Proactive Care in Care Homes: Role of Pharmacists

#### Author list

Dave K, Goh C.

#### Introduction

The North West London Integrated Care Programme Innovation Fund was set up to test new integrated services for high risk patients, with a view to reduce non-elective hospital admissions. A local review of ambulance call-outs and an audit of selected care homes showed inequity of provision and access to services. Care homes with limited General Practitioner (GP) input have a higher London Ambulance Service (LAS) call out.

The Central London Community Healthcare NHS Trust (CLCH) was commissioned to deliver proactive, integrated and multidisciplinary care to 1,000 care home residents. The project was commissioned across Hammersmith & Fulham (H&F) and West London (WL) boroughs with the aim to improve access to care by delivering the standards as agreed for the project.

#### Method

Two Band 8a Clinical Pharmacists delivered proactive care by visiting the care homes and providing level 3 medication reviews, medicines optimisation, medicines reconciliation, reducing medication errors and wastage, providing training, supporting development of medication policies, attending multidisciplinary team meetings and working in partnership across different healthcare sectors. Interventions were recorded and graded using a tool adapted from King's College NHS Foundation Trust.

#### Results

The preliminary results from December 2013 to July 2016 showed that 9,922 interventions were made for 981 residents, with 213 grade IV (Reversible harm or admission to hospital) and 2 grade V (Averted death or major permanent harm) with total net cost savings of £160K per annum by reduction in polypharmacy and implementing other cost saving strategies. Positive qualitative feedback was collected independently by the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) North West London which showed the benefit of care homes pharmacists.

#### Conclusions

Following the end of the project in WL, a pharmacist has been commissioned to continue the service. The project ended in H&F in March 2017 with a view to embed the activities undertaken by the project team and outcomes achieved into current practice to sustain long term benefits.

**Keywords:** care homes, medicines optimisation, medication review, medicines reconciliation, multidisciplinary, proactive care.

### Background

Medication safety in the care homes setting was highlighted in 2004 as an area of concern by the Department of Health (DoH).<sup>1</sup> The recommendations at the time included better communication, especially on transfer of care to prevent medication errors, training on safe administration of medicines, better documentation and more robust and integrated incident

reporting system.

More recently, the NHS England (NHSE) Five Year Forward View (FYFV) recognised the need for enhanced health in care homes (EHCH),<sup>2</sup> with equal access to services to meet their health need. There are currently six vanguards delivering this care model across England. The EHCH framework was then developed consisting of seven core elements.<sup>3</sup> Stakeholders

can use this to work collaboratively across the different organisations to commission and deliver enhanced care to the care homes.

The National Institute of Health and Care Excellence (NICE) published guidance on Managing Medicines in Care Homes,<sup>4</sup> followed by the quality standards which provide measurable tools<sup>5</sup> to quantify improvement. The recommendations are in line with the DoH report but with emphasis on covert administration, medication review, safeguarding and medicines reconciliation.

The Royal Pharmaceutical Society (RPS) recently published a document to highlight the important role of pharmacist in care homes.<sup>6</sup> On average, 50% of elderly residents in care homes experience a fall each year, with 35% resulting in serious injury and 8% with fractures.<sup>7,8,9</sup> Pharmacists can undertake medication reviews to reduce falls to minimise untoward consequences e.g. pain, loss of independence, hospital admission. The project also employed two falls therapists to ensure that the physical and environmental factors leading to falls are addressed. Medication review should include the use of psychotropic medication. Audits have shown that psychotropic medicines are often inappropriately prescribed in care homes.<sup>10,11,12</sup> The Banerjee report showed that 26% of care home residents did not require the psychotropic medication prescribed with risk outweighing the benefit. One of the largest study on care homes by Barber et al showed that 70% of the care home residents experienced at least one medication error,<sup>13</sup> having a pharmacist in the care home to regularly review and rationalise regimen will help reduce this. One trial showed a 91% reduction in errors.<sup>14</sup>

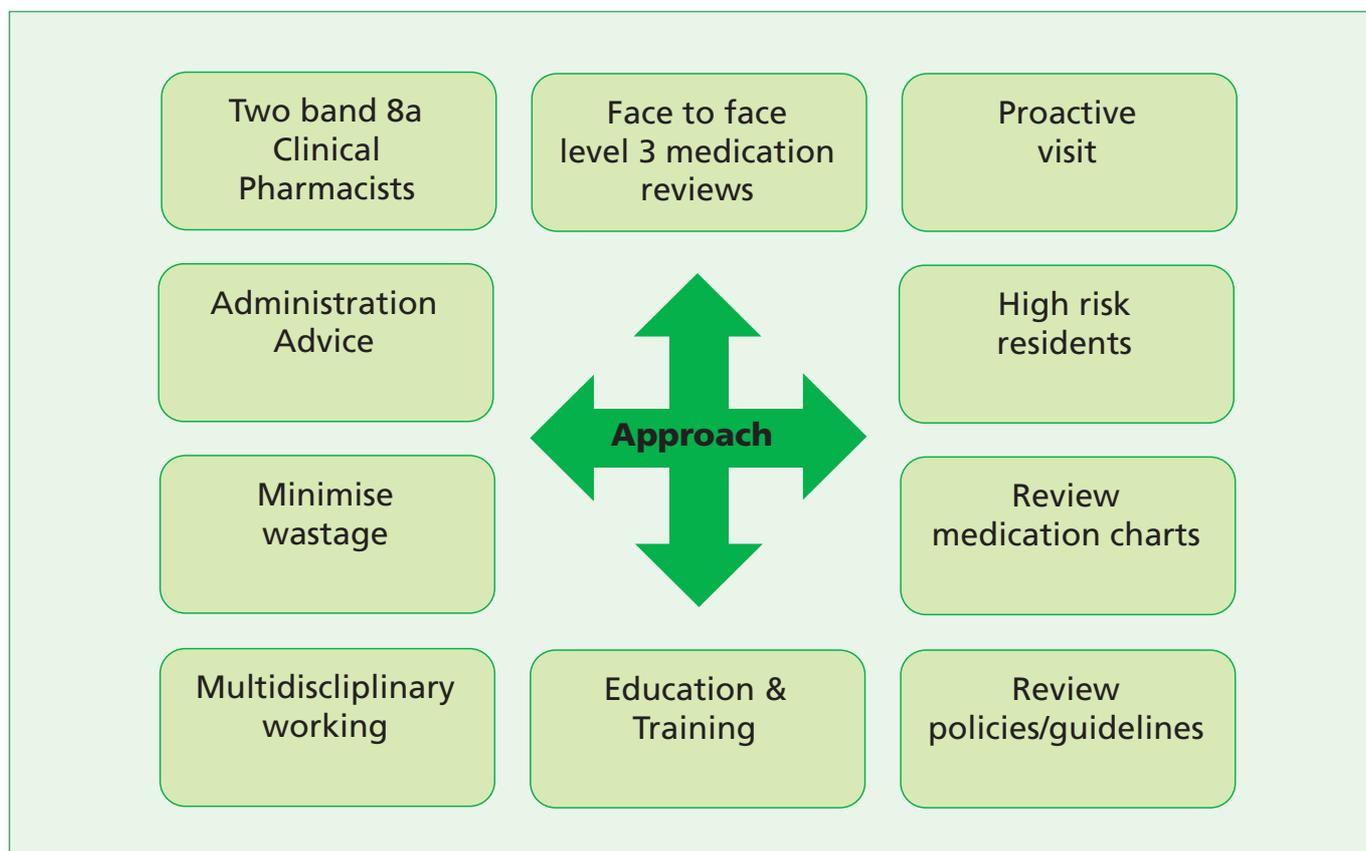
A better and integrated communication system across the board has been highlighted. In the Care Home Use of Medicines Study (CHUMS), 50% of communication errors were made between care home and community pharmacy.<sup>15</sup> This can be reduced significantly by having access to patient health records.

Medicines reconciliation (MR) has become a core process in the management of medicines since the guidance issued by NICE and the then National Patient Safety Agency (NPSA).<sup>15</sup> With 9 in 10 older people discharged from hospital experiencing a change to their medication<sup>16</sup> and a 4.4% increased risk of adverse drug reactions post-discharge with every alteration,<sup>17</sup> pharmacists are well placed to support MR in care homes, especially when there are discrepancies.

In the context of end of life (EoL) medicines, 53% of care home residents were symptomatic in their last days of life.<sup>18</sup> Pharmacists working in the care homes have a crucial role in facilitating access to anticipatory medicines by working closely with specialists and care home staff. This is also one of the recommendations from NICE.<sup>4</sup>

Research in 2010 estimated £300million medicines wastage each year in England, £24million disposed unused by care homes.<sup>19</sup> Pharmacists have a role in helping care homes to improve effective use of medicines. Savings are also made through interventions and medicine reviews. The pilots showed that medicines optimisation can make average savings of £184 per resident<sup>20</sup> through mainly stopping medicines.

The commissioning of services to care homes is complex as there is lack of clarity as to who should take responsibility. The



**Figure 1: Activities undertaken by the Proactive Care Homes Pharmacists**

outcome from the RPS summit<sup>6</sup> was that the accountability should rest with the Clinical Commissioning Groups (CCGs) to co-ordinate the care but with joint funding from health and social care and local authority. This is one of the core elements in the NHSE EHCH framework.<sup>3</sup>

In December 2013, CLCH was commissioned to deliver proactive, integrated and multidisciplinary care to approximately 1,000 care home residents. Care homes were targeted based on a local review of ambulance calls outs and audit of selected care homes showed inequity of provision and access to services; for example, care homes with limited GP input had a higher LAS call out for infection and breathing problems. Two Band 8a pharmacists and two falls therapists were employed to deliver the service across H&F and WL boroughs with the aim to improve access to care by delivering the standards as agreed for the project.

## Methodology

Two band 8a clinical pharmacists proactively provided level 3 medication reviews<sup>21</sup> to patients in 20 care homes in H&F and WL from December 2013 to March 2017. A service level agreement including key performance indicators (KPIs) in which the pharmacy service was measured against was agreed.

This included:

- reducing medication errors
- initiation of bone health medication where appropriate

- polypharmacy review
- education and training of care homes on medicines management
- attending monthly multidisciplinary team (MDT) meetings.

