Evaluation Report

Polypharmacy Multidisciplinary (MDT) Review Pilot

01/12/2023

Edge Health

Contents

Executive summary

The National Overprescribing Review Report (2021) outlined the need for systemic and cultural changes to enable systems to reduce overprescribing. However, rates of polypharmacy have been increasing across the UK.

In response, LLR ICB set up a specialist polypharmacy multidisciplinary team (MDT) which offers the opportunity for enhanced monitoring and discussions, to reduce the harms of polypharmacy. The MDT includes risk stratification of patients, pre-medication review by patients, MDT clinic sessions (with the option for patient attendance) and outcomes followed up by the patient's GP.

Evidence from the first eight MDT clinics across LLR indicates success in the pilot. Key success metrics include:

- 17 patients (42.5%) with a 1 to 7 point reduction in anticholinergic cognitive burden score
- 63 recommendations (18.1%) resulting in a possible and 9 (2.6%) in a likely admission avoidance
- 10 patients (28%) had a prescription reduction of 3 or more medicines
- 25% average reduction in Eclipse Structured Medicine Review risk score for polypharmacy.

Although there is limited staff feedback to report on, the interview with one pharmacist involved in the pilot was very positive. They indicated that they enjoyed working closely with secondary care and that the MDTs enabled them to improve their understanding of medicine-related issues, including dosage and side effects. They also indicated they had received positive feedback from a patient's family member, who was impressed by the patient-focused nature of the clinics. Further qualitative data collection on patient/carer and staff experiences is required going forward.

Health economic analysis has also indicated that where assumptions are made on admissions avoidance the benefit-cost ratio is greater than 1. This indicates that for every pound (£) spent on the MDTs, the health system receives more than £1 back in savings. Given the qualitative and subjective nature of the admission avoidance scoring, a range of benefit-cost ratios have been given. This ranges from 0.9 to 1.7.

Although the evidence appears promising, the team have faced a number of challenges in setting up the clinics. Some of these have been resolved but others continue. These include challenges with funding for PCNs. Without adequate funding in place, many PCNs were unable to set up clinics and were forced to pull out of the pilot. This will impact the ability of the MDTs to scale.

Other challenges include delays due to significant and unanticipated time commitments for tasks such as project set-up, PCN engagement, data governance and data collection. These were coupled with the challenge of recruiting dedicated administrative support. There also remain challenges with PCN funding and communication of project benefits to key stakeholders.

1 Overview of Polypharmacy

The National Overprescribing Review Report (2021) outlined the need for systemic and cultural changes to enable systems to reduce overprescribing due to the associated risk of medicines-related harm, preventable hospital admissions, as well as increased costs resulting from inappropriate prescribing. Therefore, highlighting the need to build safety into prescribing within healthcare systems to avoid the use of multiple medicines (known as polypharmacy) when not strictly necessary.

1.1 Key Challenges of Polypharmacy in LLR

1.1.1 Rising Polypharmacy Rates

In 2017, a study into medication usage in older people reported a 12 to 49% rise in the number of people taking five or more medicines (both over the counter and prescribed). Additionally, the number of people taking no medicines has reduced from 1 in 5 to 1 in 13[1]. The NHSBSA ePACT polypharmacy comparators show that there has been a steady increase in the average number of prescribed medicines per person and the number of people who are prescribed 10 or more medicines nationally.

Worryingly, rates of polypharmacy have been increasing across the UK. Without intervention, polypharmacy is only predicted to continue to increase.

Demographics of LLR make it particularly vulnerable to high polypharmacy rates. Both age and deprivation have been linked to polypharmacy. In terms of age, the population of Leicestershire is expected to grow by 20.7% by 2043 with the biggest increase expected in the 60+ age group[2]. With age being a risk factor for polypharmacy, this projected increase in the population aged 60+ may also lead to further growth in the rates of polypharmacy in the area.

Additionally, there is variation across LLR for deprivation levels with large rural areas being relatively affluent. However, Leicester City faces higher levels of deprivation. For example, in Leicester City, around 35% of its 354,036 residents are living in the 20% most deprived areas in the country[3]. This is important considering research indicates the most deprived areas tend to have the most issues around polypharmacy[4].

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[1] Gao I. et al. Medication usage change in older people (65+) in England over 20 years: Findings from CFAS I and CFAS II. (2017). *Age and Ageing*. 47(2):1-6

[2] Leicestershire Joint Health and Wellbeing Strategy (2022) https://politics.leics.gov.uk/documents/s166738/Appendix%20A%20JHWS.pdf

[3] Leicester Pharmaceutical Needs Assessment 2022. (2022). https://www.leicester.gov.uk/media/y3lbotim/pharmaceutical-needs-assessment-september-2022.pdf

[4] https://www.weahsn.net/our-work/transforming-services-and-systems/polypharmacy/

1.1.2 Wider System Challenges

Alongside rising rates of polypharmacy, as described, the system is also faced with a number of challenges which make solving this problem additionally complex.

Rising Demand for Services

For many of the same reasons as polypharmacy rates are increasing in LLR, demand for services within primary and secondary care is increasing. A combination of rising complex health needs, an ageing population, increasing focus on primary prevention and recovery from the COVID-19 pandemic are all adding pressure to a system that is already struggling to cope with high demand. This means that the system has limited capacity for additional workload.

System Collaboration and Workforce Shortages

Polypharmacy is a challenge that spans many healthcare professions and health settings. The Royal Pharmaceutical Society released a paper entitled "Polypharmacy: Getting our medicines right" which was endorsed by the Royal College of Nursing, the Royal College of Physicians, the Royal College of GPs, and the Association of Pharmacy Technicians[5]. This paper highlighted the importance of systems coming together to ensure that there are processes to find the individuals who are most at risk from harm.

Historically system working has been a challenge within the NHS. This is due to a combination of poor data infrastructure[6], complex data-sharing agreements[7], and a lack of time from healthcare providers[8]. Although work is underway to improve data infrastructure and promote a more collaborative system, many challenges remain which may cause problems in resolving harmful polypharmacy.

For example, there is a growing shortage of general practitioners (GPs). The size of the GP workforce has not kept up with demand. Data suggests the number of patients per GP has increased by 15% since 2015, increasing the clinical and administrative burden on practices[9]. The impacts of the shrinking workforce are being felt in LLR. Data from 2023 shows the area has 41

[5] https://www.rpharms.com/recognition/setting-professional-standards/polypharmacy-getting-our-medicines-right

[6] How better use of data can help address key challenges facing the NHS. Jan 2022. https://www.health.org.uk/sites/default/files/pdf/2022-01/2022%20-%20Data%20policy%20landscape_0.pdf

[7] Tackling the challenges of sharing data effectively in the NHS, and why it matters for NHS leaders. Sept 2022. https://nhsproviders.org/news-blogs/blogs/tackling-the-challenges-of-sharing-data-effectively-in-the-nhs-and-why-it-matters-for-nhs-leaders

[8] Understanding the key success factors in collaborative working. June 2019. https://www.nhsprofessionals.nhs.uk/-/media/corporate/partners/publications/nhsp-thought-leadership-paper_web.pdf

[9] BMA, "An NHS under pressure", May 2023, https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/pressures/an-nhs-under-pressure.

GPs per 100,000 people which is significantly lower than the 56 per 100,000 reported as required to deliver a safe, efficient service[10].

1.1.3 Identifying At-Risk Patients

Although polypharmacy rates are increasing, and the risks associated with inappropriate polypharmacy are well documented, identifying patients at risk is challenging. Payne et al. (2014) reported that "*assumptions that polypharmacy is always hazardous and represents poor care should be tempered by clinical assessment of the conditions for which those drugs are being prescribed*" [11].

This indicates that identifying patients at risk of polypharmacy is more complex than just identifying patients who are on more than 10 medicines. Given the challenges presented around pressure already on the system, thought must be given to how to ensure a targeted approach so that resources are allocated to those who need it most.

1.1.4 Low Confidence in Deprescribing

It is also known that there is low confidence in deprescribing by both patients and healthcare providers (HCPs)[12]. This creates barriers and challenges to reversing the worrying upward trends in polypharmacy rates. For example, the literature has reported:

- Patient resistance to deprescribing recommendations;
- HCPs apprehensive to discontinue medicines;
- A perceived lack of interest in deprescribing;
- Uncertainty and lack of information about how to deprescribe;
- Limited understanding of HCP roles in deprescribing;
- Sub-optimal deprescribing environment;
- Strong prescribing culture;
- Poor communication and information sharing;
- Negative deprescribing perceptions; and
- Patient and HCP strong belief in continuation of medicines.

[10] GP Online. LMC highlights 'dire' GP shortage and urges local MPs to act. https://www.gponline.com/lmc-highlights-dire-gp-shortage-urges-local-mps-act/article/1820691

[11] Payne RA et al. Is polypharmacy always hazardous? A retrospective cohort analysis linked to electronic health records from primary and secondary care. BJ Clin Pharmacology 2014; 77:10731082

[12] Okeowo et al. Barriers and facilitators of implementing proactive deprescribing within primary care: a systematic review. (2023. *International Journal of Pharmacy Practice*. 31(2):126-152.

Low HCP confidence in deprescribing could partially be explained by decreasing amounts of clinical pharmacology being taught at universities[13]. This is reducing the overall knowledge base amongst HCPs.

There is also an understanding that current prescribing guidelines are not adequate for the treatment recommendations for patients with multimorbidity's, lacking detail on the relative benefits or risks of medications[14]. This adds to the low confidence in deprescribing.

Work is needed to address these barriers and challenges to proactive deprescribing to prevent further increases and enable a reduction in polypharmacy.

[13] Fitzgerald JD. An alternative view of the role of clinical pharmacology. Br J Clin Pharmacol. 2011 Mar;71(3):471-2)

[14] Lloyd D. Hughes, Marion E. T. McMurdo, Bruce Guthrie, Guidelines for people not for diseases: the challenges of applying UK clinical guidelines to people with multimorbidity, Age and Ageing, Volume 42, Issue 1, January 2013, Pages 62–69, https://doi.org/10.1093/ageing/afs100

2 Existing Research and Evidence on the Benefits of the Polypharmacy MDT

The conclusions of "Polypharmacy: Getting Our Medicines Right" was a need for processes to include data provision that will systematically identify people at greatest risk from harm, as well as systems that allow for opportunistic identification of people with a high medication burden, those who are taking high-risk medicines and/or those who appear not to be coping well with their medicines. These patients will then require a structured, holistic medication review.

One of the ways in which to act on this recommendation is the introduction of multidisciplinary teams that assess patients identified as high risk of polypharmacy. The rest of this section outlines the available literature in this space.

2.1 Benefits to Patients

One study evaluating the impact of a specialist hospital-based frailty multidisciplinary team pathway with clinical pharmacist involvement at Nottingham University Hospital NHS Foundation Trust (NUH), found that the implementation of the specialty MDT had positive impacts on medicine deprescribing[15]. In this case the MDT included a specialist clinical pharmacist (band 8a), a geriatrician and junior medical staff, a band 5 registered nurse, a comprehensive geriatric assessment registered nurse and the integrated discharge team.

Positive impacts of this MDT included the number of new medicines prescribed for psychoses was found to be 6 for patients on the MDT pathway versus 19 within the standard of care. Similar trends were also seen for, angiotensin-converting enzyme inhibitors (ACEi) (1 v 6), corticosteroids (n= 7 v 17), enteral nutrition supplements (n= 5 v 30) and many others.

Further, the number of medicines stopped permanently included angiotensin-II receptor antagonists (14 v 6), calcium channel blockers (30 v 21), H2 receptor antagonists (6 v 2) and thiazides and related diuretics (15 v 3).

These are important findings as clinical staff indicated the programme has:

"We have certainly influenced the deprescribing of a lot of inappropriate psychotropics in this patient group, which would confer a reduction in things like falls, delirium, […] so things that would potentially bring the patient back into the hospital." - Specialist frailty pharmacist, NUH.[16]

[15] https://healthinnovation-em.org.uk/images/EMAHSN_intro_slides_frailty_-_final_version.pdf
[16] Tutt et al. (2020). Evaluating the impact of a specialist frailty multidisciplinary team pathway with clinical pharmacist involvement. East Midlands Academic Health Science Network.

2.2 Benefits to Staff

Alongside benefits to patients, there are also benefits to the staff involved in the MDT clinics. For example, in one opinion piece written by a Senior Pharmacist for Older Patients and Stroke at the Royal Wolverhampton NHS Trust[17], it was said about participation:

"It was satisfying working on this quality improvement project as I felt we made an impact on patient care and improved the process through which we discharge patients." - Senior Pharmacist for Older Patients and Stroke at the Royal Wolverhampton NHS Trust.

Additionally, following a South West Care Home Multidisciplinary (MDT) polypharmacy review pilot, a GP and a Medicine of the Elderly Consultant provided feedback on their involvement in the pilot programme[18]. Positive sentiments were given by both, with the consultant crediting the benefits of collaboration with other healthcare professionals:

"I've found this a really good project and I've really enjoyed getting out and meeting some of the pharmacists and GPs. I think it goes beyond polypharmacy in that it is bridging links between secondary and primary care." - Medicine of Elderly Consultant.

A GP also praised the pilot for the dedicated time it provided them to review patient medication thoroughly and with the appropriate evidence base and professional support.

"I thought it was an excellent opportunity to have protected time to properly review and rationalise all the medicines from an evidence-based perspective, with the expert help of the geriatrician and the primary care pharmacists. I would be very happy to have further sessions as it will improve patient safety in the longer term.".

2.3 Benefits to the Health System

2.3.1 Cost Reduction

Polypharmacy is known to be associated with increased risks of adverse drug reactions. Alongside the negative impacts on the patient's quality of life, this leads to significant costs to the health system[19]. The literature has reported cost savings for MDT polypharmacy reviews, mainly related to medicine related savings.

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[17] Janjua M. Our multidisciplinary approach helped tackle polypharmacy in older patients. (2022). *Pharmaceutical Journal.*

[18] South West Care Home Multidisciplinary (MDT) polypharmacy reviews 2017 and onwards. https://static1.squarespace.com/static/56d4490107eaa0756af084ea/t/5f1fdcb0b0f22821568b21e4/1595923633098/South+West+Edinburgh+care+home+MDT+polypharmacy+review+V2.pdf

[19] Kojima G, et al. Reducing cost by reducing polypharmacy: the polypharmacy outcomes project. (2012). *J Am Med Dir Assoc.* 13(9):818.e11-5

For example, in 2021, a long-term care facility conducted medication reviews by both a Geriatric Medicine fellow as well as an online drug-drug interaction database (Epocrates) to generate medication change recommendations to reduce harmful polypharmacy. The final recommendations were then compiled by the facility geriatrician. This trial saw a mean reduction in the number of medications per resident from 16.6 to 15.5 after the intervention. This led to an estimated monthly cost savings from the reduction of nursing administration time of $22.43 per resident[20].

Additionally, a similar study was also conducted in Scotland[21]. This study aimed to optimise medication for frail elderly housebound patients in South West Edinburgh by implementing annual multidisciplinary team (MDT) polypharmacy reviews. These annual reviews were found to lead to an annual cost saving of £163.28 per patient per year or £27,308 total annual savings.

Similar trends in polypharmacy MDT reviews leading to deprescribing have also been reported elsewhere[22].

2.3.2 Admission Avoidance

The majority of the polypharmacy MDT benefits reported in the literature to date have focused on cost savings from avoided medication prescriptions. However, there are wider benefits to consider.

One of the grave risks of inappropriate polypharmacy is adverse drug reactions. These can lead to unnecessary admissions, Emergency Department (ED) attendances and clinic appointments[23]. Each of these outcomes poses a significant cost to the health system.