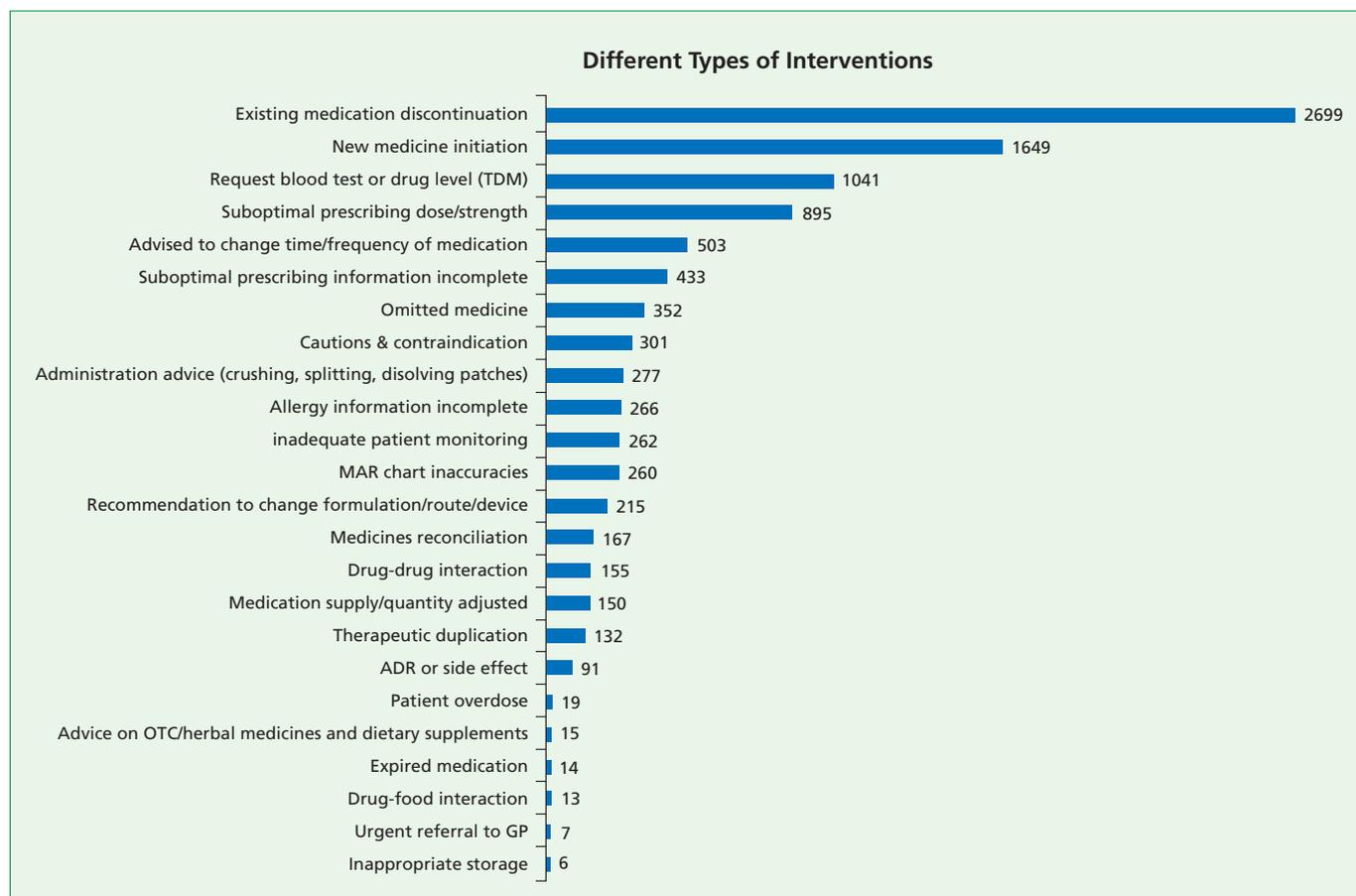
Residents who were newly admitted/recently transferred to the care home, had recent falls or where carers had concerns were prioritised.

Activities undertaken by the pharmacists are shown in Figure 1. Any interventions that required action were communicated using the agreed medium to the designated GP. This included documenting in the care home communication book to be reviewed at each GP visit, emailing to the GP or directly actioned during the MDT/ward round.

Interventions made were graded for clinical significance by the care home pharmacists using a tool adapted from Kings College NHS Foundation Trust<sup>22</sup> and recorded onto a database for project evaluation. The interventions were analysed and reported to the project board on a monthly basis.

Referrals for review were made across the different disciplines as appropriate. This was identified during an MDT or by individual discipline.

Tailored medicines management training was delivered to individual care homes on site, usually in the form of presentation and case studies or exercises e.g. critical medicines and omitted doses, inhaler technique, transcribing. Any medicines-



**Figure 2: Number of different types on interventions provided by the Proactive Care Homes Pharmacists**

related errors identified were highlighted to the carer/nurse, GP and manager of care home to be investigated with an incident form completed and with support provided to prevent further reoccurrence.

Data on number of falls, Accident and Emergency (A&E) attendances, hospital admissions and LAS callouts were manually collected by the project co-ordinator from the care homes accidents/incidence reporting systems.

## Results

Preliminary results from December 2013 to July 2016 showed that the care homes pharmacists made 9,922 interventions for 981 care home residents; an average of 10 interventions per resident. 213 were grade IV (reversible harm or admission to hospital) and 2 were grade V (Averted death or major permanent harm), with 85% of recommendations accepted by the GP, 4% rejected and 11% awaiting to be confirmed in July 2016.

Figure 2 below shows a breakdown of the types of interventions made. The role of the care homes pharmacist was to optimise medication by, where appropriate, stopping unnecessary medication or medication which may be causing harm to patients and, where necessary, starting medication e.g. bone protection or anticoagulation for atrial fibrillation (AF). The most common interventions were recommendations to stop medication (27%) followed by initiating new medication (17%).

One of the KPIs was to ensure that bone health medication was prescribed for all residents, where appropriate. There was a 17% increase in bone health medication prescribed as a result.

In the same period, a net cost saving of 160K per annum was made. This cost takes into consideration medication that was stopped or started following medication review. This figure does not include hidden cost benefits from improved compliance with medication, reduction in omitted/delayed doses, adverse events or hospital admissions.

Wider project benefits were also demonstrated as shown in Table 1.

Qualitative data was also collected independently from the CLAHRC Northwest London between February and December 2014 from care home managers, GPs and residents and showed the benefit of the pharmacists.

## Examples of interventions

- Grade IV Intervention: Patient discharged from hospital back to care home following seizure. During the hospital admission the hospital had withheld blood pressure medication due to low BP and had increased the antiepileptic medication dose. However, this was not actioned by the care home following discharge for two days and was identified by the pharmacist during their visit. This was actioned with feedback to the nurse, clinical lead and GP.
- Grade IV Intervention: Patient had been non complaint with his medication (antidepressant, antiplatelet and antihypertensive) for four months and was presenting with a low mood and profound self-neglect. The GP had requested for mental health team review for covert administration of medication. Pharmacist discussed compliance with resident who explained it was a result of swallowing difficulties following recent tooth extraction. Options were discussed with the patient who suggested taking the tablets with yoghurt to support swallowing. Six months later resident remained complaint with medication with improvement in mood.
- Grade V Intervention: Resident discharged from hospital with rivaroxaban. It was documented on the discharge letter that this was switched from warfarin. The resident was never on warfarin and it was not indicated. Rivaroxaban was stopped.

## Challenges and overcoming them

### One size does not fit all

One of the biggest challenges was to understand the operation of the different care homes. There are variations in terms of policies, documentations as they are managed by different providers. There are also different types of care homes e.g. nursing, extra-care which then dictates the scope and remit of the staff to perform certain tasks including handling of medicines (Table 2).

### Communication

This included accessing timely and relevant information on the residents and communicating interventions to the GP for action. This has significantly improved since pharmacists have access to the GP practices system. There are still challenges in

Activities	Borough		Data period measured	Data period compared with
	H & F	WL		
Reduction in Falls	16%	3%	2015	2014
Reduction in Falls	39%	23%	January to June 2016	January to June 2014
Reduction in hospital admissions	35%		2015	2014
Reduction in LAS callouts	17%		2015	2014

**Table 1: Outcomes of the Proactive Care Homes Project**

accessing care homes record. This can be overcome by becoming familiar with the way each care home operates and speaking directly to the staff. Permanent care home staff are a good resource to provide important relevant background information on their residents.

### Engagement

Whilst stakeholders were involved in how the project would be delivered right from the start, the project team faced some challenges in delivery of the service. This barrier mainly contributed to the increased workload on some services e.g. GPs who are already operating on full capacity. Engagement of care home staff was paramount as the project involved delivery of a new service that was unfamiliar to them, and having all the stakeholders are involved enabled the project to be more effective.

### Who to see first

The care homes involved in the project had approximately 1,000 residents, so prioritising patients for medication review was necessary. Familiarising with each of the care homes and speaking with the managers highlighted aspects of medicines management that each home found challenging. The National Prescribing Centre (NPC) Guide to Medication Review<sup>23</sup> also provides a guide as to the 'at risk' groups to target first.

### Commissioning

As a project, funding was an ongoing challenge. Fortunately, the project was able to run for over three years. Whilst there are examples of pharmacists making significant savings from reviewing and optimising medications, the services to care homes need to be fully commissioned.

## Moving from Project to Practice

The Proactive Care Homes project ran from December 2013 to March 2017. In a time where resources are stretched within the NHS a cost effective model of working is essential. The project has achieved a number of key outcomes with benefit to both patients and the local health economy.

With net cost savings of £160K per annum made by the medicines management team alone, with additional cost savings from reduced hospital admissions, falls and LAS call-outs, there

were clear financial benefits. This was a similar outcome to the Shine report.<sup>20</sup> There were also significant other benefits such as upskilling care homes staff through medication management training from pharmacists on various topics relevant to practice within the care homes. Additionally, falls prevention training was delivered by the falls prevention therapists within the project team. Residents also received more co-ordinated care as a result of individual case reviews and care plan formation through MDT meetings as well as ongoing review and referrals which were undertaken proactively.

One of the key aspects of this project was that services provided to the care home were proactive rather than reactive. Pharmacists were prioritising residents and reviewing medication in order to reduce falls risk, ensure that medications are being reviewed in a timely manner, used appropriately, optimised and have appropriate monitoring in place. Medication use was discussed with patients/carers where appropriate and recommendations discussed with the GP. The role of the pharmacist also involved supporting care homes in embedding good medicines management in practice through education and training as well as addressing any concerns that were highlighted e.g. omitted doses of medicines. It is difficult to quantify and assume direct correlation between pharmacist activities and project outcomes e.g. reduced hospital admissions and pharmacist interventions. However, studies have shown that up to 5-8% of hospital admissions are medicines related<sup>24</sup> of which up to 50%<sup>25,26</sup> are preventable therefore, potentially, the activities of the proactive care homes pharmacist may have more significant effect.

Areas of good practice by the proactive care home pharmacists included:

- regular and proactive clinical level 3 medication reviews<sup>21</sup>
- timely interventions e.g. review of new residents, medicines reconciliation on discharge
- early identification of medication errors or potential errors to prevent adverse effects
- presence in care homes provides prompts for resident referrals and raise medication issues
- regular audit e.g. omitted/delayed doses with feedback to care home staff

Task	Nursing Homes	Extra-care
Clinical i.e. staff	Yes	No
Monitoring (e.g. blood pressure)	Yes	No
Knowledge about medicines	Yes	Minimal
Crushing /covert administration	Yes	No
Medication administration (non-oral)	Yes*	No#
* some nursing homes do not administer intravenous medication but will give subcutaneous and intramuscular # besides injectables, most extra-care care homes do not administer suppositories and patches.		

**Table 2: Nursing homes versus extra-care**

- effective working relationship and communication with care home staff, community pharmacist, GPs, therapies, district nurses and other appropriate healthcare professionals
- care home staff upskilled and increased medicines management knowledge through planned and ad hoc education and training
- appropriate monitoring and counselling of residents to minimise adverse effects and improve patient experience and ultimately quality of care.

Prior to the project ending in WL in September 2016, the project activities were reviewed with stakeholders to explore what could be delivered through existing services and how to be delivered to ensure equity of access. The review also included acknowledging challenges, gaps in the project and resulted learning. Some of the areas for improvements included the need for care homes to have access to specialist community services in particular mental health nurses and standardising access to medical records to all GP practices which had care home residents to allow access to monitoring parameters as well as past medical history and medication lists.

With the role of pharmacists in primary care evolving there is a question whether project activities provided by the care home pharmacist could be undertaken by existing healthcare professionals or pharmacy services such as practice pharmacists, community pharmacists, GPs or care co-ordinators. However, this project has highlighted the benefit of dedicated care home pharmacists working within the care home setting locally to deliver the project outcomes as measured. Following review of project data and a stakeholder event in WL, a pharmacist and a falls prevention therapist were commissioned to undertake the activities of the project on an ongoing basis with review of embedding activities learnt from the project in existing services in H&F.

The CCG for the Gateshead vanguard funded a pharmacist and pharmacy technician to support all the care homes, whilst the East and North Hertfordshire CCG has a dedicated medicines management team which covers 60 care homes within the area.<sup>3</sup> It will be interesting to see how the CLCH project model compares to the vanguards model of care.

## Declaration of interests

The authors having nothing to declare.

## Acknowledgements

Thank you to Nicole Le Morgan and Chris Haigh, Proactive Care Homes Pharmacists, who significantly contributed to the project.

## References

1. Department of Health. Building a safer NHS for patients: improving medication safety. 2004. London. Available at: [http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/documents/digitalasset/dh\\_4084961.pdf](http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4084961.pdf) .
2. NHS England. Five Year Forward View. 2014. Available at: <https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf> .
3. NHS England. New care models: The framework for enhanced health in care homes. 2016. Available at: <https://www.england.nhs.uk/ourwork/new-care-models/vanguards/care-models/care-homes-sites/> .
4. NICE. Guidance on Managing medicines in care homes. 2014. Available at: <https://www.nice.org.uk/guidance/sc1> .
5. NICE. Quality Standards (QS85): Medicines management in care homes. 2015. Available at: <https://www.nice.org.uk/guidance/qs85> .
6. Royal Pharmaceutical Society. The right medicine: Improving care in care homes. 2016. Available at: <https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Publications/The%20Right%20Medicine%20-%20Care%20Home%20Report.pdf?ver=2016-10-19-134849-913> .
7. Rubenstein LZ, Josephson KR, Osterweil MD. Clinics in Geriatric Medicine. Falls and Fall Prevention in the Nursing Home. 1996;12(4):881-902. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/8890121> .
8. Zermansky AG, Alldred DP, Petty DR, Raynor DK, Freemantle N, Eastaugh J et al. Age Ageing. Clinical medication review by a pharmacist of elderly people living in care homes a randomised trial. 2006;35: 586-91. Available at: <https://academic.oup.com/ageing/article/35/6/586/14651/Clinical-medication-review-by-a-pharmacist-of> .
9. Kannus P, Sievanen H, Palvanen M, Jarvinen T, Parkkari J. Lancet. Prevention of falls and consequent injuries in elderly people. 2005;366:1885-1893. Available at: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(05\)67604-0/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)67604-0/fulltext) .
10. Banerjee S. Report for the Minister of State for Care Services. The Use of antipsychotic medication for people with dementia: Time for action. 2009. Available at: <http://www.rcpsych.ac.uk/pdf/Antipsychotic%20Bannerjee%20Report.pdf> .
11. Gurvich T, Cunningham JA. Am Fam Physician. Appropriate use of psychotropic drugs in nursing homes. 2000;61(5):1437-46. Available at: <http://www.aafp.org/afp/2000/0301/p1437.html> .
12. Parsons C, Johnston S, Mathie E, Baron N, Machen I, Amador S et al. Drugs and Aging. Potentially inappropriate prescribing in older people with dementia in care homes: a retrospective analysis. 2012;29(2):143-155. Available at: <http://link.springer.com/article/10.2165/2F11598560-000000000-00000> .
13. Alldred DP, Barber N, Buckle P, Carpenter J, Dickinson R, Franklin BD et al. Report to the Patient Safety Research Portfolio, Department of Health. Care Home Use of Medicines Study (CHUMS) Medication errors in nursing & residential care homes – prevalence, consequences, causes and solutions. 2009. Available at: <http://www.birmingham.ac.uk/Documents/college-mds/haps/projects/cfhsp/psrp/finalreports/PS025CHUMS-FinalReportwithappendices.pdf> .
14. Szczepura A, Wild D, Nelson S. BMC Geriatrics. Medication errors for older people in long term residential care. 2001;11:82. Available at: <http://link.springer.com/article/10.1186/1471-2318-11-82> .
15. National Institute of Health and Care Excellence and National Patient Safety Agency. Guidance to improve medicines reconciliation. 2007. Available at: <http://www.npsa.nhs.uk/corporate/news/guidance-to-improve-medicines-reconciliation/> .
16. Mansur N, Weiss A, Beloosesky Y. Ann Pharmacotherapy. Relationship of in-hospital medication modifications of elderly patients to post discharge medications, adherence and mortality. 2008;42(6):783-9. Available at: <http://journals.sagepub.com/doi/pdf/10.1345/aph.1L070> .

17. Boockvar K. et al. Archives of Internal Medicine. Adverse drug events due to discontinuations in drug use and dose changes in patients transferred between acute and long-term care facilities. 2004;164(5):545-550. Available at: <http://jamanetwork.com/journals/jamainternalmedicine/fullarticle/216786> .
18. Morris K, Hockley J. End of Life Journal. Implementing stock end-of-life medication in UK nursing homes. 2013;3(3):1-8. Available at: <https://www.stchristophers.org.uk/wp-content/uploads/2015/11/Stock-end-of-life-care-drugs-July-13.pdf> .
19. York Economics Consortium and University of London. Evaluation of the Scale, Causes and Costs of Waste Medicines. 2010. Available at: <https://core.ac.uk/download/pdf/111804.pdf?repositoryId=90> .
20. The Health Foundation: Shine Final Report. A clinic-ethical framework for multidisciplinary review of medication in nursing homes. 2012. Available at: <http://www.health.org.uk/programmes/shine-2012/projects/multidisciplinary-review-medication-nursinghomes-clinico-ethical> .
21. Petty D, Rayner DKT, Zermansky A, Alldred D. The Pharmaceutical Journal. Medication review by pharmacists- the evidence still suggests benefit. 2005;274(7350):618-619. Available at: <http://www.pharmaceutical-journal.com/news-and-analysis/features/pj-online-articles-medication-review-by-pharmacists-8212-the-evidence-still-suggests-benefit/20014692.article> .
22. Specialist Pharmacy Service. Capturing and Using Pharmacy Contribution Data. Available at: <https://www.sps.nhs.uk/articles/capturing-and-using-pharmacy-contribution-data/> [Accessed 8th August 2016].
23. National Prescribing Centre. Guide to Medication Review. 2008. Available at: [http://www.sefap.org/media/upload/arxius/formacion/aula\\_fap\\_2010/bibliografia/guide\\_medication\\_review\\_2008.pdf](http://www.sefap.org/media/upload/arxius/formacion/aula_fap_2010/bibliografia/guide_medication_review_2008.pdf) .
24. National Institute of Health and Care Excellence. Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. 2015. Available at: <https://www.nice.org.uk/guidance/ng5> .
25. Pirmohamed M, James S, Meakin S, Green C, Scott AK, Walley TJ et al. BMJ. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients. 2004;329(7456):15-9. Available at: <http://www.bmj.com/content/bmj/329/7456/15.full> .
26. Leendertse AJ, Egberts ACG, Stoker LJ, Van den Bemt PMLA for the HARM study Group. Arch Intern Med. Frequency of and Risk Factors for Preventable Medication-Related Hospital Admissions in the Netherlands. 2008;168(17):1890-1896. Available at: <http://jamanetwork.com/journals/jamainternalmedicine/fullarticle/414486> .

# Medicines Optimisation and Patient Safety

## NIHR CLAHRC Learning Event, held 16th January 2017

**Susan Barber**, *Improvement Science Manager, National Institute of Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) Northwest London (NWL)*, **Barry Jubraj**, *Clinical Senior Lecturer (Medicines Optimisation), Institute of Pharmaceutical Science, Kings College London and Honorary Pharmacist for Medicines Optimisation, NIHR (CLAHRC) Northwest London (NWL)*.

Correspondence to: [barry.jubraj@kcl.ac.uk](mailto:barry.jubraj@kcl.ac.uk) or [s.barber@imperial.ac.uk](mailto:s.barber@imperial.ac.uk).

This article presents independent research in part funded by the National Institute for Health Research (NIHR) under the Collaborations for Leadership in Applied Health Research and Care (CLAHRC) programme for North West London (NWL). The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

### Introduction

As part of a national CLAHRC collaboration, NIHR CLAHRC NWL invited project teams from around England to participate in a national learning event to share experience and learn from each other. Teams from the West Midlands, West of England and across London contributed. Pharmacists, multi-disciplinary teams and researchers were asked to focus their presentations on how to accelerate learning for other teams to benefit, particularly those who are starting out. Ganesh Sathyamoorthy, Assistant Director for Partnerships and Business Development, NIHR CLAHRC NWL, began by encouraging the development of a cross-CLAHRC collaboration to share learning. Professor Finbarr Martin, Academic Theme Lead for Frailty, NIHR CLAHRC NWL then chaired the event. He set the context at the start of the day, reminding delegates that the number of chronic conditions and medicines prescribed increases with age. Comorbidities, use of multiple medicines and socio-economic status as well as age are part of a complex picture, with patients in lower socio-economic classes more likely to be living with multiple conditions for longer and surviving them less well than higher socio-economic classes. Predicting outcomes of the options available to patients is also complicated and the potential adverse effects from treatments must be considered and weighed against other factors so that patients can decide if a potential treatment is worthwhile.

This summary of proceedings highlights the key aims of all the projects presented at the event i.e. the successes and challenges encountered, what had worked well, what had not, and important research findings. Our intention is that readers will find this a useful summary and that they will visit the NIHR CLAHRC website to access the full presentations themselves:

<http://clahrc-northwestlondon.nihr.ac.uk/events/past/medicinesoptimisationpatientsafetylearningevent> .

### 1. A Medicines Optimisation Journey across a timeline in North West London: 2009-2016

Vanessa Marvin, Associate Chief Pharmacist at the Chelsea & Westminster Hospital (CWH) and NIHR CLAHRC NWL, led a presentation on a journey that began with the aim of improving medicines management and medicines reconciliation, moving through to the development and implementation of medication review definitions and tools and the introduction of an innovative patient-held record of medicines. CWH, Northwick Park, Hammersmith, St Mary's, Hillingdon, West Middlesex Hospitals have been involved in this journey.

The early focus was on medicines management and medicines reconciliation. It was clear that insufficient medicines reconciliation on admission to hospital meant that confidence in medicines reconciliation at discharge was impossible. Unanticipated, substantial, unmet need existed around communication and stakeholder involvement across both acute and primary care and with patients and carers. Improved cross-boundary communication, relationship building and establishing necessary structures enabled experimentation and learning, which was crucial to securing sufficient focus on medicines optimisation. An emphasis was placed on the importance of gaining an in-depth understanding of the patient journey in order to facilitate accurate recording of medicines at discharge.<sup>1</sup> The team improved communication with inpatients about possible side-effects of medicines and assessed medicine related problems encountered after discharge from hospital.<sup>2,3,4</sup> An improvement in medicines reconciliation at discharge was achieved raising the average from 20% in October 2011 to 60% by January 2013. An award winning intervention (Medicines at Discharge – or M@D) radically improved documentation to support accurate recording of drug history at patient admission.