Optimising patient prescriptions and de-prescribing any drugs that could pose a risk of adverse drug reactions should lead to a reduction in these health-related outcomes, leading to a reduction in costs to the health system, free-up capacity and improve the quality of life of patients. However, further research is needed to quantify these savings.

[20] Kojima G, et al. Reducing cost by reducing polypharmacy: the polypharmacy outcomes project. (2012). J Am Med Dir Assoc. 13(9):818.e11-5

[21] Reid et al. Improving equity of access to multidisciplinary polypharmacy review for frail, elderly housebound patients. https://nhsscotlandevents.com/sites/default/files/IF-13-1555491845.pdf

[22] Song Y. et al.. Geriatrician-led multidisciplinary team management improving polypharmacy among older inpatients in China. (2023). *Front Pharmacol.*14:1167306.

[23] Doherty A. et al. Adverse drug reactions and associated patient characteristics in older community-dwelling adults: a 6-year prospective cohort study (2023). *British Journal of General Practice*. 73 (728): e211-e219

2.3.3 Case Study: Specialist Frailty MDT Pathway

The East Midlands region has made great strides in increasing understanding of polypharmacy and the effectiveness of reduction efforts. A 2020 regional report from Dr Tutt et al. commissioned by the East Midlands Academic Health Science Network (ASHN) revealed initial success in decreasing rates of polypharmacy and increasing rates of permanent deprescribing when patients entered a specialist frailty MDT pathway compared to patients on a standard care pathway[24].

This study saw a number of key benefits of diverting patients to a specialist frailty MDT pathway compared to those on the standard care pathway, including:

- 7% fewer medication changes overall.
- More permanent medication stops (33% vs 27%).
- Less likely to initiate new medicines.
- Less likely to initiate particularly addictive medicines such as opioids.
- Less likely to initiate laxatives and antipsychotics.

3 Pilot Overview

3.1 Background to the Pilot

In 2022, a pilot aiming to reduce overprescribing and inappropriate polypharmacy across LLR through a specialist polypharmacy MDT pilot project was developed. This pilot uses risk stratification to help identify complex and difficult to manage patients to refer to an MDT clinic.

This MDT clinic, attended virtually by a specialist clinical pharmacology consultant, a pharmacist from University Hospitals of Leicester (UHL) NHS Trust, the patient's GP and/or the PCN pharmacist and sometimes the patient themself, enables a comprehensive discussion aiming at co-producing a care plan for each patient. All outcomes and approaches of the MDT will then be agreed upon and documented.

The GP and/or PCN pharmacist are then able to implement the recommendations from the MDT clinic following shared decision-making with the patient if they were not present during the review. The UHL pharmacist then follows up with the practice to check the outcome of the interventions recommended at the MDT clinic and check if further advice is required.

[24] Tutt et al. (2020). Evaluating the impact of a specialist frailty multidisciplinary team pathway with clinical pharmacist involvement. East Midlands Academic Health Science Network.

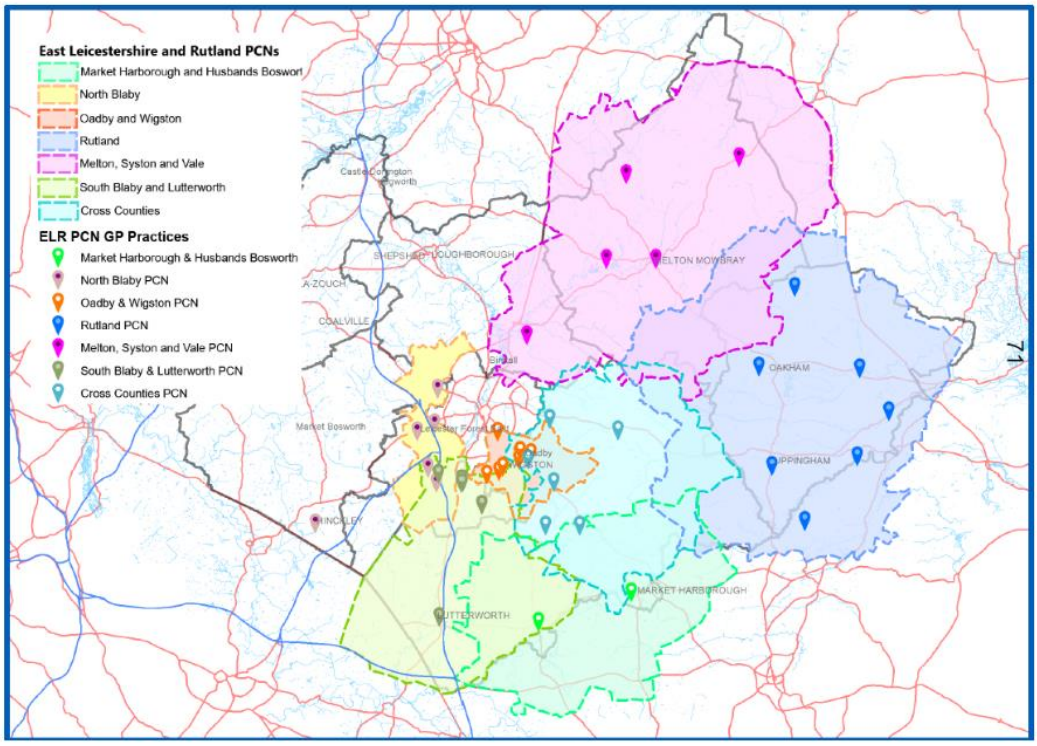
3.2 The Pilot in LLR

3.2.1 The Area

In Leicester, Leicestershire and Rutland, as shown in Figure 1, there are 25 Primary Care Networks (PCNs):

- 7 in East Leicestershire & Rutland,
- 10 in Leicester City, and
- 8 in West Leicestershire.

Figure 1. Primary Care Networks (PCNs) catchment map[25]



[25] https://www.llrtraininghub.co.uk/primary-care-networks-pcn

3.2.2 Key Dates

The pilot of the specialist polypharmacy MDT service originally aimed at completing between 100 and 200 complex polypharmacy reviews across 6 PCNs over a 12-month time period. Due to reasons explored in this report, only 4 PCNs are operational to date. These are:

- South Blaby and Lutterworth PCN (East Leicestershire and Rutland)
- Salutem PCN (Leicester City)
- Bosworth PCN (West Leicestershire)
- Watermead PCN (West Leicestershire).

Table 1. Implementation Timeline

Phase	Date	Description
1	29/03/2023	South Blaby and Lutterworth PCN (East Leicestershire and Rutland) began sending referrals in for their MDT clinics
2	26/04/2023	Salutem PCN (Leicester City) began sending referrals in for their MDT clinics
3	04/07/2023	Bosworth PCN (West Leicestershire) began sending referrals in for their MDT clinics
4	05/10/2023	Watermead PCN (West Leicestershire) began sending referrals in for their MDT clinics

A further 8 PCNs were originally approached but either dropped out of the pilot or did not sign up. The reasons are not explored in this report[26], with many expressing interest in taking part but withdrawing due to lack of funding for PCNs to participate in the MDT, not getting buy-in from their patients to be referred into the service and limited capacity to release clinicians to take part. These include:

- Leicester City South PCN
- Aegis Healthcare
- Oakmeadow Surgery
- City Care Alliance
- G3 PCN
- North West Leicestershire PCN
- Carillon PCN
- Soar Valley PCN.

[26] Please note, due to capacity constraints in the practices it was not possible to deep dive or expand on all of these points as part of this evaluation.

One additional PCN, Market Harbough and Bosworth PCN, is still engaging with the pilot and may be onboarded at some point, if possible.

3.2.3 The Design

For a patient to get involved in the pilot they need to respect all the following mandatory requirements:

- Patient is aged 18 years and older,
- Patient is prescribed 10 or more medicines,
- Patient has an Eclipse SMR risk score >25.

Eclipse Structured Medication Reviews (SMR) Live is a tool designed to support Practices, PCNs and CCGs in providing efficient and clinically focused SMR capacity management. It enables risk prioritisation and ease of insight gathering and action planning in order to optimise Primary Care SMR activity. The Priority SMRs automatically risk stratifies patients, using different parameters that constitute the need for a structured medication review. These parameters include number of medications prescribed, prescription of high risk drugs, dependency risk of prescribed medications, frailty scores, prescription of priority group medications, any emergency admissions and deprivation. Each parameter is weighted to produce an overall SMR Risk Score, as shown in Figure 2.

Figure 2. SMR Risk Score

Red Alerts:	10 points per alert
Amber Alerts:	5 points per alert
Polypharmacy:	
>= 15 : 10 points	
between 12 and 14 :	7 points
between 10 and 11 :	5 points
ACB Score: 1 point for each ACB score	
High Risk Drugs:	
On a DOAC	2 points
On NSAIDs	2 points
On Warfarin	2 points
On Antiplatelets	2 points
Deprescribing: 1 Point each	
(to Deprescribe as Not Cost-effective)	
Dependency:	
Pregabalin	2 points
Opiates	2 points
Current Smoker	2 points
High Alcohol Intake	2 points
Z-drug or Benzodiazepine	2 points

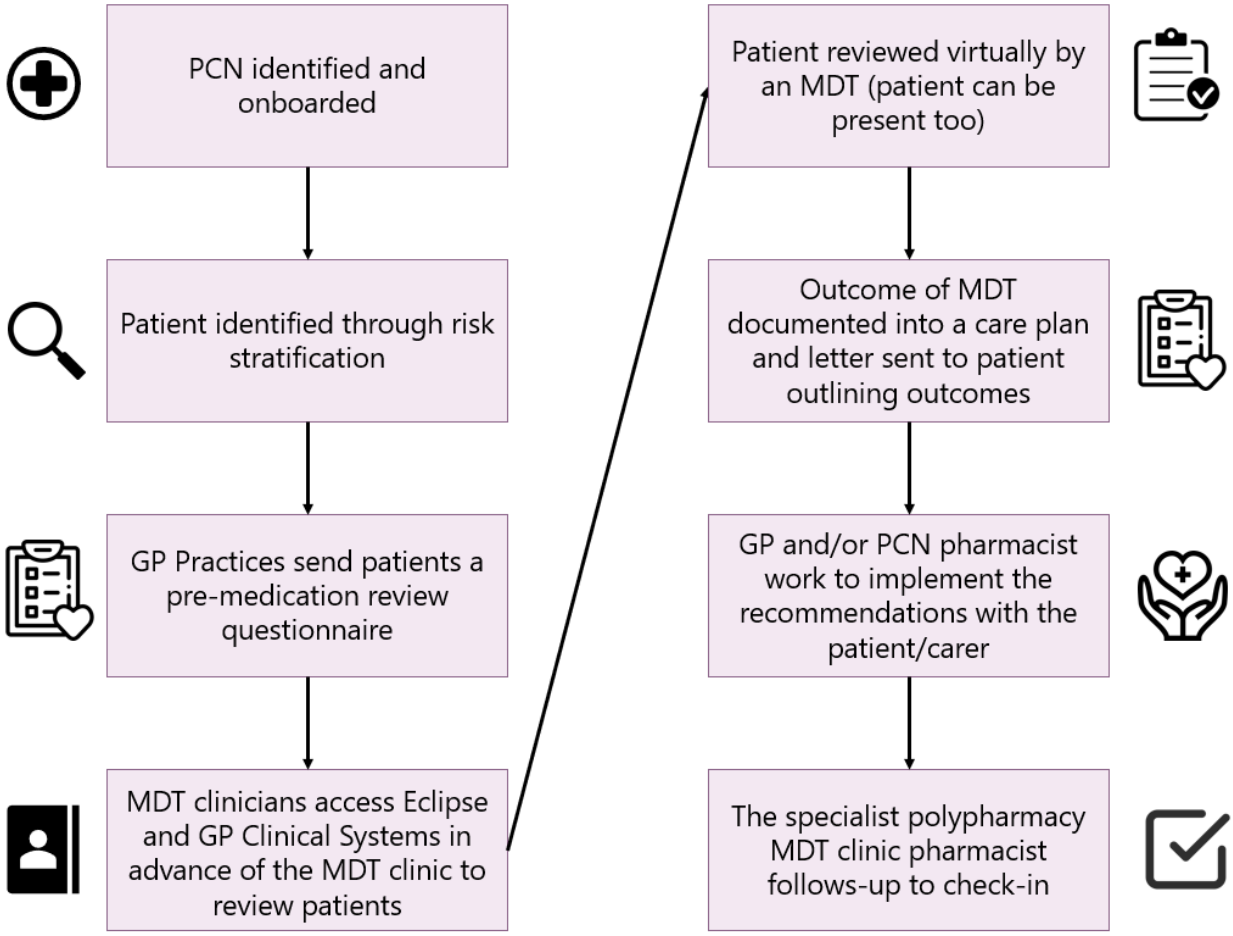
Severe Frailty:	5 points
Moderate Frailty:	2 points
Learning Disability:	10 points
Priority Groups: Medication Related Indicators	
GIB01	2 points
GIB02	2 points
GIB03	2 points
GIBCI	2 points
PAIN01	2 points
PAIN02	2 points
AIN03	2 points
FRAC01b	2 points
FRAC02b	2 points
FRAC03b	2 points
Emergency Admissions:**	
APC Emergency Admission	5 points per admission
A&E Admission	5 points per admission
Deprivation Decile*:	
Least deprived areas	1 point
Most deprived areas	10 points

General practices must identify their difficult to manage patients who have unresolved complex polypharmacy concerns within this defined group, including housebound and care home residents.

Once the individuals appropriate for MDT review are identified they follow the pilot pathway outlined in Figure 3. Once the patient is assessed in the MDT and a care plan is developed, the GP works to implement. This implementation process follows standard practice and is documented in the patients notes. The specialist polypharmacy MDT pharmacist then follows-up to check-in that the recommendations have been implemented.

A template of the patient letter can be found in the appendix.

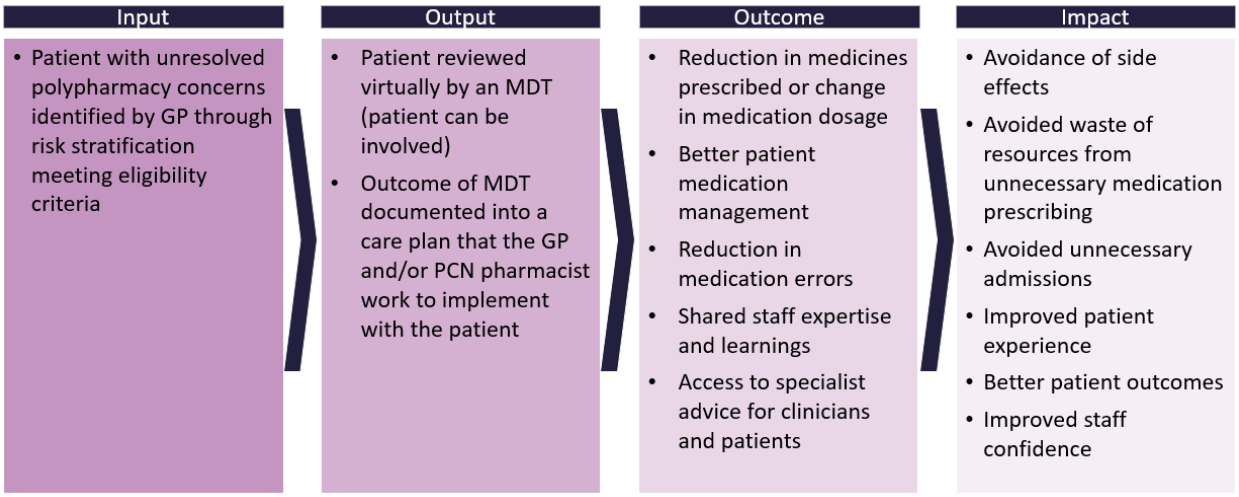
Figure 3. Pilot pathway



4 Polypharmacy MDT Review Impact Pathway

The polypharmacy MDT review should several benefits. The diagram below (Figure 3) sets out a logic model and shows how it can impact staff and patients. The impact pathway outline, developed through feedback from staff and patients involved in the review, has been used to inform subsequent analysis.