Dr Marvin's team moved on to describe the introduction and diffusion of structured medication review across five North West London hospitals, all of whom described medicines reconciliation challenges and collaborated on an initiative to improve prescribing and medication review for elderly people (ImPE project). A subsequent project focused on review of medicines in acute care (ReMAC). A structured medication review tool based on the Gallagher et al (Screening Tool of Older Persons potentially inappropriate Prescriptions, 2008) was developed and used.<sup>5</sup> More than 3,800 patient medication records were reviewed between July 2015 and June 2016, with medicines being stopped or reduced in 65% of patients. Updates to e-prescribing templates supported improved documentation and clearer communication. Moreover, two evidence-based working definitions were agreed by consensus: 'interim medication review' and 'comprehensive medication review'.

Factors contributing to success included a rigorous analysis of pharmacy processes, including surveys and ongoing induction, training and mentoring of all healthcare professionals. This contributed to sustained culture change. Understanding processes, context and grappling with challenges relating to documentation and the role of different clinicians was key. With one lead hospital and four more hospitals working collaboratively, diffusion of learning, clinical leadership and quality improvement support was possible. Having pharmacists join doctors on ward rounds with the purpose of medication review improved the number of reviews carried out.<sup>6</sup> Finally, it became clear that including medication review as a subject in the formal and informal education of clinicians is important for the success of this journey.<sup>7,8</sup>

## 2. My Medication Passport (MMP)

Susan Barber, Improvement Science Manager, NIHR 'NIHR CLAHRC NWL, described the MMP story to date. MMP is a passport size booklet that features a list of the patient's current medicines, any medicines that the patient cannot take with reasons, compliance aid use, notes about changes to medicines, relevant information about key clinicians and blank pages to make notes about anything else, for example regular clinics, illnesses, vaccinations or screening.

MMP helped to bridge some specific challenges that have been encountered in the NIHR CLAHRC NWL medicines optimisation journey. For example, there is no comprehensive patient medication record available, which can lead to potential inaccuracies when making prescribing decisions. Patients and carers working with NIHR CLAHRC NWL were keen to have a patient-held record of medicines, specifically to help them to keep track and support conversations about their care. They provided the idea and worked with pharmacists and other health care professionals to develop, trial and evaluate MMP. Evaluation demonstrated value in supporting patients in their communications with clinicians, families and informal carers. Most patients indicated that using MMP in conversations improved their confidence to ask questions, and to make clear points about their medicines, appointments, and needs,<sup>9</sup> including in a paediatric setting.<sup>10,11,12</sup> Subsequently, parents/carers of disabled children surveyed at the Chelsea & Westminster Hospital were positive about MMP, with some suggestions for improvement. To date, more than 150,000

hand-held MMPs are in circulation with 10,000 app downloads.

## 3. Quality Improvement Methods

The NIHR CLAHRC NWL group were keen to emphasise the use and value of Quality Improvement methods throughout their journey. These included the development of aims and interventions (Action Effect Diagrams), fully understanding and navigating the processes to be changed, identifying the prospective process desired (Process Mapping), and making small tests of change through 'Plan Do Study Act' (PDSA) cycles. Patient and public engagement is central to the NIHR CLAHRC NWL approach, which included facilitating stakeholder engagement through stakeholder mapping and communication planning. Guiding patient engagement and involvement in developing, implementing and evaluating the programme was central to success, as was considering the extent to which a cohesive team was being built, and what steps could be taken to ensure that the project aims became part of the ongoing working culture (Long-term success tool).

## 4. Deprescribing

Barry Jubraj and Nina Barnett, Consultant Pharmacist, Care of Older People, Northwick Park Hospital, London North West Hospitals Trust; Medicines Use and Safety Division, NHS Specialist Pharmacy Services presented a themed issue on deprescribing of the European Journal of Hospital Pharmacy,<sup>13</sup> which was an output of the NIHR CLAHRC medicines optimisation initiative. In a conversational presentation, they discussed deprescribing as a topic gaining increasing importance but with concerns around a lack of robust guidance, patient attitudes and a fear of medico-legal consequences. They signposted delegates to the themed issue containing articles ranging from reviews by international experts on the current problems surrounding deprescribing to a description of practical tools to support the process. A podcast by the editors introducing the themed issue can be found here: [https://soundcloud.com/bmjpodcasts/deprescribing-a-special-issue-from-ejhp?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+ejhp%2Fpodcasts+%28Latest+from+EJHP+podcasts%29](https://soundcloud.com/bmjpodcasts/deprescribing-a-special-issue-from-ejhp?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+ejhp%2Fpodcasts+%28Latest+from+EJHP+podcasts%29) .

## 5. The Medicines Optimisation Pharmacy Service (MOPS): the impact of domiciliary medication review

Caroline Goh and Jennifer Butterfield from the Medicines Management Department, Central London Community Healthcare Trust (CLCH) presented their experiences of introducing medicines optimisation in two settings: domiciliary and care home medication review.

For the domiciliary review project, their intervention was aimed at house-bound patients over 75 years old taking 4 or more medicines and/or a 'high risk' medicine. Face-to-face 'level 3' medicines reviews were conducted and the question "what are the patient's goals for medicines outcomes" put at the heart of each discussion. A care plan was then agreed with the patient and recommendations were made to the GP. A referral pathway

was developed and improved communication through MDT working. 1,799 interventions were made, with 23% involving advice on stopping medicines and 13% on starting medicines. The team saw a decline in non-elective hospital admissions and unused medication was returned for destruction. The initiative was cost-neutral, with positive patient feedback.

The initiative proved challenging initially, for example to set up and engage with GPs and multi-disciplinary teams and to access patient records. It was also essential to have access to the patient record before the intervention started. It was helpful to research whether or not access is possible to local specialist services if they exist. Meticulous planning and setting aside sufficient time was integral to working with the patient's GP and preparing home visits.

Next, for the 'Integrated Proactive Care Homes Project' where pharmacists were working in care homes, different methods were used to optimise medicines depending on the cohort. For example, residents recently discharged from the acute setting, new residents and residents at risk of falls were targeted for the intervention. There were 9,922 interventions from December 2013 – July 2016, with 27% including advice about stopping medicines and 17% on starting medicines. An evaluation comparing outcomes for 2014 and 2013 showed decreases in reported resident falls (35%), call-outs relating to falls (26%), A&E attendance (16%) and hospital admissions (4%). Other achievements included appropriately trained pharmacists working with care homes, better working relationships, upskilling of staff, improved patient safety and good feedback from GPs and patients. The initiative was cost-neutral with a positive impact on non-elective hospital admissions and falls.

It became clear that time is well spent getting to know individual care homes and understanding the skills of their staff before starting to plan interventions. A variety of communication styles and content of interventions needs to be tailored to individual needs of care homes. Challenges included gaining an awareness of how care homes operate, communication, access to relevant medical records and community specialist services.

## 6. Reviews: Predicting and assessing adverse drug reaction risk

Jennifer M. Stevenson, Clinical Pharmacy Research Fellow, Kings College London, presented her research entitled 'Predicting medication related harm in older adults – a review of the validated models'. A case study identified two key questions: "is the patient journey predictable?" and "do we have adequate knowledge from the literature to predict risk of harm?"

Many tools and assessment structures may be of help, including Beers criteria, STOPP/START, MAI, and the Comprehensive Geriatric Assessment. The aim of the study was to identify validated medicine risk prediction models and assess the quality of them. Jennifer's quality assessment focused on four elements: (1) the development of the model or tool, (2) validation, (3) impact, (4) implementation. All papers in the review addressed development and validation issues but many neglected impact and implementation. Many papers also identified significant challenges especially in relation to how the

assessment of adverse drug reactions and adverse drug events may be approached. Jennifer reported that there is a paucity of evidence available to underpin our knowledge of the impact of risk prediction models and their implementation.

## 7. Interventions to reduce problematic polypharmacy or inappropriate prescribing: an overview of an ongoing scoping review.

Elaine O'Connell Francischetto (NIHR CLAHRC West Midlands, Chronic Disease Theme, Institute of Applied Health Research, University of Birmingham) presented a scoping review that is in progress. The rationale was:

- To have a clear understanding of what specific settings and populations the existing high quality research covers regarding inappropriate prescribing.
- To identify where there are gaps in the evidence, for example: interventions/tools aimed at certain populations; interventions for use in different settings; research from different perspectives (staff, patients or carers).

Early findings of the scoping review indicate:

- inconclusive evidence that the interventions have an effect on the length of hospital admission, mortality or re-admissions
- some evidence suggests that different interventions can reduce inappropriate prescribing
- only one review reported a slower decline in health related quality of life
- more high quality studies need to be done and new technologies need to be evaluated.

## 8. Meeting the medicines optimisation challenges of patients: dysphagia and aphasia

### *Medicines and the dysphagia pathway*

Nina Barnett outlined why her team developed an improved understanding of how to talk about, administer and manage medicines along two care pathways.

Patients with dysphagia are unable to take some oral formulations of medication, and more errors have been identified in patients with dysphagia than in patients without. There are common complications of other conditions occurring in patients suffering stroke, dementia and chronic obstructive pulmonary disease. Patients with swallowing difficulties typically need liquid medicines and there are different stages, or consistencies of fluids that can be chosen, and medicines administration modified to optimise patients' experience of taking medicines.

In order to improve the service, staff undertook a defined learning journey to better understand the needs of patients with dysphagia. A flow-chart of managing medicines in patients with

dysphagia was developed and successfully utilised. Resources are available to share:

<https://www.sps.nhs.uk/articles/supporting-patients-with-swallowing-difficulties-medicines-and-dysphagia/> .

### **Helping people with communication difficulties after stroke to understand warfarin therapy**

Patients with aphasia have usually had a stroke, brain tumour, traumatic head injury or hypoxic brain injury. When assessing which anti-coagulant might be most appropriate, advantages and disadvantages must be considered alongside a risk assessment. Pharmacists and doctors do not necessarily have guidance on how best to care for aphasia patients. NPSA guidance 2006 stressed the importance that patients put on doctors finding enough time to talk to and explain risks and counsel them prior to starting anticoagulation treatment. However, mainstream Yellow Book/written guidance is not appropriate for aphasia patients since the content is too dense and word-heavy. Nina's team held a learning event with pharmacists and speech and language therapists, which concluded that patients with aphasia require short messages, clear sentences, easy words, a good layout, diagrams, pictures and an appropriate font. Transformed written/pictorial guidance has been created around warfarin, the need for regular blood tests (the INR test), and food and alcohol considerations. Resources are available to share:

<https://www.sps.nhs.uk/articles/warfarin-consultation-for-patients-with-aphasia/> .

## **9. Conclusion**

We hope that these conference proceedings will 'whet your appetite' and that you will explore more through the presentations on the NIHR CLAHRC NWL website (see link in the introduction to these proceedings), and the references below. The learning event was both inspiring and encouraging as we explored together each other's successes and challenges. We encourage others to get together in learning event settings and to publish their learning for the benefit of all stakeholders who are concerned with patients and getting the most out of their medicines.

### **Declaration of interests**

The authors have nothing to disclose.