Figure 3. Impact Pathway



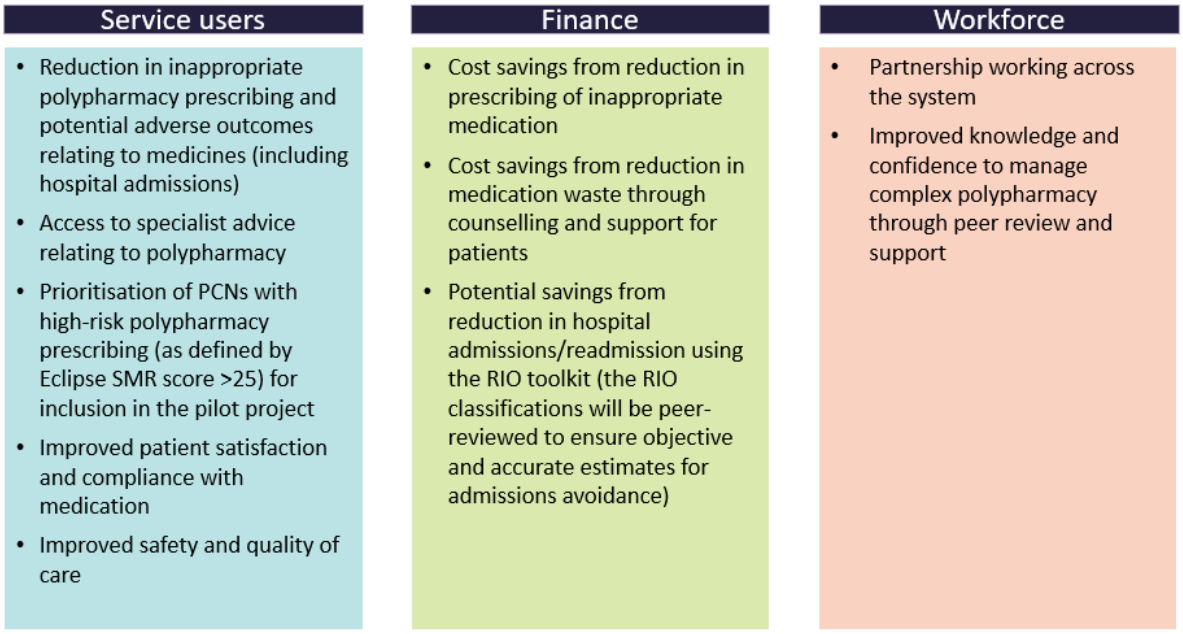
5 Aims and Objectives of Evaluation

This independent evaluation of the polypharmacy MDT review implementation within LLR aims to both quantitatively and qualitatively assess the impact of the initiative on patients/staff and care pathways as compared to standard care. The key objectives of the service are:

- Tackle unequal access to care.
- Improve population health.
- Improve prescribing and medicines management to patients.
- Improve knowledge of medicines and deprescribing in primary care.
- Enhance productivity and value for money.

The intended outcomes of the service are summarised in Figure 4 below.

Figure 4. Intended outcomes of the service



Ultimately the evaluation of the polypharmacy MDT review service at LLR will serve to assess the extent to which the initiative is achieving its intended objectives under the current model, as well as identify areas where the service may require enhancements or refinements.

6 Evaluation Methodology

The evaluation uses a mixed method methodology, combining staff experience data from a structured interview with data obtained from the LLR polypharmacy MDT team and ePACT data. ePACT data, collected by the NHS Business Services Authority (NHSBSA), is prescription level data.

Unfortunately, qualitative data collected was limited due to lack of engagement by patients and staff. Where available, thematic analysis was conducted.

Quantitative analysis was completed using RStudio[27]. Anonymised patient-level data was provided by LLR ICB as well as aggregated PCN data from ePACT, covering the period from March to November 2023.

6.1 ePACT Information Governance and Sharing

Any charts developed using ePACT data should not be shared externally and should be used in compliance with the ePACT2 User Agreement terms and conditions "The ePACT2 system may not be used for personal purposes or to profit or otherwise benefit individuals or non-NHS organisations and you agree not to use or access any information via the ePACT2 system unless necessary for the performance of your duties for the NHS and/or and wider Government commissioned services."

Permission has been sought and agreed upon with the NHS Business Services Authority to reproduce the data contained within this dashboard for LLR ICB. This document should not be forwarded or shared outside the agreement above. For further information on sharing and ePACT2 terms and conditions please refer to the link.

Link to ePACT2 User Agreement terms and conditions: https://www.nhsbsa.nhs.uk/access-our-data-products/epact2/epact2-user-agreement-eua

[27] RStudio Team (2021). RStudio: Integrated Development Environment for R. RStudio, PBC, Boston, MA URL http://www.rstudio.com/.

7 Polypharmacy MDT Review Pilot Demographics and Outcomes

Since the beginning of the pilot (March 2023), there have been eight clinics across four PCNs (Table 2). The data presented in this report is a snapshot taken in October 2023. This means that patients seen in April and May would have had a longer period to monitor the effects of the MDT clinic compared to patients seen in August and September.

Table 2. MDT clinics and patients reviewed

Date of MDT clinic	Number of patients reviewed
5th April 2023	4
19th April 2023	4
3rd May 2023	4
18th May 2023	4
11th July 2023	8
9th August 2023	8
23rd August 2023	4
6th September 2023	4

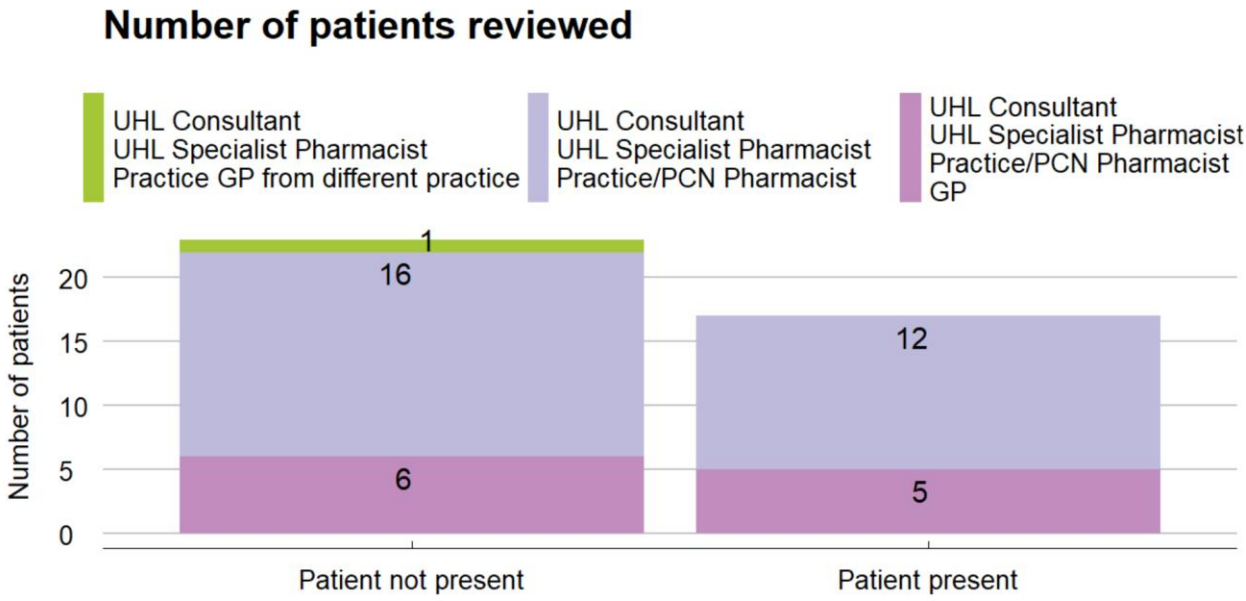
This section provides a detailed analysis of patient demographics and clinic and patient outcomes.

7.1 Patients Participating in the Pilot

Of the 41 patients referred, the polypharmacy MDT clinic has reviewed a total of 40 patients across 4 PCNs between March 2023 (start of the pilot) and October 2023. One patient was ultimately excluded from the pilot because they did not meet the eligibility criteria. For 4 of the 40 patients, only demographic data were collected at the time of this evaluation.

As shown in Figure 5, in 11 (27.5%) reviews, the patient's GP was also present while in the other 28 (70%) only the UHL consultant, UHL specialist pharmacist (prescribing), and the practice or PCN pharmacist. In one instance (2.5%) a GP from a different practice within the ICB was present. This was due to capacity constraints for GPs at the practice. Of these 40 patients 17 (42.5%) participated directly in the review while 23 (57.5%) didn't.

Figure 5. Number of patients reviewed

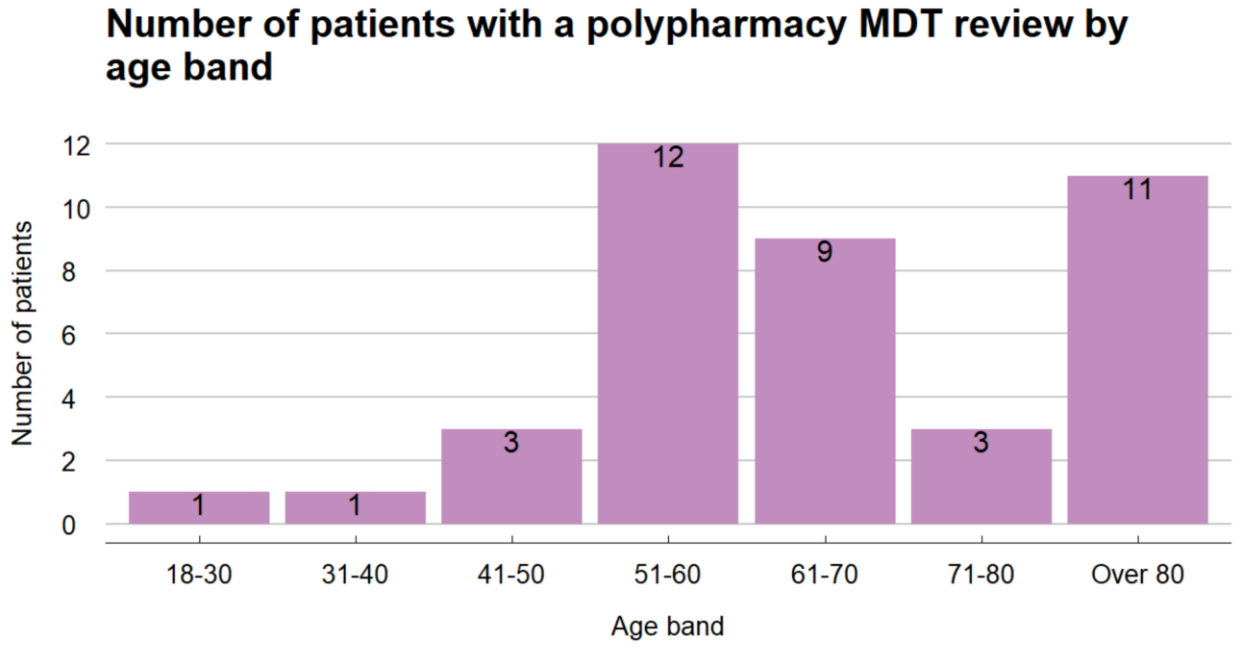


Source: Polypharmacy MDT review pilot data

Age band

The age range of patients discussed during the pilot ranged from 18 to over 80 (Figure 6). The large age range of patients was unexpected. It was anticipated that the majority of patients reviewed would be over 70.

Figure 6. Number of patients with a polypharmacy MDT review by age band



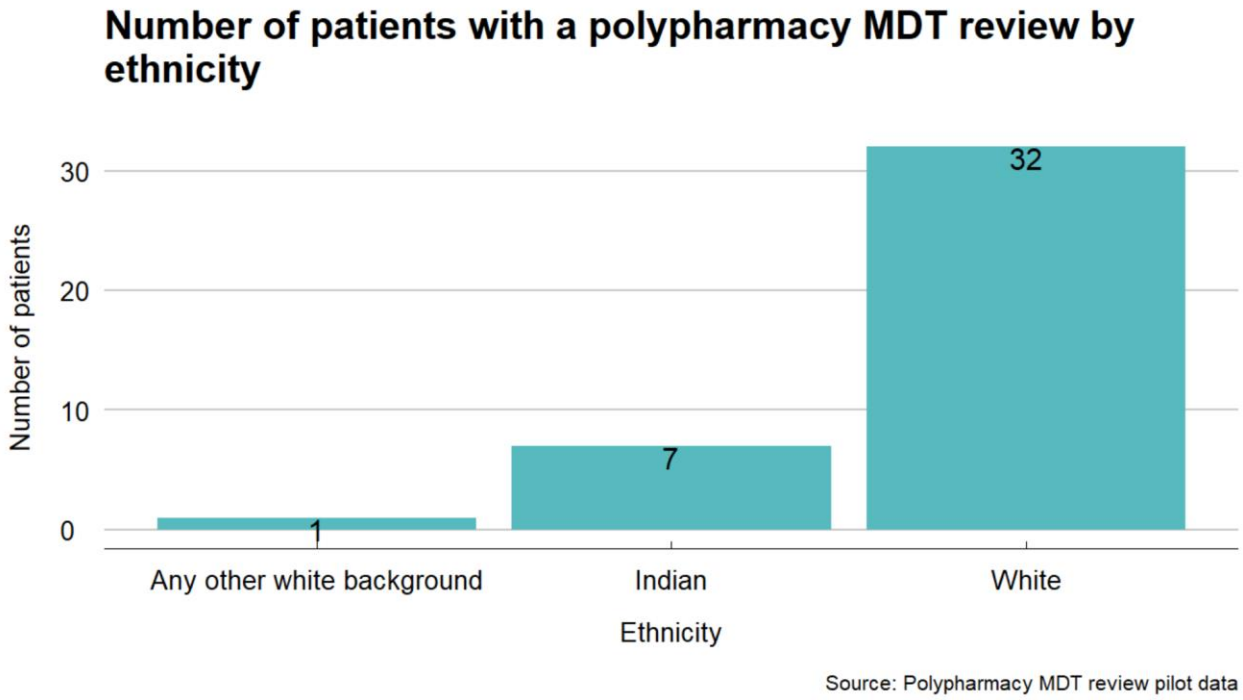
Source: Polypharmacy MDT review pilot data

Ethnicity

Patients reviewed were predominantly from a white background, with a minority of patients (7; 17.5%) from an Indian background (Figure 7).

More than 50% of Leicester City's population belongs to an ethnic minority, and there are high levels of migration into the city[28]. Comparatively, Leicestershire and Rutland are less diverse, with approximately 10% and 3% respectively belonging to ethnic minority groups.