### **References**

1. Marvin V, Vaughan L, Kuo S, Bovill I for CLAHRC. Improving Medicines Reconciliation and Communication at Transition of Care to and from an Acute Medical Unit. Poster presentation. 23rd Annual Scientific Meeting, PRIMM (Prescribing and Research In Medicines Management) (UK & Ireland): Seamless Care .... or Careless Seams - reducing medication errors at interfaces. London, February 2012. [Also published in *Pharmacoepidemiology and Drug Safety* 2012;21(7):788-798 online: 28 May 2012. DOI: 10.1002/pds.3262]. Available from: <http://onlinelibrary.wiley.com/doi/10.1002/pds.3262/full> .
2. Marvin V, Park C, Vaughan L, Valentine J. Northwest London CLAHRC. Phone-calls to a hospital medicines information helpline: analysis of queries from members of the public and assessment of potential for harm from their medicines. *Int J Pharmacy Practice* 2011;19:155-122. [cited in PJ 12th March 2011, Interactions top query raised on drug advice line; BJ Clin Pharm 3rd April 2011, Medicines helpline reduces exposure to harm]. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.2042-7174.2010.00081.x/abstract> .
3. Marvin V, Mays C, Park D, Linnard D. 'Improving communication about possible side-effects to inpatients before discharge' (Poster presentation). EAHP Congress. Vienna, March 2011.
4. Vaughan L, Joshua A, Park C, Valentine J, Phekoo K, Marvin V. Medication related problems after discharge from acute care: a telephonic pilot study. Poster presentation. The Society for Acute Medicine (SAM) Conference. London, 29-30th Sept 2011.
5. Gallagher P, O'Mahony D. STOPP (Screening Tool of Older Persons potentially inappropriate prescriptions) application to acutely ill elderly patients and comparison with Beers criteria. *Age and Ageing* 2008;37:673-679. Available at: <http://www.sefap.org/congresos/congreso2009/talleres/presentaciones/Taller4.9.pdf> .
6. Marvin V, Kuo S, Poots AJ, Woodcock T, Vaughan L, Bell D. Applying Quality Improvement methods to address gaps in medicines reconciliation at transfers of care from an acute UK hospital. *BMJ Open* 2016;6:e010230. DOI: 10.1136/bmjopen-2015-010230. Available at: <http://bmjopen.bmj.com/content/6/6/e010230> .
7. Patel S, Jubraj B, Marvin V, Bovill I, Umer M, Trehane S-J, Poots AJ. A survey exploring junior doctors attitudes to medication review. Poster presentation. 26th Annual Scientific Meeting, PRIMM (Prescribing and Research in Medicines Management) (UK & Ireland): One for All and All for One - Different Perspectives in Medicines Optimisation. London, January 2015. [Also published in *Pharmacoepidemiology and Drug Safety*. Online First: 15/6/15. DOI: 10.1002/pds.3812].
8. Jubraj B, Marvin V, Poots AJ, Patel S, Bovill I, Barnett N, Issen L, Bell D. A pilot survey of junior doctors' attitudes and awareness around medication review and deprescribing: time to change our educational approach? *Eur J Hosp Pharm* 2015. Published Online First: 4/6/15. DOI: 10.1136/ejhpharm-2015-000664. Available at: <http://ejhp.bmj.com/content/early/2015/06/03/ejhpharm-2015-000664.full> .
9. Barber S, Thakkar K, Marvin V, Dean-Franklin B, Bell D. Evaluation of My Medication Passport: a patient-completed aide-memoire designed by patients, for patients, to help towards medicines optimisation. *BMJ Open* 2014;4:e005608. DOI: 10.1136/bmjopen-2014-005608. Available at: <https://www.networks.nhs.uk/nhs-networks/my-medication-passport/documents/my-medication-passport-in-bmj-open> .
10. Jubraj B, Blair M. Use of a medication passport in a disabled child seen across many care settings. *BMJ Case Reports* 2015. DOI: 10.1136/bcr-2014-208033. Available from: <http://casereports.bmj.com/content/2015/bcr-2014-208033.abstract> .
11. Jubraj B. My Medication Passport Down's Syndrome Association Journal Autumn/Winter 2015: 23. Available at: [https://www.researchgate.net/publication/290436966\\_My\\_Medication\\_Passport](https://www.researchgate.net/publication/290436966_My_Medication_Passport) .
12. Jubraj B, Barber S, Ward E, Husson F, Turley M. Patient perspectives on the use of 'My Medication Passport'. *Geriatric Medicine* August 2016;12(8):25-28. Available from: <http://edition.pagesuite-professional.co.uk/html5/reader/production/default.aspx?pubname=&edid=b4fc5b10-fc57-4891-af6a-8420f2caf5b9> .
13. Jubraj B, Barnett N. Guest Editors. Themed Issue on Deprescribing. *Eur J Hosp Pharm* January 2017; 24(1). Available at: <http://ejhp.bmj.com/content/ejhpharm/24/1/1.full.pdf> .

# Patient Perspectives

The process of medicines optimisation places patients at the heart of the process. It seems only right, then, to seek the views of patients about their experiences with medicines, their medical condition in general and their contacts with health professionals. Understanding what it is really like for a patient to live with a particular clinical condition will hopefully assist healthcare professionals to become more effective with their interactions and communications with patients and improve the healthcare services provided.

This has been done by providing patients identified through healthcare contacts with a template of questions to be completed anonymously by the patient on the basis that no individual be named or identifiable from the content. What some people have to cope with and the way they do it will amaze you.

## Hypermobile Ehlers-Danlos Syndrome (hEDS)

### Abstract

#### *Title*

Patient Perspective: Hypermobile Ehlers-Danlos Syndrome (hEDS)

#### *Summary*

A patient's perspective of living with Hypermobile Ehlers-Danlos Syndrome (hEDS) is described. The way contacts with healthcare professionals might have been better are outlined. The medicines taken, elements of service provision found to be most helpful and steps to improve the ongoing management of the condition are outlined. Key messages for healthcare professionals that have arisen from the patient experience are indicated.

**Keywords:** medical condition, medicines

## About your medical condition

### What is the medical condition most important to you that is being presented here?

Hypermobile Ehlers-Danlos Syndrome (hEDS).

### Can you please explain the problems you experience with this medical condition?

Chronic pain and fatigue, functional gut disorder, joint dislocations and subluxations, easy bruising, poor wound healing, poor proprioception.

### Can you please say how the medical condition was first diagnosed?

Diagnosed in clinic by a specialist rheumatologist, following presenting with symptoms since childhood.

### Can you please say when the medical condition was first diagnosed?

February 2015.

### If you look back, what would you say have been the main things you would have liked to have been different in terms of contact with health professionals?

- Earlier detection at primary care level.
- Shorter waiting times to see specialist clinicians.
- More specialist clinicians and clinics to make an accurate diagnosis.
- Being listened to and valued as a patient, presenting with numerous physical symptoms, particularly at primary care level and with community pharmacists.

## About your medicines

### Please list the medicines you taking for your medical condition.

- Lansoprazole, mebeverine for functional gut problems: daily
- Opiate painkillers for musculoskeletal pain: PRN

### Have you had any particularly bad experiences with regard to your medicines? If so, please explain and indicate how this could be avoided in future.

I suffer from Serotonin Syndrome with SSRIs, TCAs and tramadol. I have trialled these drugs to help treat pain, depression and anxiety, but cannot tolerate them. It is therefore important that I explain to clinicians why these drugs should be avoided and other options explored.

I developed a physical dependence on opiate painkillers at one point, which led to unpleasant withdrawal symptoms. I felt that primary care healthcare professionals and community pharmacists didn't support me well during withdrawal. I now

recognise the need, when I need to take opiate painkillers, to be more aware about becoming physically dependent again, and discuss with the prescriber.

It is my opinion that primary healthcare professionals and community pharmacists should provide better support and care for patients who are experiencing opiate withdrawal symptoms.

Many patients may be over-prescribed and/or be given inappropriate drugs, leading to problems with interactions and adverse effects instead of more effective ways to control and manage symptoms (such as pain/fatigue management).

### Have you had any particularly good experiences with regard to your medicines? If so, please explain.

Functional gut issues can be miserable. Taking lansoprazole and mebeverine daily allows some considerable relief. These drugs are well tolerated.

Short-term (no longer than 4 weeks) use of opiate painkillers has helped, though I recognise the importance to review prescriptions for these drugs more actively.

## About the services you received

### What have you found to be most helpful to you in terms of the services you have received?

- Pain Management course (facilitated by psychologists, physiotherapists and a pain management nurse).
- EDS education seminar (facilitated by a senior, experienced physiotherapist).
- Prompt GI physiological investigations leading to effective treatment.
- Peer support meetings, provided by Ehlers Danlos Support UK, a national charity: <https://www.ehlers-danlos.org/>.

### To what extent have the health professionals you have come in contact with appreciated what it was like from your position as a patient?

At primary care level, I feel like my position, as someone with my condition, is largely unappreciated. On many occasions before diagnosis, and sometimes after diagnosis, I have felt worse after speaking to a primary care health professional or community pharmacist regarding symptoms and worrying pharmacological adverse effects. I have frequently felt 'fobbed off'.

Due to poor understanding and appreciation of hypermobility, local MSK physiotherapists have issued the incorrect exercises to strengthen and stabilise joints leading to increased pain and deconditioning, and secondary low mood/anxiety.

Specialist clinicians, and those aware of the condition, have been understanding and much more willing to listen and provide appropriate care.

### To what extent was the information you were given about your medical condition sufficient for you?

The particular hospital where a diagnosis was reached provides an education seminar for new patients. This was useful as it gives an opportunity to ask more questions. In my case, I was able to make an informed choice about planning my treatment. Other patients are frequently given a diagnosis, without any information for themselves and local healthcare services, leading to problems in favourable outcomes.

I was also able to turn to Ehlers-Danlos Support UK for more information about my condition once given a diagnosis.

### To what extent did the health professionals you came in contact with communicate effectively with you?

Health professionals who are aware of the condition have communicated effectively and compassionately.

## What have been the best experiences you have had with the services you have received?

- Peer support, which helps to alleviate isolation.
- Specialist healthcare professionals who are aware of hEDS have provided excellent understanding and care which is reassuring.

- Learning how to accept the diagnosis, and use techniques such as 'pacing' to help manage chronic pain and fatigue, provided by a pain management clinic.

## About other medical conditions

Do you have any other medical conditions that make life problematic for you? If so, please list them and explain the main problems you experience with each one.

### Medical condition

Migraine associated vertigo

Vestibular dysfunction

Anxiety

Depression

### Main problem experienced

Persistent vertigo

Persistent vertigo

Powerful physical symptoms of anxiety

Low mood leading to social isolation

## About going forward

What would you like to happen at this stage that would make living with your condition easier for you?

- More understanding and awareness at primary care level, including local MSK physiotherapy services and community pharmacists.
- Awareness of local support services such as peer support meetings provided by Ehlers Danlos Support UK, by way of recommendation from healthcare professionals, especially primary care healthcare professionals, local MSK physiotherapy services and community pharmacists.
- Prompt access to support during flare-ups, which can appear from nowhere and last for months (some patients can debilitate to such a level whereby they need wheelchairs and/or walking aids to get around. This could be prevented by early diagnosis and prompt treatment to manage flare ups, preventing muscle deconditioning).
- Waiting lists can be in the region of 18 months to see an EDS specialist. This could be avoided if local services had more knowledge and could manage the symptoms locally.

If you could give a brief message to healthcare professionals, what would it be?

Good communication between patient and healthcare professionals is paramount. Patients frequently present with multi-systemic problems, and some patients may be sensitive

to typical pharmacological treatments. Doctors must connect multi-systemic problems together - treating EDS symptoms individually is ineffective. Symptoms are connective in nature and should be treated appropriately.

Make yourselves aware about EDS and reach out to specialist clinicians and organisations for more information.

Please do not assume our symptoms are of a psychiatric nature – hEDS is a physical condition. Secondary psychiatric conditions may be present such as anxiety and depression.

**Please add any other comments or observations that would be helpful to health professionals who are responsible for providing services for you.**

Ehlers-Danlos Syndrome – Hypermobility Type (hEDS) is the most common type of Ehlers-Danlos Syndromes (EDS). There are 13 types of EDS, which is a hereditary connective tissue disorder (connective tissue is abundant in the human body). EDS affects women, men and children at any age. Men with EDS are in the minority, possibly because men are less likely to seek medical attention amongst other reasons. Diagnosing children can be particularly challenging, since children have naturally hypermobile joints. Some types of EDS are very rare, however hEDS is considered to be reasonably common.

EDS is poorly recognised in the medical community. I would, for example, often hear from doctors that "You don't have EDS because you don't have stretchy skin"but stretchy skin is only associated in two types of EDS out of the 13.

Patients may present with very mild symptoms, though some

may be severely affected, suggesting there is a wide spectrum of severity within each type of EDS. Some patients report reaching a diagnosis has taken decades, and during that time, they have been told by healthcare professionals their symptoms are “all in their head”. Patients are often misdiagnosed, and given incorrect labels such as Fibromyalgia.

Some patients may also present with co-morbid associated conditions such as Postural Orthostatic Tachycardia Syndrome (PoTS), Mast Cell Activation Syndrome (MCAS), Chiari Malformation and Cervicocranial Instability. These conditions are also poorly recognised in the medical community at large. They should be taken seriously, and appropriately investigated.

At present, hEDS is the only type, which is not diagnosed with genetic testing. Diagnosis is reached clinically, on presenting symptoms, past medical history and family medical history. Other types may be diagnosed based upon genetic testing and clinical features.

There are no specific pharmacological treatments licensed for EDS as far as I am presently aware, nor are there any guidelines provided by NICE.

With appropriate management, many patients may eventually lead fulfilling lives. It may take some time to stabilise and strengthen joints through activity and physiotherapy. Maintaining a good diet is usually recommended.

I would recommend that healthcare professionals who are interested in learning more about EDS contact the Ehlers-Danlos Support UK helpline advisor: [helpline@ehlers-danlos.org](mailto:helpline@ehlers-danlos.org).

In 2017, the Medical Journal of Medical Genetics published a range of papers with the new nosology of EDS, following a symposium made up of international medical experts. The papers can be seen here:

<http://onlinelibrary.wiley.com/doi/10.1002/ajmg.c.v175.1/issuetoc>.

### What are the three most important things that health professionals should learn from your experiences?

- 1) The patient is giving you the diagnosis – please listen to them. Do not lead the patient to believe it is psychiatric/somatising symptoms.
- 2) Early diagnosis is important – some patients suffer for decades before reaching a diagnosis.
- 3) It may take a long time to manage symptoms, and symptoms may flare up from time to time – please be patient with us, and help us access appropriate care promptly.

## Declaration of interests

**You will have been offered a fee for your contribution to be submitted within a specific timescale. In the spirit of being open and transparent, would you please disclose any other payments, interests or activities that could be perceived as influencing what you have written or state ‘none’.**

I am the Ehlers Danlos Support UK men's coordinator and an expert patient.

### KEY LEARNING POINTS FOR HEALTHCARE PROFESSIONALS IDENTIFIED AT THE EDITING/PEER REVIEW STAGES

- Be alert to the possibility of a patient developing opiate dependency and ensure appropriate support is available during withdrawal.
- Without a diagnosis, it can be difficult for healthcare professionals to provide appropriate support and patients can feel that they that their difficulties are not being appropriately considered.
- Specialist support can be invaluable but the route to obtaining that that needs to be improved.
- If you have a patient diagnosed with a relatively rare condition, then it is important to learn about that condition if you are to support the patient in the best possible way.

## The potential for interactive IT to improve medicines management in the future

Ian Nash, *Cluster (domiciliary) Pharmacist, Royal Devon and Exeter NHS Foundation Trust.*

Corresponding author: [ian.nash@nhs.net](mailto:ian.nash@nhs.net)

### Abstract

#### Title

The potential for interactive IT to improve medicines management in the future.

#### Author

Nash I.

#### Abstract

It is estimated that 30-50% of medicines prescribed for long term conditions are not taken as anticipated, resulting in the loss in health gain of billions of pounds.

The experience of the Exeter Cluster Pharmacy team is that a high proportion of the elderly patients, together with a cohort of younger mental health patients, whom we visit at home are confused about their medicines. There remains room for improvement in providing visual information for the patients to help them understand their own medicines.

A fictional future scenario is outlined, in which a patient describes interacting with their health record via voice recognition technology and a 'smart' TV device to record their medicine taking and reordering. The patient could work with the healthcare team, in person or via a video link, to reconcile therapy so that the pharmacist can take responsibility for the accuracy of the therapeutic record. With formal monitoring of outcomes, the evolving therapeutic record represents the basis of a pharmaceutical care plan.

The discussion explores the benefits, challenges and limitations of both monitoring adherence and the use of voice recognition technology. The political will to achieve a change in the model of care is touched upon, together with a suggested alteration to the Community Pharmacy Contract as leverage to promote medicine optimisation. The Medicine Reminder Chart is considered in detail, including the possible risks of permitting patients to change their own records. Finally an example is provided of generating Medicine Administration Records from the IT record to empower skilled not registered staff to support patients at home with their medicines at the time of transfer of care.

Innovative IT solutions can bring about major changes in the management of medicines. Now is the time to explore how those changes could be implemented to maximise the potential benefits from medicine optimisation for patients in the future.

**Keywords:** medicine optimisation, reconciliation, care plans, IT, outcomes, voice recognition technology, medicine reminder chart.

### Background

#### Global problem

It is estimated that 30-50% of medicines prescribed for long term conditions are not taken as anticipated, resulting in the loss in health gain of billions of pounds.<sup>1</sup>

Medicines optimisation can help address these issues (of polypharmacy, underuse and misuse of medicines) by ensuring that the right patients get the right choice of medicine, at the right time. By focusing on patients and their experiences, the goal is to help patients to:

- improve their outcomes
- take their medicines correctly
- avoid taking unnecessary medicines
- reduce wastage of medicines
- improve safety of medicines.
- medicine optimisation can help encourage patients to take ownership of their treatment.<sup>2</sup>

Researchers at Ghent University, Belgium concluded that

polypharmacy, underuse and misuse was highly prevalent in adults, aged 80 years and older.<sup>3</sup> Underuse and not misuse had strong associations with mortality and hospitalisation. This conclusion referred to patients receiving the correct medicines according to STOPP/START criteria<sup>4</sup> but a similar logic could apply to poor adherence to 'optimised' medicine therapy.

### **Local experience**

The Exeter Cluster Pharmacy Team provides domiciliary pharmacy services including reconciling<sup>5</sup> the patient's actual therapy with the latest versions of all official health records available. Our experience is that a high proportion of our elderly clientele are confused about managing their medicines independently.<sup>6</sup>

Patients may not know why they are taking their medicines, how many to take or what time to take them. The patient may be unable to understand the principle behind blister packs and some do not know the day of the week.

Many patients complain that their tablets visibly change colour and shape with each supply as well as having packaging in a different livery. Consider the potential health risk of the supplies of medicines already in the home that the patient has been asked to stop taking. Does the patient agree with or understand the decision behind that alteration in therapy? On multiple occasions, the Cluster Pharmacy Team have witnessed patients failing to implement proposed changes of therapy or reverting to earlier supplies and dosages, for example following discharge from hospital.

Vulnerable patients in possession of months of stock are also not uncommon. In the UK, the problem of excess medicine stock in the patient's home is exacerbated by the Community Pharmacy Contract, which rewards the number of prescription items dispensed.

Individualised medicine data in existing therapeutic records are frequently inaccurate with regard to patients' actual medicine consumption at home, according to our experience as domiciliary pharmacists. These discrepancies represent some of the interventions that we refer back to our GPs to address our patients' on-going pharmaceutical needs. Considering the morbidity and mortality associated with poor adherence to medicines,<sup>7</sup> then providing patients with visual information to help them understand their own medicines might go some way to address these system deficiencies.

## **Medicines Reminder Charts**

### **Medicine lists**

The World Health Organisation has recommended that patients, family, and caregivers should be encouraged to keep and maintain an accurate list of all medicines, including prescription and non-prescription medicines, herbal and nutritional supplements, immunisation history and any allergic or adverse medicine reactions. These medicine lists should be updated and reviewed with the patient/family/caregiver at each care encounter.<sup>8,9</sup>

In the UK, the repeat prescription slip initially printed alongside

the prescription is usually the only record of therapy that patients have in their homes. Is this the optimum support that can be offered to help patients understand and manage their own medicines?

### **Evidence**

An MSc dissertation investigated whether elderly patients perceived benefit of having access to a personalised list of their own medicines as a Medicine Reminder Chart and whether adherence to their medicines was enhanced.<sup>10</sup> In the study results, the frequency with which the cohort of 62 patients looked at their MRC achieved statistical significance regarding medicine adherence, when data was simplified to low, medium and high adherence. 73% of respondents in the study agreed that the Medicine Reminder Chart helps them to remain independent in their own home. The dissertation suggested that the co-production of the medicines record with the patient represents a promising and pragmatic option to address the national medicine optimisation agenda.<sup>8</sup>

### **Low cost option**

Raynor et al described the Medicine Reminder Chart as a relatively low cost means of providing personalised patient medicines information.<sup>11</sup>

### **Example**

An example of a Medicines Reminder Chart for 'Dougal Duck' is shown in Figure 1.

## **Proposal for maintenance of the Medicines Reminder Chart supported by interactive IT**

This paper offers a future vision of engaging patients to work with the pharmacy team via interactive IT access to enhance their medicine management. For a successful outcome, there should be a number of mechanisms to monitor the quantities of the medicines, to inform the patient and the Healthcare Professionals (HCPs) about adherence.

The proposal is that a digital algorithm calculates the patient's likely medicines stock and hence their adherence, in a way comparable to the estimated usage on utility bills. The GP computer systems already offer such a monitoring tool but, unless there is engagement with the patient, the results can misrepresent the patient's actual supplies.

The patient would be invited/prompted by the electronic record to count the remaining medicines before reordering, as the definitive means of monitoring adherence. Patients will require encouragement and support to count their medicines routinely. The algorithm which defines when the system will allow medicine reordering should have a degree of tolerance (overestimate or underestimate) to allow for human error.

An assumption is that when digital records are integrated across the different health systems and settings to provide a common health record, all prescribed medicines will be tracked in real time. For example, following an inpatient stay, allowance will have been made for the additional supplies of medicines

from the hospital. This information automatically updates the common medicine record and thus the latest version of the online Medicine Reminder Chart, including details of the medicines that have been stopped.

With formal monitoring of outcomes of therapy (e.g. reduction in blood pressure), the accurate Medicine Reminder Chart of treatment contributes to an evolving pharmaceutical care plan or care pathway.