Figure 7. Number of patients with a polypharmacy MDT review by ethnicity



Source: Polypharmacy MDT review pilot data

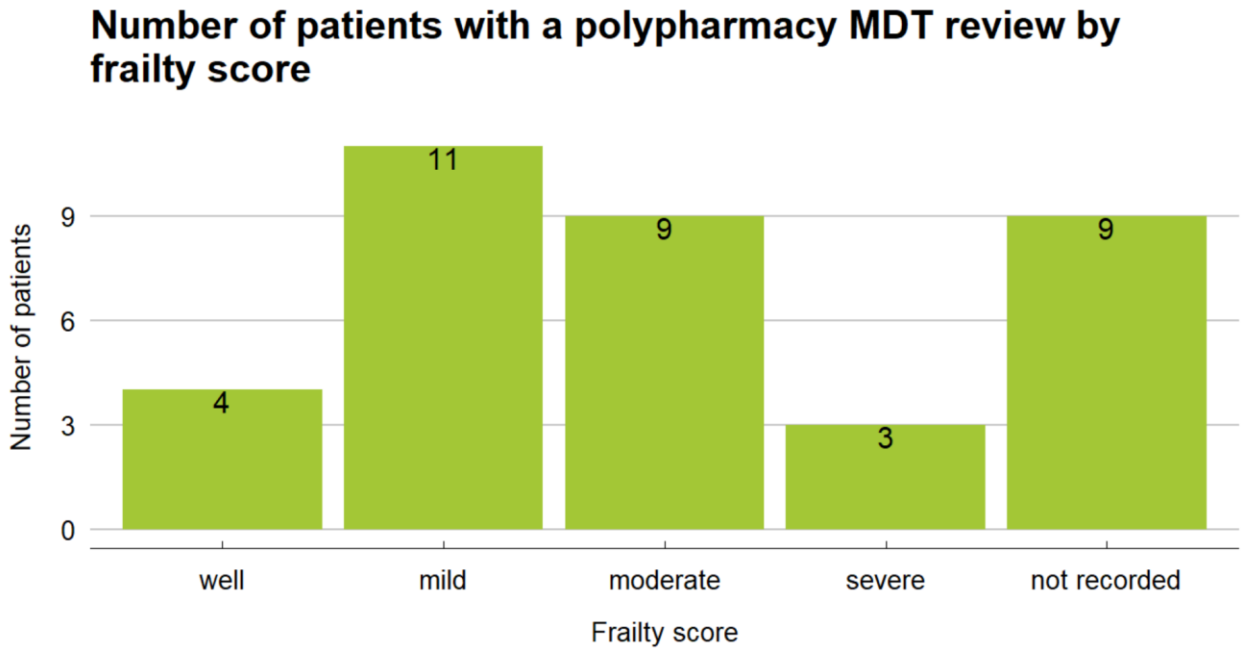
Frailty score

The frailty score of patients reviewed was majority mild or moderate, likely due to patients' old age. However, for 9 patients out of 40 (22.5%), this measure was not recorded (Figure 8). The score used was the Rockwood Frailty Score[29] and Care Home patients were included in the polypharmacy MDT review.

[28] Leicester, Leicestershire and Rutland Health and Wellbeing Partnership. Our Population. https://leicesterleicestershireandrutlandhwp.uk/about/our-population/#:~:text=Typically%2C%20Leicester%20is%20characterised%20by,belonging%20to%20ethnic%20minority%20groups

[29] https://www.england.nhs.uk/south/wp-content/uploads/sites/6/2022/02/rockwood-frailty-scale_.pdf

Figure 8. Number of patients with a polypharmacy MDT review by frailty score

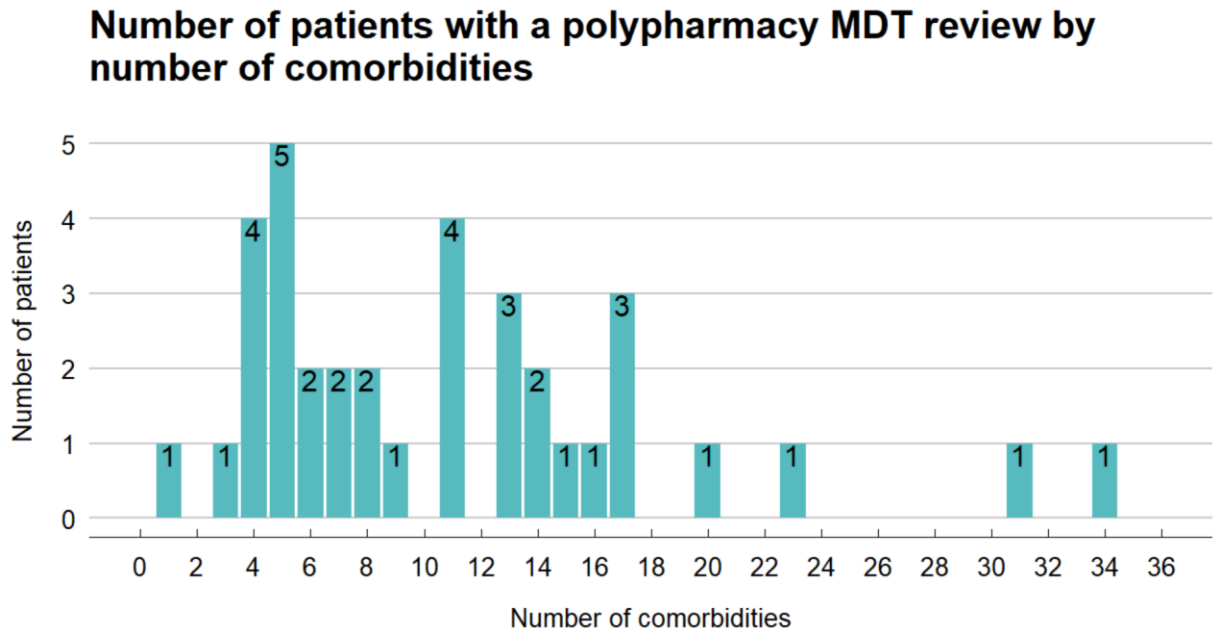


Source: Polypharmacy MDT review pilot data

Comorbidities

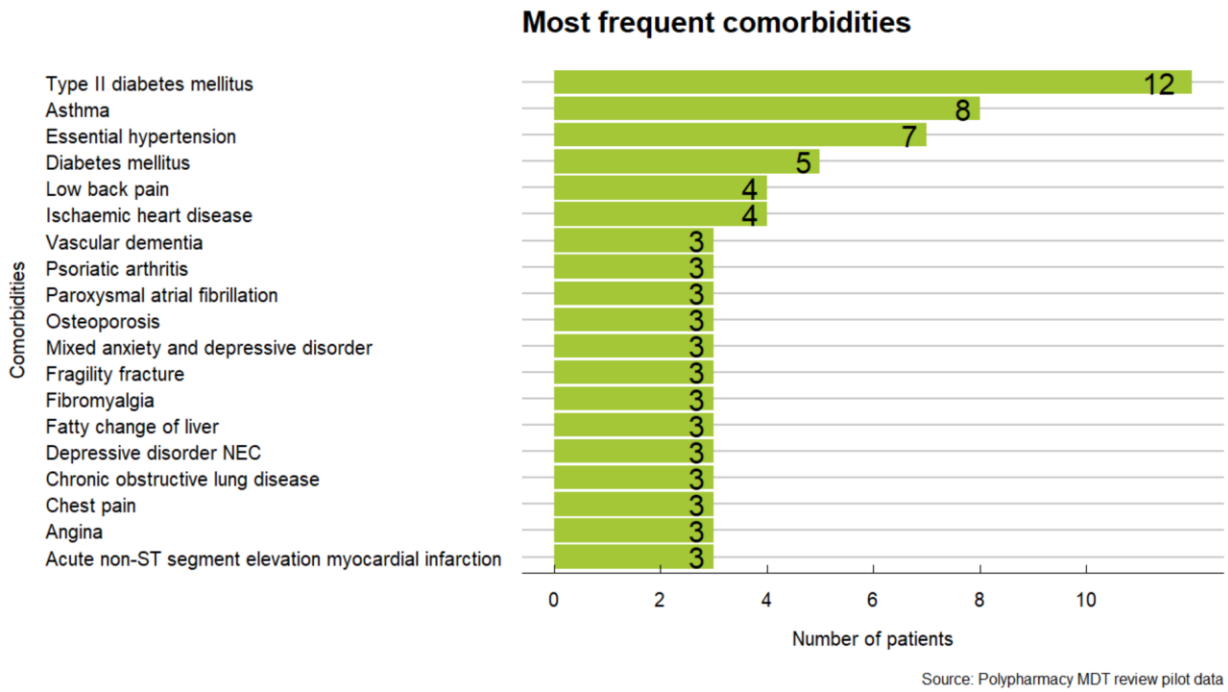
Additionally, clinicians were surprised at the high volume of patients reviewed at the clinic presenting with chronic pain. Figures 9 and 10 below show the number of comorbidities by patient and the most frequent ones.

Figure 9. Number of patients with a polypharmacy MDT review by number of comorbidities



Source: Polypharmacy MDT review pilot data

Figure 10. Most frequent comorbidities

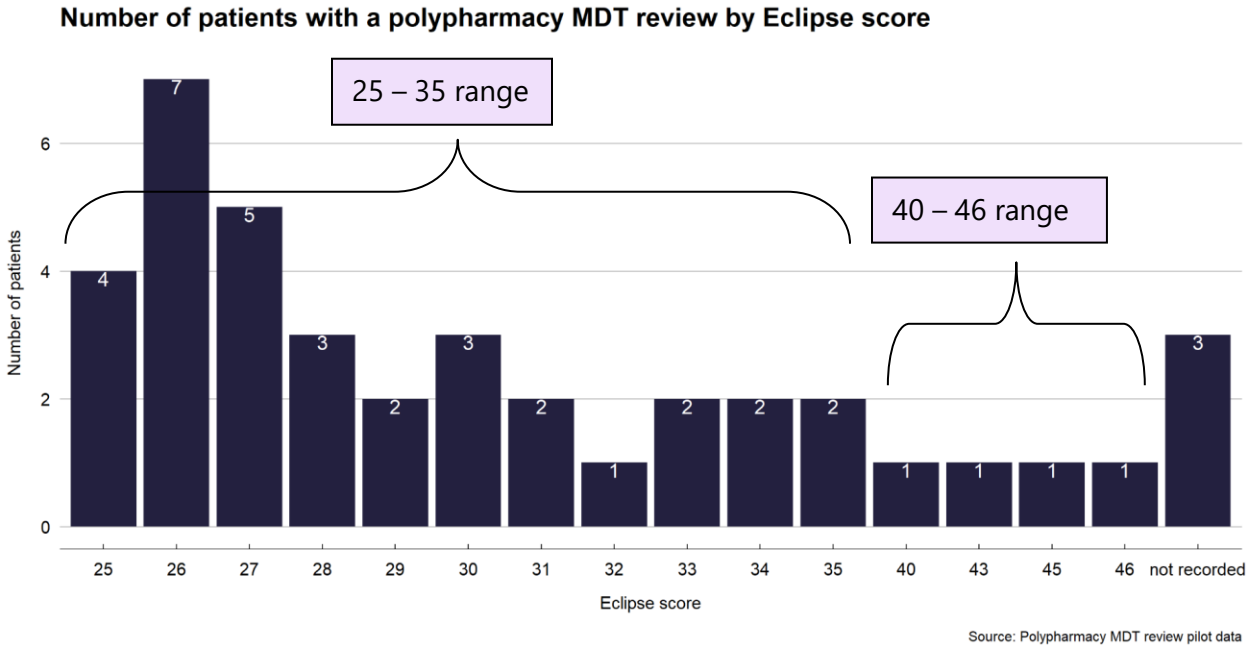


Source: Polypharmacy MDT review pilot data

Eclipse SMR risk score

Before the polypharmacy MDT clinic review, the Eclipse SMR risk score for patients included in the review ranged between 25 and 46, with a higher concentration of patients in the lower tail of the distribution, as shown in Figure 11. The SMR risk score is based on several factors that increase a person's risk of medicines-related harm. The higher the score, the greater the risk of harm.

Figure 11. Number of patients with a polypharmacy MDT review by Eclipse score

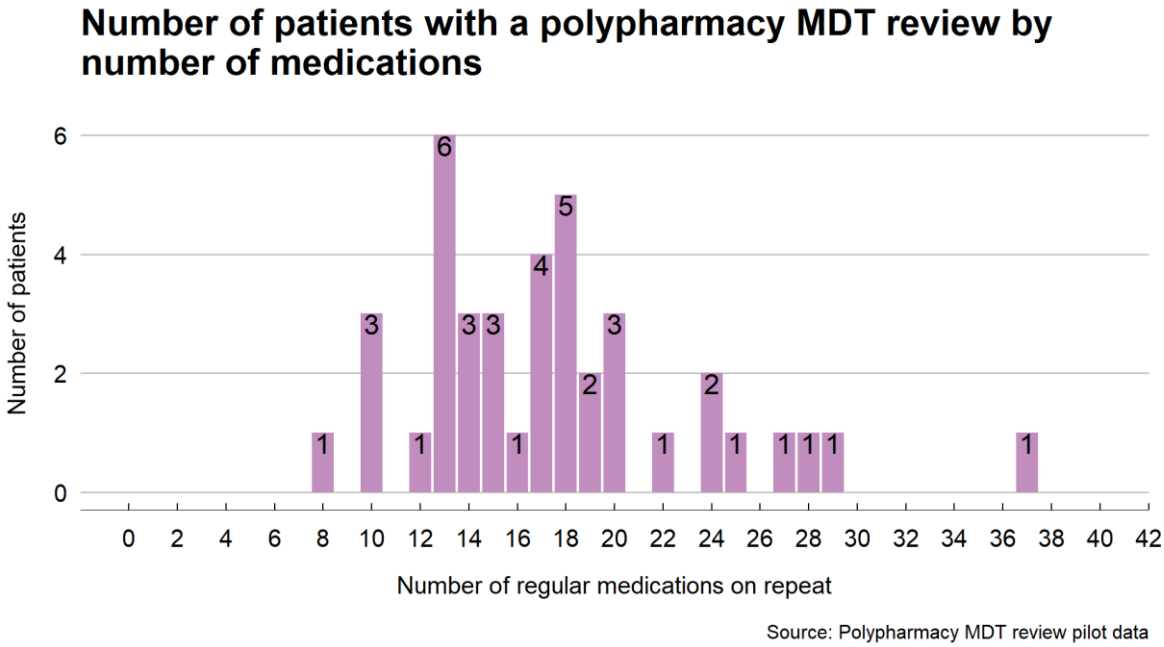


Source: Polypharmacy MDT review pilot data

Number of medications on repeat

Patients included in the review had an average of 17.5 medicines on repeat (Figure 12). This information was not recorded for one patient.