## Future scenario

Given the potential of innovative IT solutions, is the record of therapy in the patient's home adequate for medicine optimisation? The following fictional scenario describes a patient interacting with their health record via voice recognition technology and a Smart TV device to record their medicine taking and reordering. The patient would work with the healthcare team, in person or via a video link, to reconcile therapy, so that the HCP can take responsibility for the accuracy of the pharmaceutical record.<sup>12</sup>

Page 1 of 2
Dougal Duck
Organisational Logo

Chart Prepared: 20<sup>th</sup> June 2017
Date of birth: 12/05/1936

Name of medicine		What it looks like <small>(NB. Appearance may change if different make is supplied)</small>	What it is for	How much to take and when				Comments/ Other information
				Breakfast 	Lunch 	Teatime 	Bedtime 	
Lansoprazole 30mg capsule		Can be white capsule	To prevent excess acid	ONE				
Digoxin tablet 125micrograms		Small white tablets	To control heart rate	ONE				
Ramipril 1.25mg capsules		Two-tone capsule	To protect heart	ONE				
Atorvastatin 10mg tablets		White tablets	To lower cholesterol				ONE	
Warfarin 1mg tablets		Brown tablets	To prevent blood clotting			Dose as directed		Take dose at same time each day
Fluoxetine 20mg capsules		Can be caps green/yellow	To prevent low mood	ONE				
<small>Patient details: Dougal Duck; Date of birth: 12/05/1936; NHS No: xxx xxx xxx; Date of preparation: 20 June 2014</small> <small>This chart is designed to remind you when to take your medicines and how much to take. Please show this chart to anyone who provides care for you. This list of the regular medications is not a prescription, in the legal sense. The list was an interpretation of the medicines by the patient and the named Health Care Professional (HCP) below and was considered correct at the time when the chart was prepared. If the patient or their carers would like to discuss any further changes to the medicines or this document or have any other queries then please phone &lt;&lt;Named HCP&gt;&gt; on &lt;&lt;given telephone number&gt;&gt;</small>				<small>GP's name: Dr Doctor</small> <small>GP's phone number:</small> <small>Cluster, Exeter, Devon</small>				

Name of medicine		What it looks like <small>(NB. Appearance may change if different make is supplied)</small>	What it is for	How much to take and when				Comments/ Other information
				Breakfast 	Lunch 	Teatime 	Bedtime 	
<small>Drugs in alphabetical order by BNF chapter</small>		<small>Photo, pre-populate for common brands, free text option</small>	<small>Default to usual indication, free text option</small>	<small>Default usual dosage, free text option</small>				
Paracetamol 500mg tablets		White tablets	To control pain	1-2 if needed	1-2 if needed	1-2 if needed	1-2 if needed	Not more than eight in 24 hours
Beclometasone 100microgram/puff inhaler		Brown QVAR® cfc free inhaler	To prevent breathlessness	ONE puff		ONE puff		USE REGULARLY
Salbutamol 100mcg CFC free inhaler		Blue inhaler	To relieve breathlessness	2 puffs if needed	2 puffs if needed	2 puffs if needed	2 puffs if needed	
Macrogol Cmpd oral pwr 13.7g sachets		Movicol® or Laxido®	To prevent constipation				1-2 if needed	<small>dissolve contents in half a glass of water (125ML) and take by mouth</small>
Doublebase gel		Apply freely	For dry skin					
<small>Patient details: Dougal Duck; Date of birth: 12/05/1936; NHS No: xxx xxx xxx; Date of preparation: 20 June 2014</small> <small>This chart is designed to remind you when to take your medicines and how much to take. Please show this chart to anyone who provides care for you. This list of the regular medications is not a prescription, in the legal sense. The list was an interpretation of the medicines by the patient and the named Health Care Professional (HCP) below and was considered correct at the time when the chart was prepared. If the patient or their carers would like to discuss any further changes to the medicines or this document or have any other queries then please phone &lt;&lt;Named HCP&gt;&gt; on &lt;&lt;given telephone number&gt;&gt;</small>				<small>GP's name: Dr Doctor</small> <small>GP's phone number:</small> <small>Cluster, Exeter, Devon</small>				

**Do not use this chart after 20<sup>th</sup> September 2017**

KEEP ALL MEDICINES OUT OF THE REACH OF CHILDREN

Documented allergies/intolerances: PENICILLIN (causes rash)

**Figure 1: Medicines Reminder Chart for 'Dougal Duck'**

## **January 2025**

It is January 2025 and patient Jean Smith aged 78 years, is thinking of reordering her medicines. Jean has Parkinson's disease, mild heart failure, COPD and is housebound.

### **Access to the record**

In her living room there is a flat screen 'Smart' television, supplied by Health and Social Care 'Telecare' to give Jean access to a virtual day care centre via a video link. She can thus engage with her new friends, to participate in the armchair exercise class.

The display boldly names the day of the week and the time of day. The TV device represents a two-way link for monitoring the frail elderly, for example to identify falls via a range of the Telecare technologies.

Interactive IT solutions will include voice recognition technology,<sup>13</sup> to permit interface with the TV/device through verbal instructions.

Jean either speaks to the device by saying 'Medicines' or uses her TV remote to highlight and click on the Medicines icon on the desktop screen. This instruction displays the Medicine Reminder Chart of her complete therapy.

The presentation of the medicine data can be flexible. Jean often chooses to just display the list of the medicines to be taken at a given time of day. The device provides a visual and sound alarm when it is time to take medicines and provides verbal instructions for the actual medicines that she is to take. There should be the means to monitor when the administration of medicines has not occurred, for example when the container has not been opened, which can be brought to the attention of the carers. Consider the existing Telecare carousel of oral medicines, which links non-compliance with a given dose to a telephone call-centre so that the patient's carers can be informed.

### **Monitoring adherence**

The IT system maintains a virtual tablet count, reducing the total remaining quantity each day, assuming 100% compliance. There is an electronic monitoring device in the lid of each dispensing container that records when the product is open, assuming subsequent consumption of the correct dose. The carers, who visit Jean twice daily to provide social care, scan the bar code on each medicine product after they have prompted Jean to take that medicine. This action updates the Medicine Administration Record that is one presentation on the screen of the Medicine Record. Jean can also record her own self-administration by saying 'medicines taken' (at the specified dose time) or by scanning the bar codes herself.

So, Jean will have several ways to determine the number (of doses) of each medicine that she would expect to have left at any time. Emma at the pharmacy has asked Jean to actively count the number of tablets remaining each month and to enter this data onto the screen, verbally or via the remote, before she reorders the medicines. Jean discovers that she has 21 of one of her daily tablets remaining, which informs her and the HCP that she must have missed taking them on up to seven days of that month. Jean feels a bit guilty, but she is happy to talk this through with Emma.

Jean has relatively few doses of one of her medicines and she knows Emma will encourage her to look for it around the flat. So she goes hunting and discovers a quantity of this product in a dispensing bag that has been put down beside the kitchen table, together with some other items. There is yet another item she can't find anywhere and she thinks that she may have lost this product, which she will have to talk to Emma about.

### **Access to medicine information**

When the prescriber initiated a particular medicine for Jean, a range of information was provided, some of which she has forgotten. On the visual display, by saying the medicine name, Jean can access a lot of written text in plain English about this particular product e.g. what it looks like and what it is for? There are also some interesting 'Cates plots' of smiley faces that give her a sense of the relative risk about the side effects. She has not had any problems so far.

Regarding the inhalers that she takes for her COPD, there is a link to a YouTube video clip of how to use the inhalers as well as how to use her eye-drops. This instils confidence in Jean to know that there are always these reminders available to look at if she has any doubts about how to use these products.

### **Patient updating the record**

Jean also takes the opportunity to vocally update the Medicine Reminder Chart about her perception of what this new medicine is for. The existing MRC describes the gabapentin for preventing seizures, whereas her GP had said that it was to prevent nerve pain, which was the reason why she had gone to the surgery.

### **Reordering medicines**

With the Medicine Reminder Chart on display in ordering mode, Jean can voice the name of the medicine, or point and click on the listed medicines with the TV remote, that she believes she needs to reorder.

When Jean is ready to send the completed order she links to the 'shopping basket' page and submits the requested order on-line. This is the third month since Jean spoke to the pharmacy and the device prompts Jean to make contact by video link. Jean and Emma can work together to update the full Medicine Reminder Chart so that the pharmacist can take responsibility for the 'accuracy' of the record.

### **Discussion with the pharmacy**

During the conversation, Jean can confirm the change that she made to the gabapentin indication. She can discuss the tablet that she has been forgetting to take and the ones she can't find. Jean has also stopped taking one medicine this month, agreed with the GP over the phone, because she was having side effects. Emma can check whether this side effect has been recorded on the common IT system. If not, Emma may need to talk to the GP or make an informed judgement of whether to record the drug as an allergy/intolerance.

## Discussion

### **Online medicine ordering**

Online medicine ordering software is already available and will become the standard means of re-ordering medicines within the next decade. This regular interaction with their own record of medicines, should give the patient ample opportunity to find out more information about their medicines. However, there has to be the political will to create the means to provide a high level of on-line medicine support, with tools such as the Medicine Reminder Chart.

If this proposed method of reordering medicines via the Medicine Reminder Chart is implemented for patients while they are still cognitively sound, then later they will have familiarity with the skills required to continue this method of reordering as they grow older.

### **Monitoring medicine adherence**

In terms of monitoring medicine adherence within the proposed model, there would have to be judicious triangulation within the re-ordering algorithm. For example, when using electronic devices in the medicine container lid that records the opening of the container, there is the risk of the patient opening the pack just to count the tablets, rather than consuming a dose. There is also the risk of patients or carers, when they come to re-ordering, simply miscounting the stock or the wholesale misplacing of any one of the various bags of dispensed medicines.

Indeed, unless there is regular contact with the patient, including access to their home either by visiting or a video link, it is almost impossible to be certain that the apparent adherence is in fact true. The obverse is that if the algorithm mechanism highlights doubt about the patient's adherence then referral for domiciliary pharmacy support should include an investigation of stock levels.

### **Voice recognition technology**

The interactive IT solution of the near future will include voice recognition technology. This should make access to the proposed healthcare model far more realistic, for the frail elderly both present and in the near future. There remain challenges about security of access via voice recognition to sensitive medical data, but ideas such as a pin number or a 'catch phrase' could address the issue. HCPs would also need access to the patient's record.

There will be debate about whether patients should be able to access their own record and potentially make changes. For example, in the scenario the information that Jean will send about the change of purpose of the gabapentin influences the Medicines Management System. The drop-down menu for selecting the drug indication<sup>14</sup> has the most popular choice at the top of the list. This represents an important mechanism for populating the indications directory for the less usual drugs, which would be informed by the users themselves for personal, cultural or linguistic reasons.

However, there remains the risk of patients writing clinically inaccurate information on their own record or changing records that they don't like. The system will require confirmation of who made any changes, which will remain highlighted until the next

HCP takes responsibility for the accuracy of the record or prescribes a further supply of medicines.

The Medicine Reminder Chart is not a prescription and belongs to the patient. It will have to be assessed judiciously by the HCP before authorising further supplies of medicines. The authorised prescribing record would be informed by, but firewalled from the Medicine Reminder Chart.

### **Professional opportunity**

Pharmacists working in busy dispensaries may dismiss these thoughts as speculation; however, the implementation of electronic prescribing represents a significant shift of prescription management from the surgery to the pharmacy. The wider pharmacy team are skilled in handling medicine data and there is an opportunity to engage with patients to develop the enhanced services described above.

The professional opportunity for community pharmacists, as yet unfulfilled, is the chance to reconcile patient's therapy holistically during a medicine review, to inform the IT record, hence the wider health care community.

### **Remuneration**

In order to facilitate the proposed model of care, the Community Pharmacy Contract would need to be changed to promote a greater emphasis on medicine optimisation. Research would be required about the optimum number of daily prescriptions managed by an average pharmacist in an average pharmacy. The agreed optimum number may need to be lower than in the existing dispensing model, if the pharmacist and their team were to manage reconciliation of therapy as well as the supply of the medicines.

Routine reconciliation of therapy with the patient would be anticipated to reduce the overall number of prescription items, given the levels of excess medicine stock that the Cluster Pharmacy Team have found in people's homes. An audit from the Community Pharmacies on the Isle of Wight 2010/2011 recorded items included on prescriptions that were identified as not required by the patient.<sup>15</sup> The results of the audit, if extrapolated to the whole population, suggest the potential for considerable cost savings from the medicines that would not need to be supplied.

Baumber suggested a model for Community Pharmacy remuneration that included a multi-tiered payment fee.<sup>16</sup> The proposed optimum number of items could attract the maximum dispensing fee, with tapering remuneration for lower or higher numbers of items.

### **Support for skilled not registered staff**

All health and social care workers should find the Medicine Reminder Chart or related medication records to be useful tools for working with the patient. A recent local initiative is for the acute hospital to generate Medicine Administration Records for the discharge of complex patients to empower skilled but not registered support workers to assist/prompt patients with medication taking in the community (home setting).<sup>17</sup> The principle behind this decision justifies the argument for an improved and shared presentation of the medicine record.

## Conclusion

The maintenance of the Medicine Reminder Chart and interactive IT working in combination could improve adherence for some patients. This could potentially have significant consequence across the whole population, in terms of morbidity and mortality.<sup>9</sup>

Innovative IT solutions can bring about major changes in the management of medicines. Now is the time to explore how those changes could be implemented to maximise the potential benefits from medicine optimisation for patients in the future.

## Acknowledgements

The following have read and commented upon the manuscript: Carys Jones, Paul Easterbrook, Kate Emblin, Sara Dilks and Leon Poltawski.

## Declaration of interests

The author has nothing to disclose.

## References

1. Horne R, Weinman J, Barber N, Elliott R, Morgan M. Concordance, adherence and compliance in medicine taking. National Co-ordinating Centre for NHS Service Delivery and Organisation report. December 2005. Available at: [http://www.netscc.ac.uk/hsdr/files/project/SDO\\_FR\\_08-1412-076\\_V01.pdf](http://www.netscc.ac.uk/hsdr/files/project/SDO_FR_08-1412-076_V01.pdf) . [Accessed 28/02/17]
2. Picton C, Wright H. Royal Pharmaceutical Society. Medicines Optimisation: Helping patients to make the most of medicines. May 2013.
3. Wauters M, Elseviers M, Vaes B, Degryse J, Dalleur O, Vander Stichele R et al. Too many, too few, or too unsafe? Impact of inappropriate prescribing on mortality, and hospitalization in a cohort of community-dwelling oldest old. *Br J Clin Pharmacology*. November 2016;82(5):1382–1392. DOI: 10.1111/bcp.13055 . [Accessed 30/12/16]
4. O'Mahoney D, O'Sullivan D, Byrne S, O'Connor M, Ryan C, Gallagher P. STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. *Age Ageing* 2015;44(2):213-218. Available at: <https://doi.org/10.1093/ageing/afu145> . [Accessed 28/02/17]
5. Barnett N, Patel A, Kalsi D. Contribution of A Pharmacist to the Rapid Response Service in Prevention of Medicines-related Admissions. *Journal of Pharmacy Management* Jan 2017;33(1):5-12. Available from: [https://www.pharman.co.uk/uploads/mediacentre/JOPM\\_January\\_2017\\_V6.pdf](https://www.pharman.co.uk/uploads/mediacentre/JOPM_January_2017_V6.pdf) . [Accessed 31/01/17]
6. Dilks S, Emblin K, Nash I, and Jefferies S. Northern Devon Healthcare NHS Trust. Pharmacy at home service leads to medicines risk reduction. *Clinical Pharmacist, the Pharmaceutical Journal*. July 2016;8 (7):217-222. Available at: <http://www.pharmaceutical-journal.com/research/research-article/pharmacy-at-home-service-for-frail-older-patients-demonstrates-medicines-risk-reduction-and-admission-avoidance/20201303.article> . [Accessed 28/02/17]
7. National Institute of Clinical Excellence. Medicines Optimisation; the safe and effective use of medicines to enable the best possible outcomes. NICE Guideline; NG5. March 2015. Available at <https://www.nice.org.uk/guidance/ng5> . [Accessed 30/12/16]
8. The World Health Organisation (WHO). Assuring Accuracy of Medicines at Transitions of Care. 2007; WHO, Geneva. Available at: <http://www.who.int/patientsafety/solutions/patientsafety/PS-Solution6.pdf> .
9. National Collaborating Centre for Primary care. Medicines Adherence: involving patients in decisions about prescribed medicines and supporting adherence. NICE Guideline NG76. January 2009;176-177. Available at: <https://www.nice.org.uk/Guidance/CG76> .
10. Nash I. University of Bath. An investigation of whether elderly complex care patients in the community perceive benefit from having access to a personalised Medicine Reminder Chart, MSc Dissertation, University of Bath. September 2014. Available from: [ian.nash@nhs.net](mailto:ian.nash@nhs.net)
11. Raynor T. Medicine reminder charts – a key to delivering the new medicine service. *Pharmaceutical Journal*, 2011;287:393. Available at: <http://www.pharmaceutical-journal.com/career/career-feature/medicine-reminder-charts-a-key-tool-for-delivering-the-new-medicine-service/11085585.fullarticle> .
12. Nash I. "New Age Alternative". *Pharmaceutical Journal* 1996;257:434.
13. Economist. Finding a Voice; What language technology can and can't do. January 7th 2017. Available from: <http://www.economist.com/printedition> . [Accessed 28/02/17]
14. Masters, N. Clinical Indications Directory FAQs. 2006. Available at: <http://www.clinicalindications.co.uk/faqs> . [Accessed 16/6/14]
15. The Community Pharmacy Multi-disciplinary Audit from the Isle of Wight 2010-2011. *Pharmaceutical Journal*, Vol 286, 708 Available at: <http://www.rpharms.com> . [Accessed 19/12/11]
16. Baumber, N. Climbing out of the hole. *Pharmaceutical Journal* 1995;254:383.
17. Emblin K. Medicine Policy for Skilled not Registered Community Staff. Northern Devon Healthcare NHS Trust. 2017.



## WOULD YOU LIKE TO COMMENT ON CONTENT IN THIS EDITION OF THE JoMO?

### CORRESPONDENCE

Constructive comment to further understanding and debate about a topic is encouraged and welcomed.

Guidance on submitting correspondence appears at the front of the journal.

Please submit your correspondence to the Correspondence Editor:  
([correspondence@jmedopt.com](mailto:correspondence@jmedopt.com))

### LINKEDIN

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.

### TWITTER

Readers are encouraged to follow Pharmacy Management on @pharman to use our dedicated Twitter hashtag (#jmedopt) to draw attention to and debate topical issues having to do with medicines optimisation.

## Editorial Staff

<b>Editor-in-Chief</b>	Alex Bower	<b>Advertising Editor</b>	Jo Griffiths
<b>Web Editor</b>	Graham Brack	<b>Senior Editorial Assistant</b>	Katie Fraser
<b>Correspondence Editor</b>	Jane Brown		
<b>Digital Media Consultant</b>	Wasim Baqir		
<b>Poster Editor</b>	Graham Brack		

## Clinical Editorial Group

### ENGLAND

#### SPECIALTIES

##### CVS Clinical Advisor

Helen Williams, *Consultant Pharmacist for Cardiovascular disease - hosted by NHS Southwark Clinical Commissioning Group; Clinical Associate for Cardiovascular Disease, Southwark Clinical Commissioning Group; Clinical Network Lead for Cardiovascular Disease, Lambeth Clinical Commissioning Group*

##### Respiratory Clinical Advisor

Dr Toby Capstick, *Lead Respiratory Pharmacist, Leeds Teaching Hospitals NHS Trust*

##### Mental Health Clinical Advisor

Anthony Young, *Specialist Mental Health Pharmacist, Northumberland Tyne and Wear NHS Foundation Trust; Lead Pharmacist - Electronic Prescribing and Medicines Administration; Joint Non-Medical Prescribing Lead*

##### Diabetes Clinical Advisor

Philip Newland-Jones, *Advanced Specialist Pharmacist Practitioner, Diabetes and Endocrinology, University Hospital Southampton NHS Foundation Trust*

##### Older People Clinical Advisor

Lelly Oboh, *Consultant Pharmacist - Care of Older People, Guy's and St Thomas' NHS Foundation Trust, Community Health Services and NHS Specialist Pharmacy Services*

##### Research Advisor

Dr Denise Taylor, *Senior Lecturer Clinical Pharmacy, Department of Pharmacy and Pharmacology, University of Bath*

##### Antimicrobial Clinical Advisor

Tejal Vaghela, *Pharmacy Team Leader - Antimicrobials, West Hertfordshire Hospitals NHS Trust*

##### Gastroenterology Clinical Advisor

Vacancy

##### Digital Technology Advisor

Ann Slee, *ePrescribing Lead, Digital Technology, Patients and Information, NHS England; Honorary Research Fellow, University of Edinburgh and Birmingham*

##### Supply Chain Advisor

Dr Liz Breen, *Senior Lecturer in Operations Management, Bradford University School of Management*

### ORGANISATIONS

#### Clinical Commissioning Group Advisors

Sanjay Desai, *Associate Director of Medicines Optimisation, NHS Berkshire West Clinical Commissioning Groups*

Paula Wilkinson, *Chief Pharmacist, Mid Essex Clinical Commissioning Group*

Mahesh Mistry, *Head of Medicines Optimisation: High Cost Drugs; Specialist Medicines Pharmacist: NHS England, NHS Arden and Greater East Midlands Commissioning Support Unit*

Ginny Ward, *Locality Lead Pharmacist for West New Forest and Mid Hampshire areas, NHS West Hampshire Clinical Commissioning Group*

#### Community Pharmacy Advisor

Ginny Ward, *Locality Lead Pharmacist for West New Forest and Mid Hampshire areas, NHS West Hampshire Clinical Commissioning Group*

Jonathan Campbell, *Local Professional Network Chair (Pharmacy); Bristol, North Somerset, Somerset and South Gloucestershire; Bath, Gloucestershire, Swindon and Wiltshire*

#### Secondary Care: Medicines Optimisation Advisor

Vicky Demonteverde-Robb, *Service Improvement Consultant - Medicines Optimisation, Cambridge University Hospitals NHS Foundation Trust, Cambridge*

Liz Wagichiengo, *Senior Clinical Pharmacist, London Bridge Hospital HCA Healthcare UK*

#### Medical Advisors

Dr Natasha H Patel FRCP, *Joint Clinical Director for Diabetes, Health Innovation Network and Consultant Diabetologist*

Dr Helen Burgess, *Chair, Greater Manchester Medicines Management Group (GMMM); GP Medicines Optimisation Lead, NHS South Manchester Clinical Commissioning Group*

#### Nurse Advisor

Penny Franklin, *Associate Professor (Senior Lecturer) in Health Studies (Prescribing), School of Nursing and Midwifery (Faculty of Health & Human Sciences), Plymouth University*

#### Patient Advisor

Graham Prestwich, *Lay Member - Patient and Public Involvement, NHS Leeds North Clinical Commissioning Group*

### SCOTLAND

Dr Richard Lowrie, *Lead Pharmacist Research and Development; Honorary Senior Researcher: University of Glasgow; University of Strathclyde; Clinical Pharmacist Homelessness Health Service; Pharmacy and Prescribing Support Unit, NHS Greater Glasgow and Clyde*

### NORTHERN IRELAND

Dr Glenda Fleming, *Training, Service Development & Research Pharmacist, Pharmacy and Medicines Management Centre Beech House, NHSCT (Antrim Site)*

### WALES

Sian Evans, *Consultant in Pharmaceutical Public Health, Public Health Wales, Wales*