Figure 12. Number of medicines on repeat

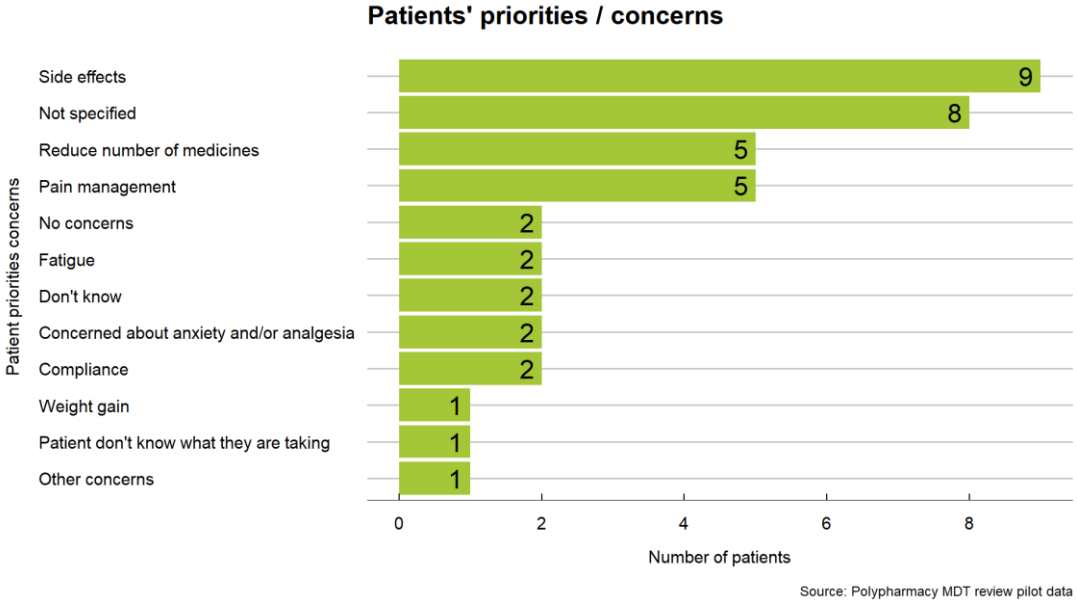


Source: Polypharmacy MDT review pilot data

Priorities and concerns

All 40 patients were also asked in the pre-review patient questionnaire about their main priorities and/or concerns. The most common priorities/concerns include medication side effects, reduction in the number of medicines and pain management (Figure 13).

Figure 13. Patients' priorities and concerns



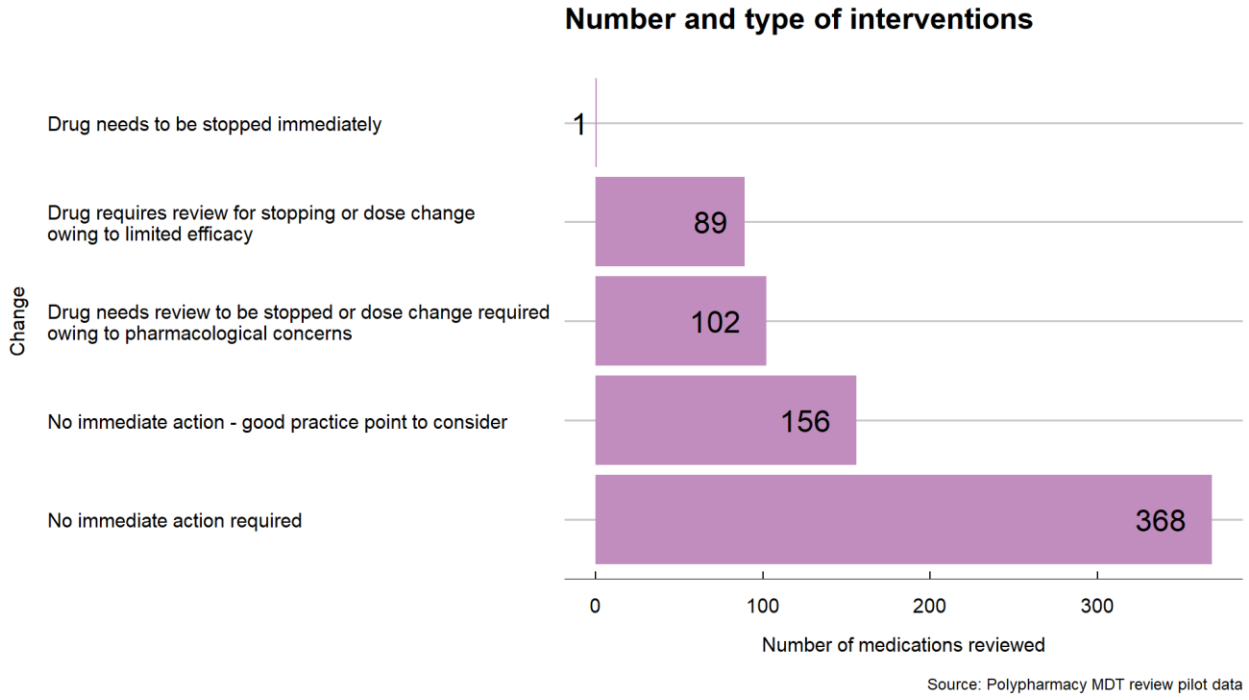
Source: Polypharmacy MDT review pilot data

7.2 Clinic Outcomes of the Polypharmacy MDT Review Pilot

The MDT teams reviewed a total of 716 medicines across 8 clinics and provided an average of 9 interventions or good practice points per patient. Good practice points are where consideration should be given to ensure adherence to good practice. These include confidentiality, Freedom of Information (FOI) legislation, managing electronic records and retention periods.

Figure 14 shows that of the 716 medicines reviewed, 368 (51.4%) were necessary and no change was required, for 156 (21.8%) a good practice point has been highlighted but again, no actions requiring implementation were reported. Either a change in dose or for the medicine to be stopped entirely was suggested for 102 (14.2%) drugs causing pharmacological concerns and 89 (12.4%) with limited efficacy. Only 1 (0.1%) drug needed to be stopped immediately as an outcome of the review.

Figure 14. Number and type of interventions



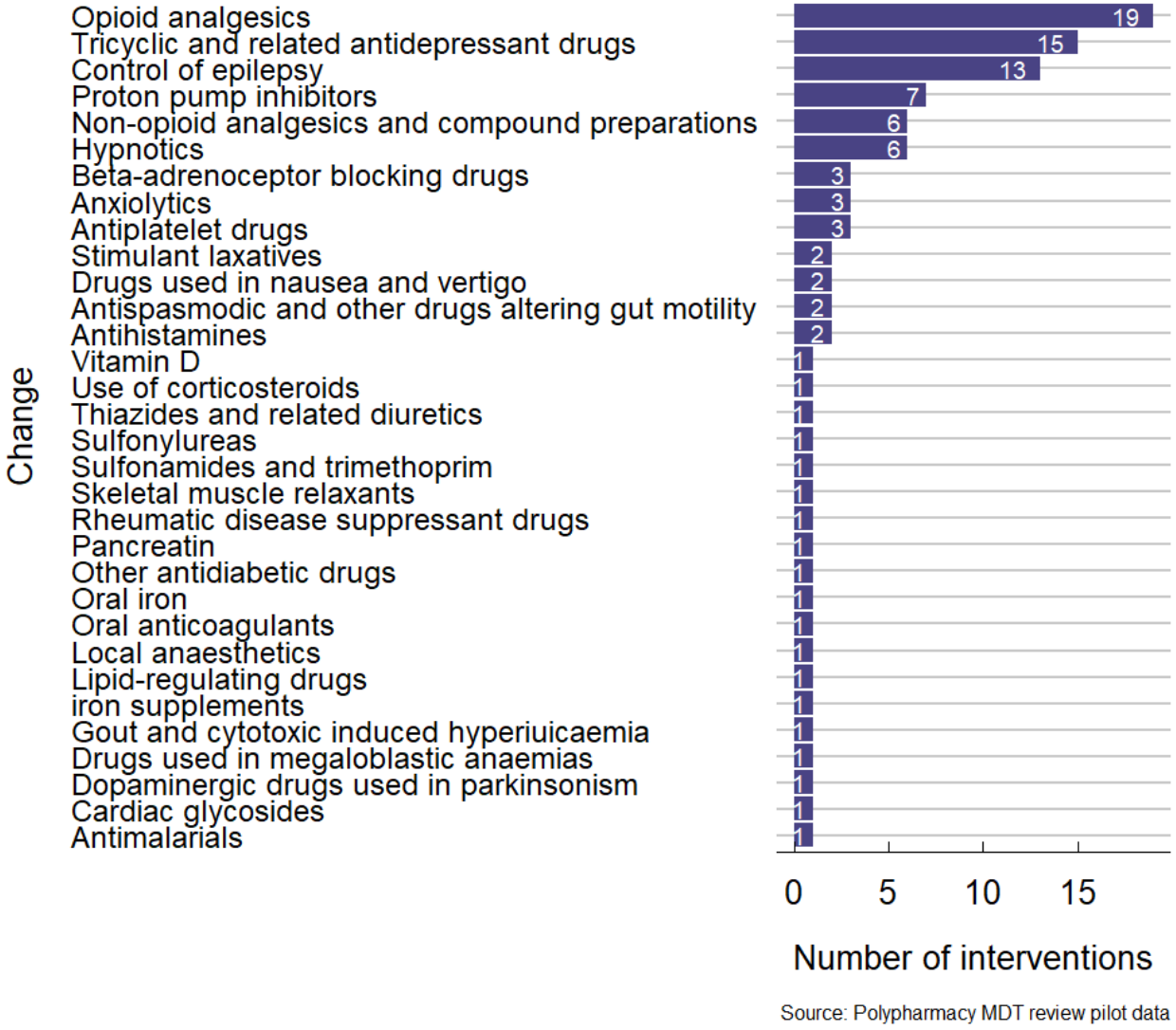
Source: Polypharmacy MDT review pilot data

The only intervention flagged as "drug needs to be stopped immediately" was for Ramipril, part of the angiotensin-converting enzyme inhibitors (ACEi) group, where the patient had flagged anxiety and analgesia as priority concerns. This was stopped because it could cause further side effects or deterioration. Therefore, it was stopped immediately.

In Figure 15, it is possible to see that, most of the 102 drugs where "drug needs review to be stopped or dose change required owing to pharmacological concerns" interventions were reported for opioid analgesics (19), antidepressant drugs (15), medicines for the epilepsy control

(13) and proton pump inhibitors (7). Additionally, 5 of the 13 medicines classified as "medicines for epilepsy control" in the British National Formulary (BNF) selection are actually gabapentin and pregabalin which, in the context of the MDT clinic, were used for managing neuropathic pain and recommended for deprescribing.

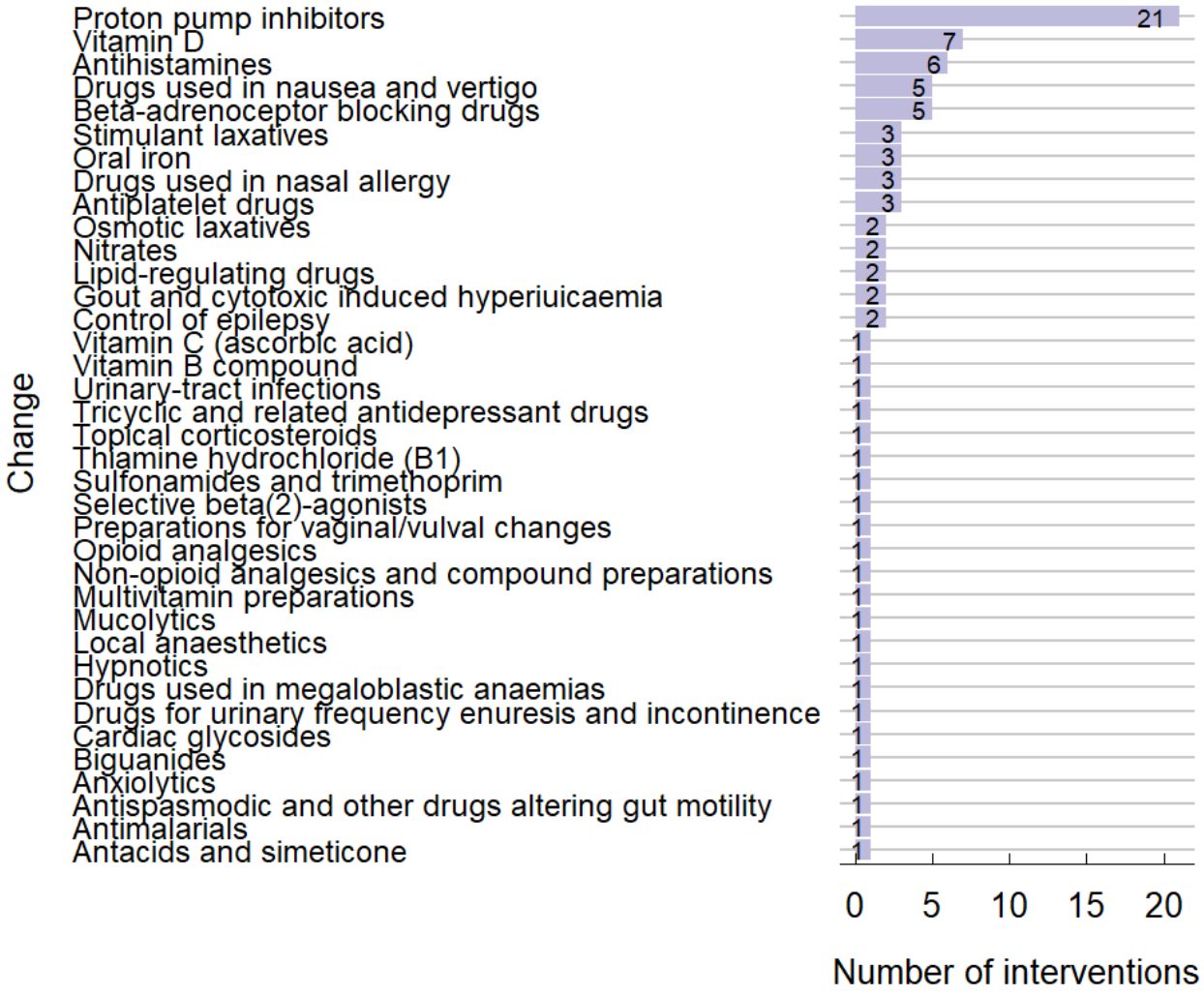
Figure 15. Number and type of interventions by drug group ("Drug needs review to be stopped or dose change required owing to pharmacological concerns")



Source: Polypharmacy MDT review pilot data

For the 89 drugs in the "drug requires review for stopping or dose change owing to limited efficacy" category, Figure 16, the proton pump inhibitors (21) are the bigger group, followed by vitamin D (7), antihistamines (6), drugs used in nausea and vertigo (5) and beta-adrenoceptor blocking drugs (5).

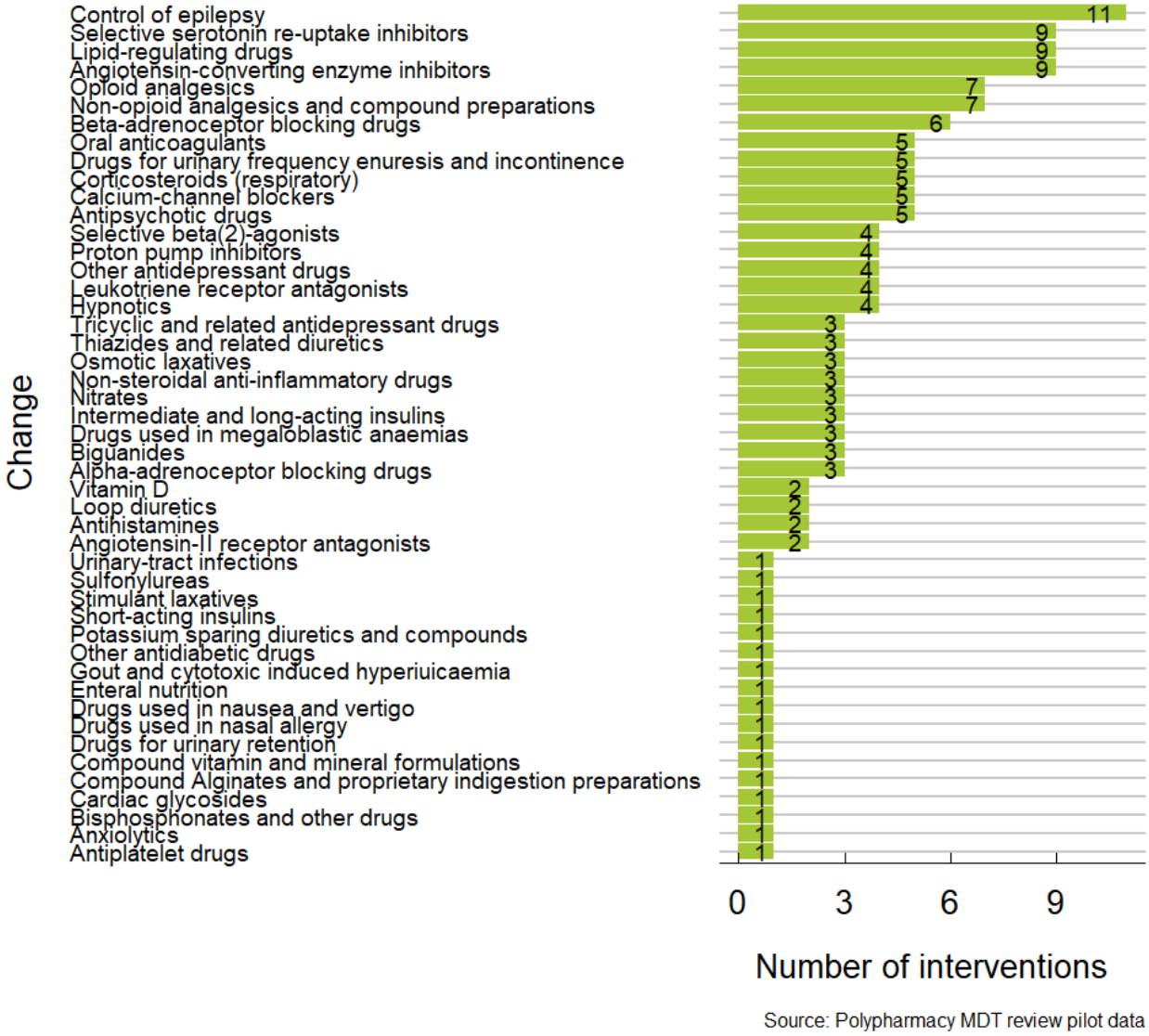
Figure 16. Number and type of interventions by drug group ("Drug requires review for stopping or dose change owing to limited efficacy")



Source: Polypharmacy MDT review pilot data

Several good practice points were also raised (Figure 17), mainly categorised as medicines for the control of epilepsy (11). Although 9 of these 11 medicines are gabapentin and pregabalin which, in the context of the MDT clinic, are used for managing neuropathic pain. Some examples of good practice points provided are monitoring lying and standing blood pressure or renal functions, reviewing medication in the future if causing side effects, checking inhaler technique, and considering add-on therapies, deprescribing, tapering and increasing dose if symptomatic.

Figure 17. Number and type of interventions by drug group ("No immediate action – good practice point to consider")



Source: Polypharmacy MDT review pilot data

For the 348 drugs for which a change was required or a good practice point was made (48.6% of total medicines reviewed), in 204 cases (58.6%) the recommendation was implemented by the patient GP (either "Yes" or "In progress"), as shown in Figure 18. Only 56 (16.1%) were not implemented ("No").

Figure 18. Number of medication changes implemented following the MDT clinic

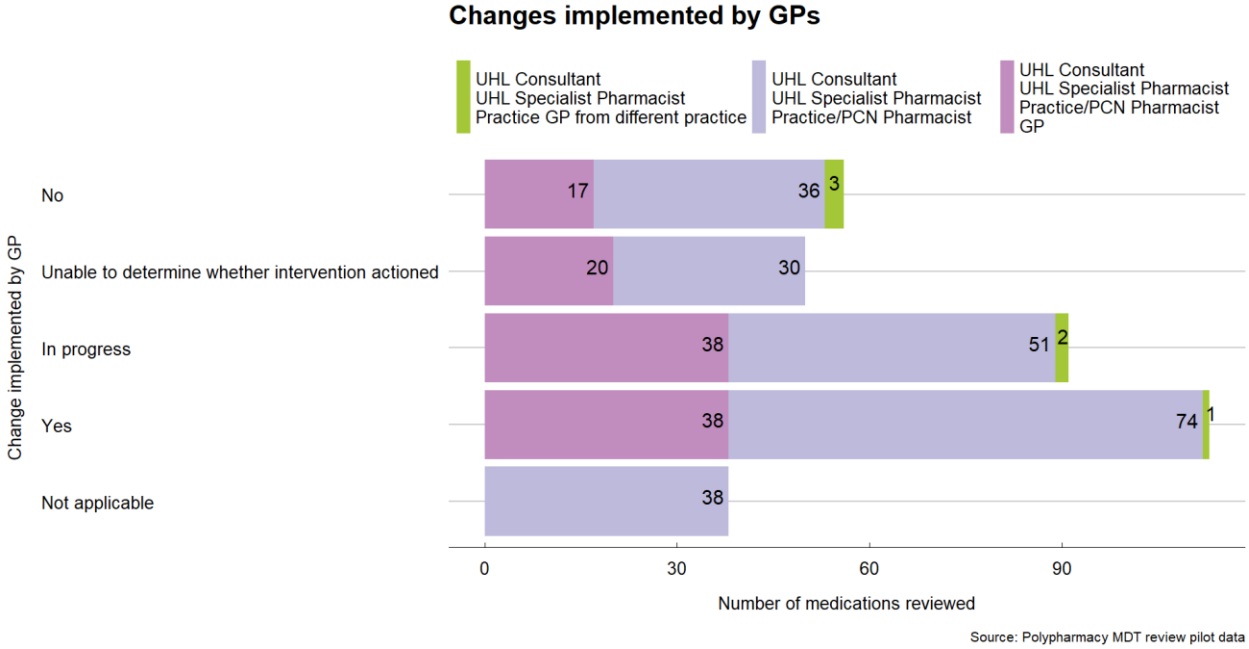
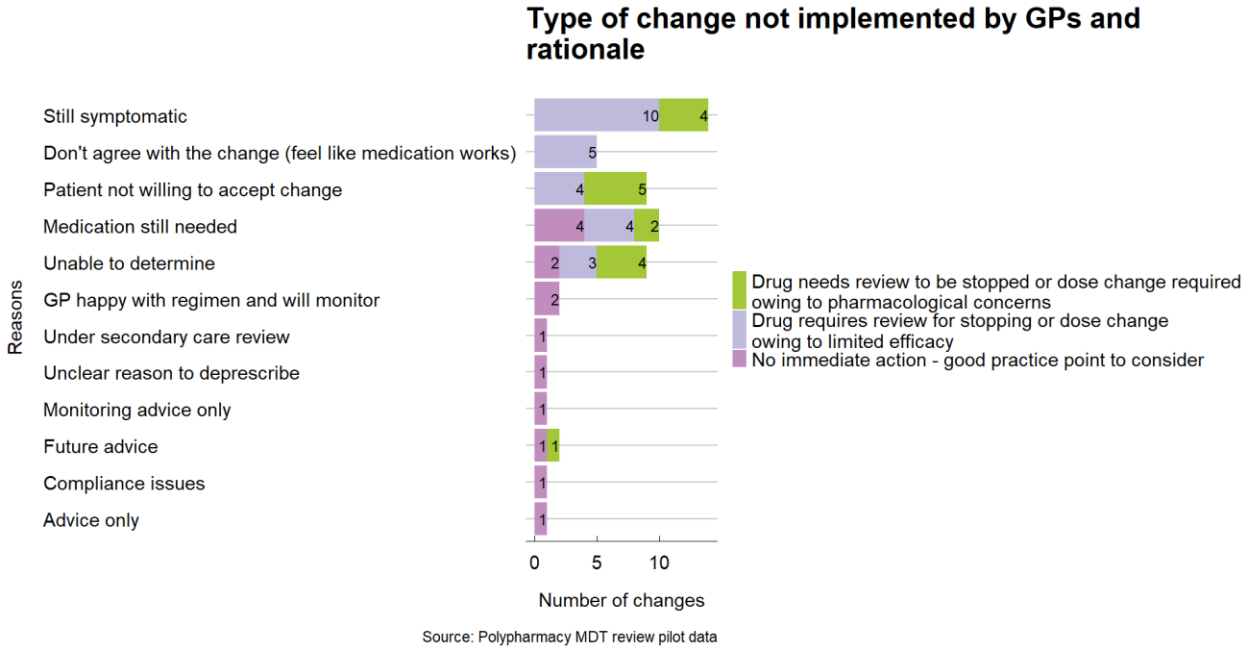


Figure 19 highlights the type of interventions not implemented and the reason why.

Figure 19. Type of change not implemented, including rationale for not implementing

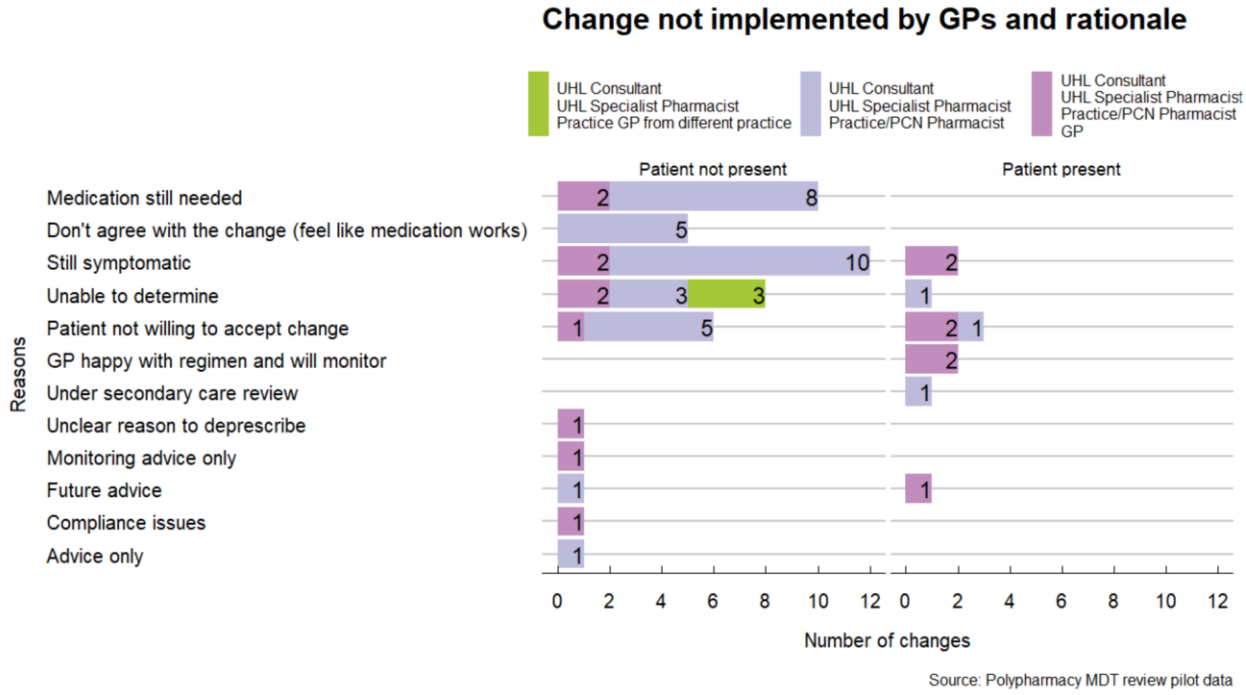


The two main highlighted reasons for not implementing a change have been because the patient was still symptomatic, or the medication was believed to be still needed (Figure 20). In 39 (69.6%) of the 56 non-implemented interventions, the patient's GP was not present during the review. In 3 over 9 cases (33.3%) where the patient was not willing to accept the change recommended, the patient was present during the MDT.

Please note future recommendations are there to advise on dose changes, tapering and deprescribing that the GP or patient may wish to consider in the future. Deprescribing multiple medications at once may increase the likelihood that the patient will experience withdrawal effects or relapse and also patients may be resistant to making multiple changes to their current regimen. As deprescribing is normally a stepwise approach these could be considered after other medications had been weaned off and the patient is reviewed again.

For example, a patient may be on multiple agents for nerve related pain such as amitriptyline, pregabalin and gabapentin. In these cases, they would discuss which agent to deprescribe first with the patient, such as amitriptyline if the patient was experiencing anticholinergic related side effects. They would give a tapering plan and then suggest reviewing pain control once deprescribed and trialling tapering another agent. This would be discussed during the clinic and also documented in the clinic letters (including tapering advice).

Figure 20. Interventions not implemented by GPs, including rationale for not implementing



7.3 Patient Outcomes of the Polypharmacy MDT Review Pilot

After the review, for the 28 patients for which the Eclipse score was recorded before and after the MDT polypharmacy review the average reduction in their score was 25% (Figure 21). However, this score is not fully attributable to the MDT intervention as it assumes the patient has had no other care intervention since the clinic. It must also be noted that there is no standard period for pre- and post-MDT clinics for this data.

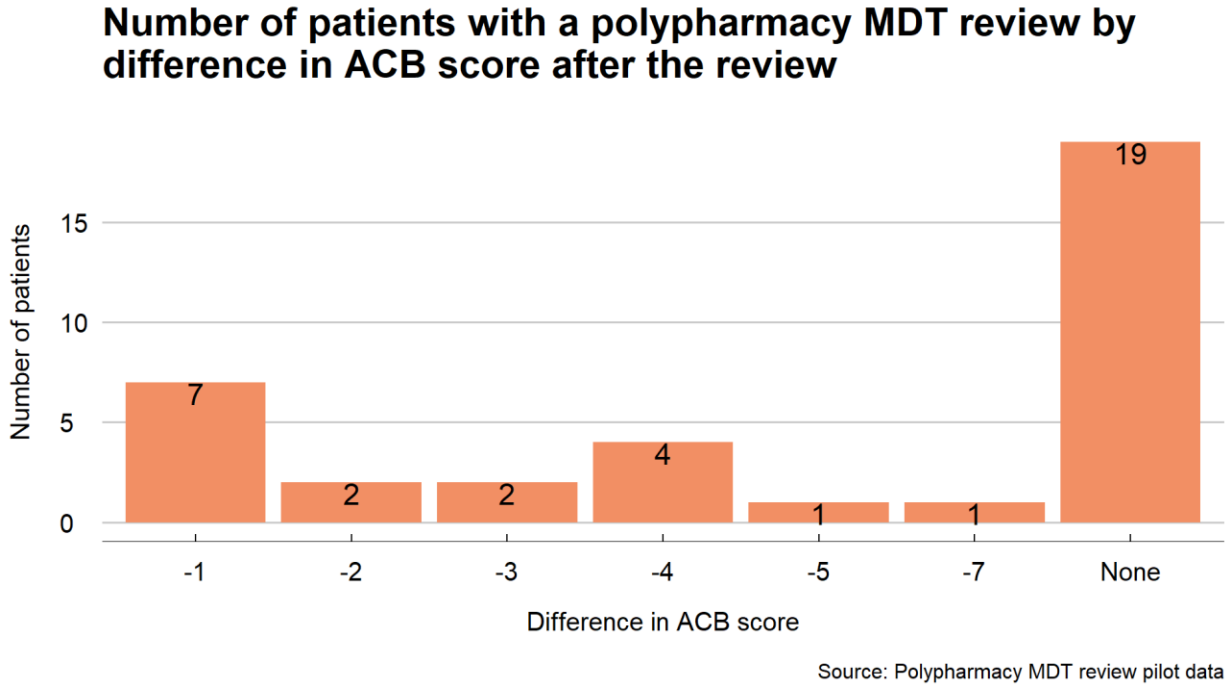
Figure 21. Eclipse score before and after the polypharmacy MDT review

Patient number	Eclipse score - before	Eclipse score - after	Change	Percentage change
1	27	4	23	-85%
2	46	17	29	-63%
3	29	11	18	-62%
4	43	18	25	-58%
5	35	17	18	-51%
6	40	21	19	-48%
7	30	18	12	-40%
8	31	19	12	-39%
9	34	21	13	-38%
10	45	29	16	-36%
11	27	18	9	-33%
12	26	18	8	-31%
13	33	23	10	-30%
14	28	20	8	-29%
15	32	25	7	-22%
16	30	25	5	-17%
17	26	22	4	-15%
18	28	24	4	-14%
19	34	31	3	-9%
20	35	33	2	-6%
21	26	25	1	-4%
22	26	25	1	-4%
23	26	26	0	0%
24	26	26	0	0%
25	28	29	-1	4%
26	26	27	-1	4%
27	31	36	-5	16%
28	33	40	-7	21%
29	30	not recorded		
30	25	not recorded		
31	27	not recorded		
32	25	not recorded		
33	25	not recorded		
34	not recorded	7		
35	25	not recorded		
36	not recorded	24		
37	27	not recorded		
38	not recorded	not recorded		
39	29	not recorded		
40	27	not recorded		

The data also indicates that 17 (47.2%) of the 36 patients participating in the pilot for which follow up data were collected had an anticholinergic cognitive burden (ACB) score reduction of between 1 and 7 points (Figure 22). A reduction in the anticholinergic burden score indicates a reduced risk

of cognitive impairment and mortality[30]. The calculator used was the ABC calculator (www.abccalc.com).

Figure 22. Number of patients with a polypharmacy MDT review by difference in ACB score

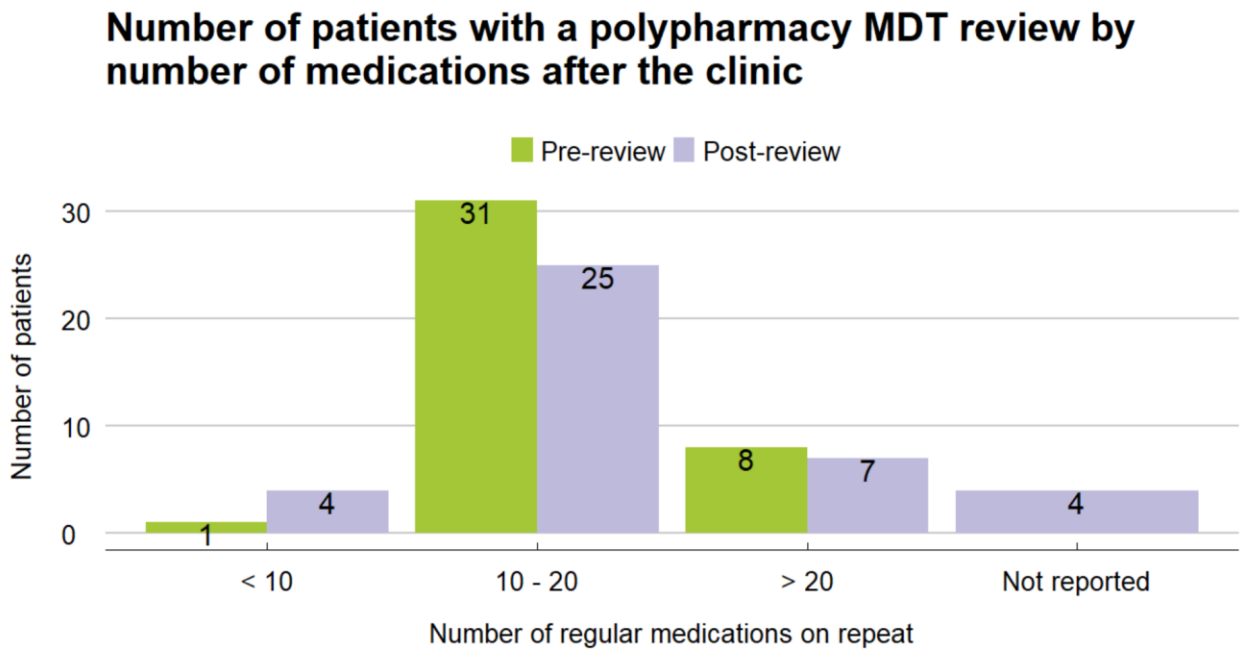


Source: Polypharmacy MDT review pilot data

As shown in Figure 23, after the review, the number of patients with 10 to 20 medicines on repeat decreased from 31 to 25 (19.3% reduction) while the number of patients with less than 10 increased from 1 to 4.

Figure 23. Number of patients with a polypharmacy MDT review by number of medicines

[30] NHS Somerset. https://nhssomerset.nhs.uk/wp-content/uploads/sites/2/Importance-of-reducing-anticholinergic-burden-Hels-Bennett-PL-240522.pdf#:~:text=participants%20who%20had%20an%20ACB,with%20a%20score%20of%20zero.&text=For%20every%20additional%20ACB%20point,of%20dying%20increased%20by%2026%25.



Source: Polypharmacy MDT review pilot data

Patients who participated in the polypharmacy MDT review pilot had between 8 and 37 regular medicines on repeat (17.5 on average). Overall, after the review, there is an average reduction of 1.7 medicines per patient (-10.3%). Considering only the 36 patients for which a pre-and post-review number has been recorded, there are 8 patients (22%) where there was no change, while 10 patients (28%) had a reduction of 3 or more medicines (Figure 24). A total of 62 medicines were successfully deprescribed and 9 drugs were suggested a switch over the 8 MDT polypharmacy clinics.

Figure 24. Number of medicines before and after the polypharmacy MDT review

Number of medications pre-review	Number of medications post-review	Medications reduction	Percentage change	Drug switched
37	34	3	-8%	1
29	26	3	-10%	
28	23	5	-18%	
27	27	0	0%	
25	23	2	-8%	
24	20	4	-17%	
24	22	2	-8%	
22	21	1	-5%	
20	19	1	-5%	1
20	20	0	0%	
20	not recorded			
19	17	2	-11%	1
19	18	1	-5%	
18	14	4	-22%	
18	16	2	-11%	
18	16	2	-11%	
18	17	1	-6%	
18	not recorded			
17	14	3	-18%	
17	16	1	-6%	
17	17	0	0%	1
17	17	0	0%	
16	16	0	0%	
15	14	1	-7%	
15	14	1	-7%	
15	not recorded			
14	10	4	-29%	
14	12	2	-14%	
14	not recorded			
13	10	3	-23%	2
13	10	3	-23%	1
13	12	1	-8%	
13	12	1	-8%	
13	13	0	0%	
13	13	0	0%	
12	10	2	-17%	1
10	7	3	-30%	
10	8	2	-20%	1
10	8	2	-20%	
8	8	0	0%	

In Figure 25, it is possible to see the list of drugs that were deprescribed by GPs following the polypharmacy MDT clinic review. The suggested drug switches are outlined in Table 3.

Figure 25. Number and type of deprescribed drugs

Deprescribed drugs	Count
Angiotensin-converting enzyme inhibitors	8
Antacids and simeticone	7
Antihistamines	4
Antimalarials	4
Antiplatelet drugs	4
Anxiolytics	3
Biguanides	3
Cardiac glycosides	3
Control of epilepsy	2
Drugs used in nasal allergy	2
Drugs used in nausea and vertigo	1
Gout and cytotoxic induced hyperiuicaemia	1
Hypnotics	1
iron supplements	1
Lipid-regulating drugs	1
Mucolytics	1
Multivitamin preparations	1
Non-opioid analgesics and compound preparations	1
Opioid analgesics	1
Oral iron	1
Osmotic laxatives	1
Other antidiabetic drugs	1
Proton pump inhibitors	1
Selective beta(2)-agonists	1
Sulfonamides and trimethoprim	1
Thiamine hydrochloride (B1)	1
Thiazides and related diuretics	1
Tricyclic and related antidepressant drugs	1
Urinary-tract infections	1
Vitamin B compound	1
Vitamin C (ascorbic acid)	1
Vitamin D	1
Total	**62**

Table 3. Suggested drug switch during the polypharmacy MDT clinic

Original medication	Recommended intervention	Change implemented by GP	Reason for change not being implemented
Tramadol 50mg modified-release tablets	Buprenorphine patch	Yes	
Sertraline 50mg tablets	Consider switching to duloxetine as more beneficial for nerve related pain	Yes	
Senna 7.5mg tablets	Trial switch to sodium picosulfate to improve constipation	Yes	
Rivaroxaban 20mg tablets,	Needs to be taken with food which can be challenging with some frail patients, apixaban possible alternative	Yes	
Sodium picosulfate 5mg/5ml oral solution sugar free	Consider switching to an osmotic laxative	Yes	
Gliclazide 40mg tablets	Dip4	In progress	
Paracetamol 500mg tablets	Consider liquid due to swallowing	No	Unable to determine
Co-codamol 30mg/500mg tablets	Long term use, unclear indication. Consider reg paracetamol and prn codeine to limit opioid use	No	Unclear reason to deprescribe
Cyclizine 50mg tablets	Change to prochlorperazine	No	Don't agree with the change (feel like medication works)

Additional interventions discussed during the polypharmacy MDT review have been:

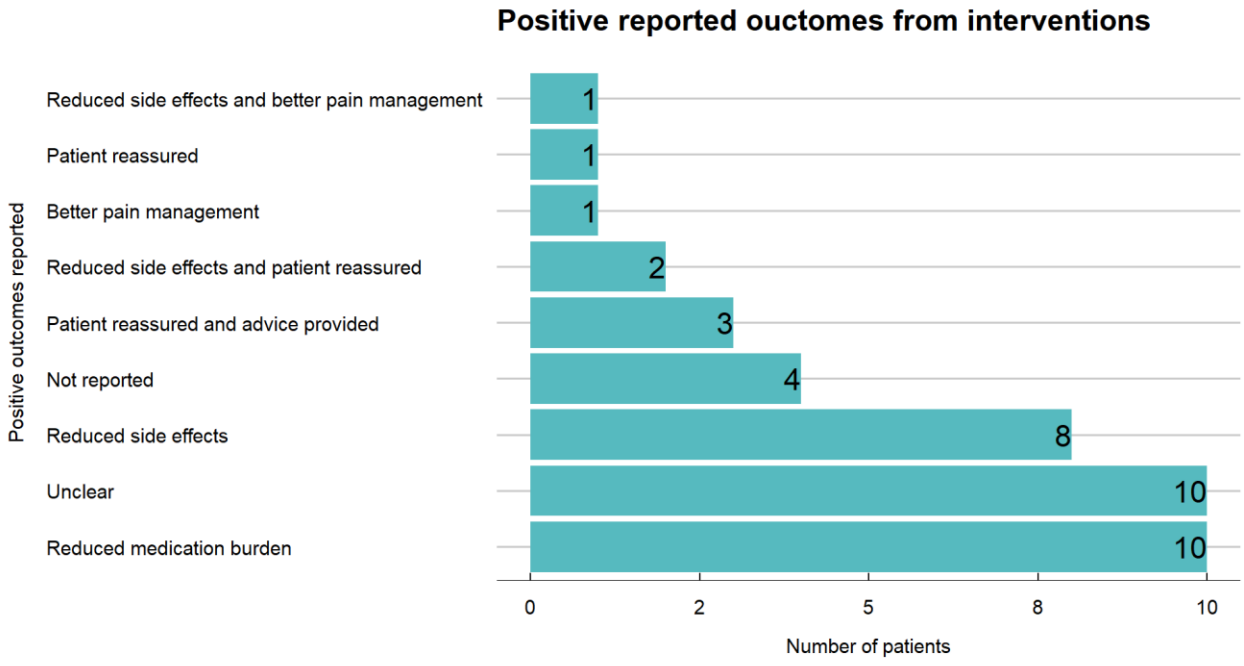
- Counselling patients on long- and short-term risks associated with some of their medicines/combinations of medicines.
- Upskilling primary care practitioners.

- Providing tapering plans for future implementation.
- Monitoring specific medicines and related side effects/frequency of usage/withdrawal effects (e.g., signs of bleeding, dizziness, unsteadiness).
- Lifestyle advice for example for patients with diabetes or suffering from constipation.
- Discussing additional medicines for the future.

As shown in Figure 26, for 10 patients (27.7%) of the 36 participating in the review for which outcomes were recorded, a reduced medication burden has been reported. There were a further 11 patients (30.5%) who a reduction in side effects and an additional 6 patients (16.6%) were reassured and/or some advice for tapering was provided.

In many of these instances though the positive outcomes are only an assumption from the MDT team and there is nothing specifically related recorded on the GP records. It was difficult to measure positive outcomes and the pharmacists had to try and gauge these by looking at the patient's GP records to see whether we could spot any obvious benefits such as a decrease in side effects. This wasn't very clear from looking retrospectively at the tabbed journal in SystmOne and probably could have been measured better by having follow up phone calls with the patient or GP surgery.

Figure 26. Positive outcomes from interventions

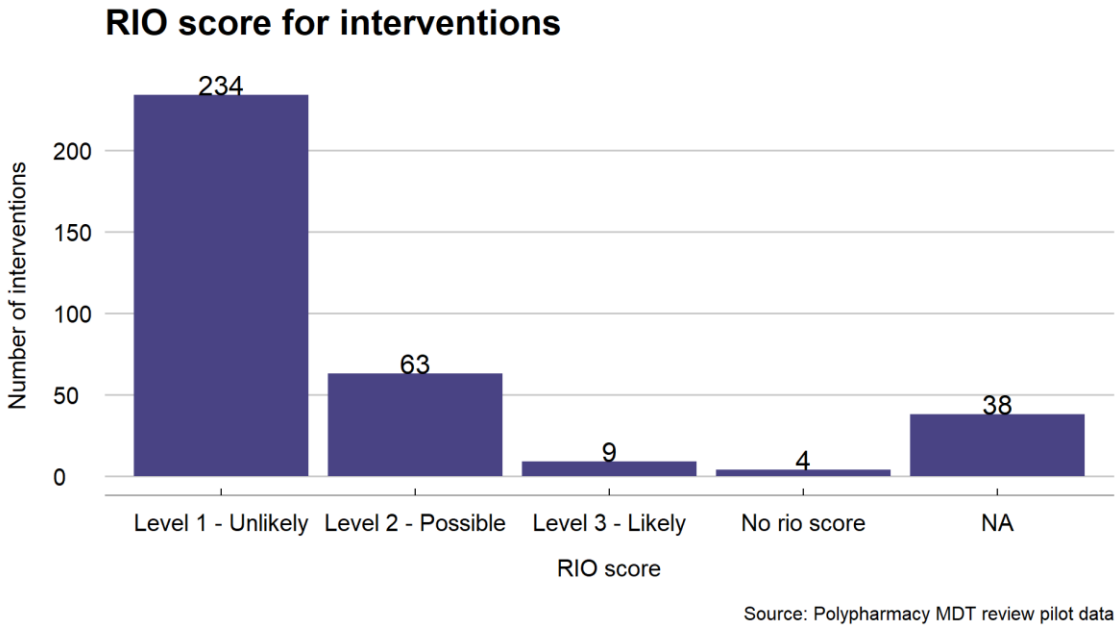


Source: Polypharmacy MDT review pilot data

The qualitative assessment made of the potential impact of each intervention on the prospect of the intervention preventing a hospital admission (RIO score) has resulted, as shown in Figure 27, in 63 recommendations (18.1%) resulting in a possible and 9 (2.5%) in a likely admission

avoidance[31]. The RIO score was assigned to patients independently by two UHL pharmacists post MDT clinic and then reviewed jointly and consolidated in the final dataset.

Figure 27. Admission avoidance estimates using the RIO toolkit



Source: Polypharmacy MDT review pilot data

The only reported adverse outcomes from the interventions up to date have been two changes in medicines where the dose had to be reverted to pre-review levels. In one instance this was due to the patient's increased anxiety following the dosage reduction while in the other case, it was because the patient had trouble sleeping.

A hospital admission that could have been avoided

During one of the polypharmacy MDT clinics, a patient currently on insulin was found to need a specialist diabetic review due to poorly controlled diabetes. In addition to the review, it was also advised to consider a glucagon-like peptide 1 (GLP-1) introduction in the future, in light of the patient's obesity and poorly controlled diabetes and the need for urgent diabetes review.

While the advice implemented resulted in "in progress" from the GP side, the patient was admitted to the hospital due to diabetes control.

If the polypharmacy MDT had happened sooner a hospital admission could have been avoided, ultimately resulting in better patient outcomes and savings for the healthcare system.

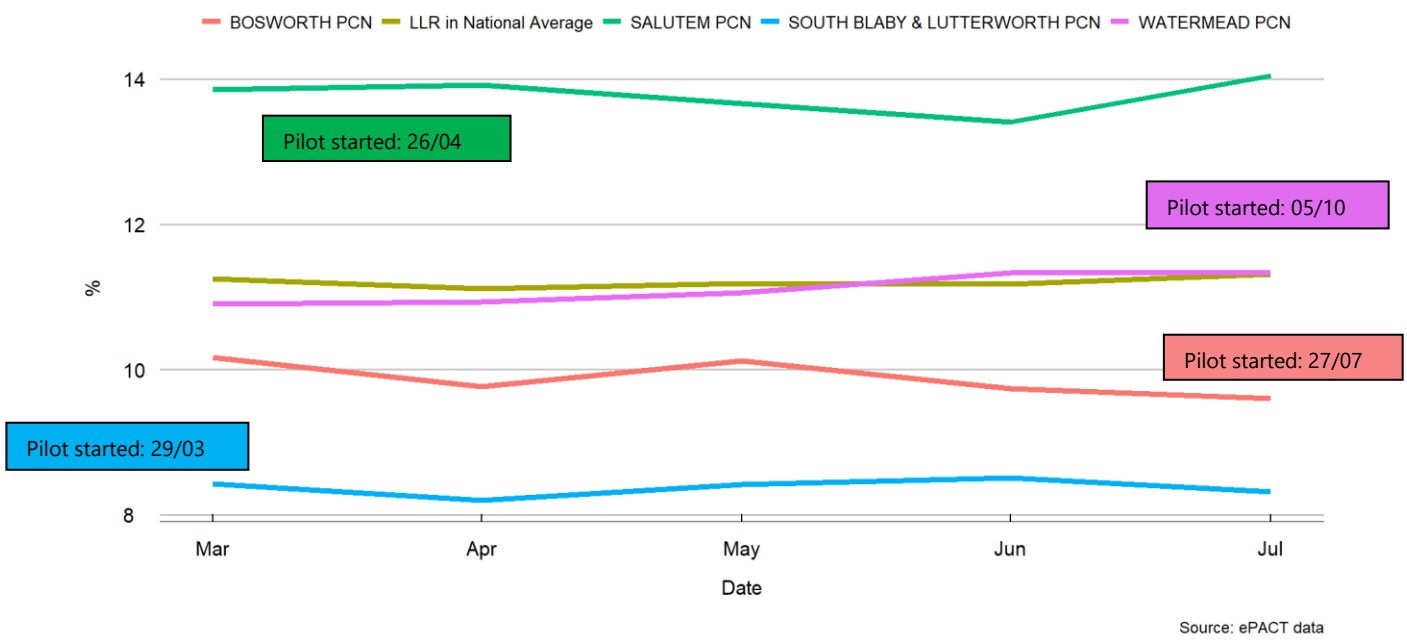
Source: UHL Specialist Pharmacist

[31] The 9 medicines resulting in a likely admission avoidance are: Gliclazide (Sulfonylureas), Edoxaban (Oral anticoagulants), Aspirin x 2 (Antiplatelet drugs), Zopiclone (Hypnotics), Ramipril (Angiotensin-converting enzyme inhibitors), Morphine, Zomorph, and Atorvastatin.

7.4 Long Term Monitoring

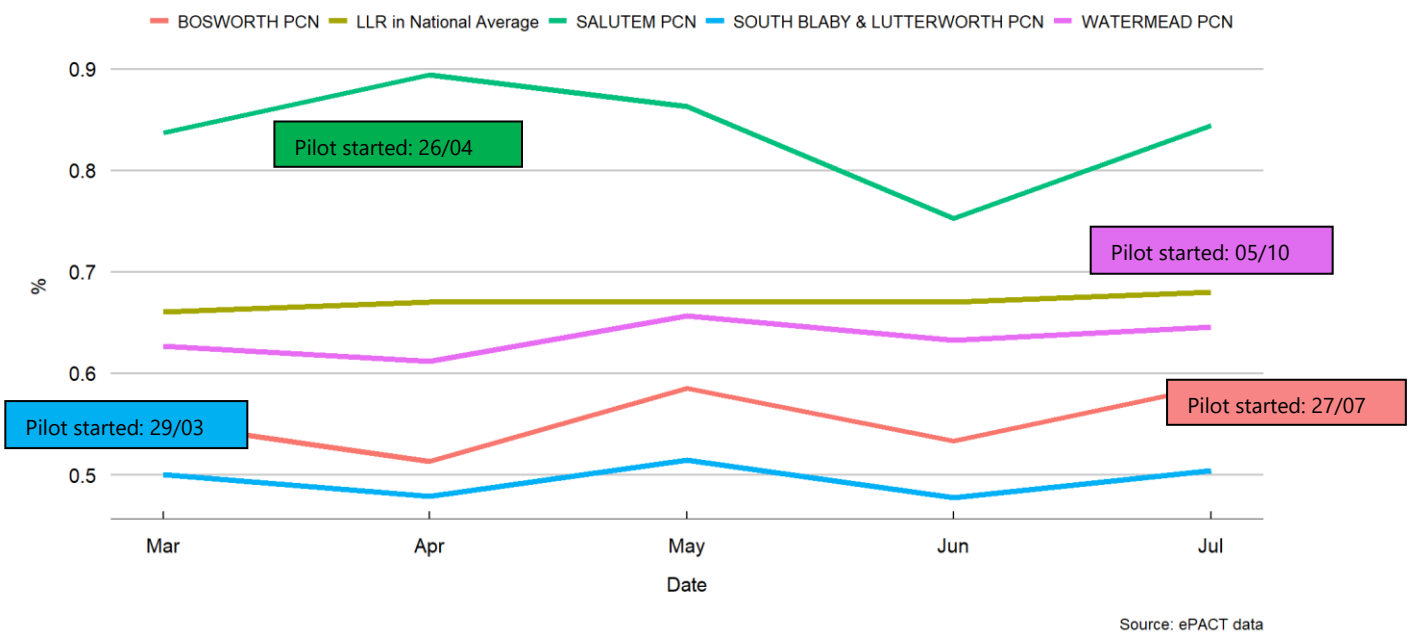
Because of the size of the number of patients under review and the stage of the pilot at which this evaluation was undertaken, it is currently not possible to view the effect of the programme on ePACT indicators at the PCN level. In addition, there is a 3-month lag in data being available via ePACT so at the point of writing the evaluation only data until July was available, therefore, not capturing any changes for clinics that took place in August and September. These indicators could although be used in the future to monitor the polypharmacy MDT clinics' impact on the reduction in potentially inappropriate/harmful prescribing. Below are some example metrics for the subset of participating practices that can be used for this purpose (Figures 28 and 29).

Figure 28. Percentage of patients prescribed 8 or more unique medicines



NHSBSA Dashboard Polypharmacy Prescribing Comparators, NHSBSA Copyright 2023

Figure 29. Percentage of patients with an anticholinergic burden score of 6 or more



NHSBSA Dashboard Polypharmacy Prescribing Comparators, NHSBSA Copyright 2023

8 Staff Experiences

As part of this evaluation, staff opinions on the MDT have been collected. Staff feedback was collected both during the MDT clinics, through the data collection tool, and through an interview with an MDT pharmacist.

Unfortunately, the sample size for staff feedback is low and therefore there is a risk that the feedback is not representative of all staff participating in the pilot.

The following section outlines the findings from these data collections.

8.1 Successes

The interview with a PCN pharmacist who attends MDT clinics was overall extremely positive. The pharmacist detailed how the MDT enabled them to learn about new interventions, for example, how different drug dosages lead to different side effects.

Other benefits mentioned included the facilitation of greater interaction between primary and secondary care, noting that these interactions were rare outside of the MDT clinics. They also indicated that other staff members were very positive about this feature of the MDT.

The pharmacist also indicated that these benefits came with only minor increases in workload for the pharmacists involved and were positively received by the patient's family member who was impressed by the patient-focused nature of the service.

8.2 Challenges

During the polypharmacy MDT clinic, staff encountered several challenges such as managing patients with complex needs, sometimes spanning multiple specialties, and individuals with learning difficulties. These challenges often hindered the process of deprescribing medicines.

Additionally, those cases where the patient was not present during the review, posed difficulties in assessing the usage of pain relief medicines and understating the patient's specific needs.

There was also one instance in which the MDT team reported that all patient’s medicines had been appropriately optimised, and no further adjustments were suggested during the clinic.

Finally, they noted the feedback may be less positive from the practices due to the lack of funding. The GP loses an afternoon with no funding. They said this could block new PCNs from joining. However, there remains debate around whether funding should be provided to GPs for this service as it provides them with additional support for clinically challenging patients in their care. It is important this this is explored in subsequent evaluations going forward.

9 Cost Benefit Analysis

For this evaluation, we are assessing the costs and benefits associated with the polypharmacy MDT pilot.

9.1 The Cost of the Pilot

The total cost of the pilot was £24,000. This accounts for the cost of:

- One consultant
- One specialist pharmacist
- One administrative support

For one afternoon (0.1 WTE) per week for 12 months.

Considering that by the end of the pilot, there should be 24 clinics completed clinics, the estimated cost of the pilot to date is £8,000 (£24,000 / 24 clinics * 8 completed clinics to date).

9.2 Quantified Benefits

9.2.1 Medication cost reduction

Following the pilot, it has been estimated that the potential 12-month prescribing savings from deprescribing medicines recommended by UHL amounts to £10,279. Of these potential savings, £7,244 have been implemented by GP practices (assuming these will be sustained for 12 months). This resulted in an average of £201 saved in prescribing costs per participating patient per year (excluding the 4 patients for which outcomes have not yet been recorded).

9.2.2 Avoided hospital admissions

In addition to the savings from the deprescribing of medicines, potential savings are coming from admissions avoidance. Using the RIO toolkit three different scenarios have been explored. In the first most conservative one (lower bound) it has been assumed that no intervention results in hospital admission avoidance and the only quantifiable benefits from the polypharmacy MDT review pilot are coming from medication deprescribing. In the second one, only the 9 interventions flagged as likely to prevent an admission have been assumed to prevent one, resulting in average savings for the healthcare system of £200[32] per patient. The final scenario

[32] Source: 22-23NT_AnnexA-National-tariff-workbook-Nov22-1. A&E (Category 1-3 investigation and treatment) = (293+225+188+188+171+128)/6

considered (upper bound), assumes that in addition to the 9 changes likely to prevent a hospital admission 50% of the "possible" (63 interventions in total) also do.

9.3 Wider Benefits

9.3.1 Environmental savings

There are also potential environmental benefits from a reduction in medicines prescribed. Greener NHS estimates that approximately 48% of general practice's carbon footprint comes from prescribing pharmaceuticals. Therefore, opportunities to optimise patient prescriptions whilst also supporting the deprescribing goals of Greener NHS should be suitably considered.

The data estimates that 62 medicines were deprescribed across the 8 clinics conducted during this evaluation phase. Although difficult to calculate the total environmental savings for these medicines, it shows a promising trend.

9.3.1 Reduction in side effects

Alongside the reduction in risk of admission demonstrated, there may also be a reduction in severe side effects from unnecessary medications. All medications have listed potential side effects which can decrease quality of life. Due to a lack of patient feedback during this evaluation, it is not possible to quantify this impact at this time. However, the impact on quality of life from reduced medication side effects should be explored in future evaluations.

9.3.2 Quality of care improvement

Finally, one of the key benefits of introducing the polypharmacy MDT is improving the quality of care for patients. Expert advice on prescriptions ensures that patients receive improved and personalised care. This is further supported by ensuring the patient's voice is taken into account when making changes to prescriptions.

Going forward these improvements in quality of care must be captured through patient and staff surveys.

9.4 Benefit Cost Ratio (BCR)

The estimated benefit-cost ratio to date is 1.1. This means that for every pound invested in the polypharmacy MDT review the ICB receives £1.1 back in benefits. Suggesting that the intervention is cost-neutral. This ratio can increase to 1.5 if all the recommendations provided during the polypharmacy MDT review were to be implemented by GPs, resulting in £10,279 benefits from medication cost reductions.

Table 4. Benefit Cost Ratio

Description	Pilot to date (£) Lower bound	Pilot to date (£)	Pilot to date (£) Upper bound
Medication cost reduction	£7,244	£7,244	£7,244
Avoided hospital admissions	£0	£1,800	£6,300
Total quantified benefits (to date)	**£7,244**	**£9,344**	**£13,544**
Total costs (to date)	**£8,000**	**£8,000**	**£8,000**
Benefit cost ratio	**0.9**	**1.1**	**1.7**

10 Leicester, Leicestershire and Rutland - Wide Scaling

As of October 2023, there are currently 2,612 patients on Eclipse across LLR that meet the polypharmacy MDT clinic review eligibility criteria.

Assuming that the costs associated with running the clinics will remain constant at £1,000 and that, based on the pilot data, an average of 5 patients will be seen for each clinic. If the intervention was to be scaled up for all patients in the area, 522.4 clinics would be needed, for a total cost of £522,400.

We have then scaled the benefits assuming benefits per patient from the pilot remain constant. This means that per patient there is a medication deprescribing benefit of £201.22 and an avoided hospital admission benefit of £50 (£1,800 total avoided hospital admission benefit from the pilot divided by 36 participating patients). Therefore, across the 2,612 patients eligible for LLR, this could result in £656,192 of total benefits and a benefit-cost ratio of 1.25.

Table 5. Benefit Cost Ratio

Description	LLR scaling (£)
Medication waste reduction	£525,592
Avoided hospital admissions	£130,600
Total quantified benefits	**£656,192**
Total costs	**£522,400**
Benefit cost ratio	**1.25**

11 Findings and Learnings

11.1 Key Findings

Evidence from the first eight MDT clinics across LLR indicates success in the pilot. The data shows that 42.5% of the patients participating in the pilot had an anticholinergic cognitive burden (ACB) reduction of between 1 and 7 points. 63 recommendations (18.1%) resulting in a possible and 9 (2.5%) in likely admission avoidance. 28% of patients (10) had a reduction of 3 or more medicines. Eclipse score was recorded before and after the MDT polypharmacy review the average reduction in their score was 25% (Figure 20). This score is although not fully reliable as it assumes the patient has had no other care intervention since the clinic, which is unlikely.

Although there is limited staff feedback to report on, the interview with the pharmacist was very positive. They indicated they enjoyed working closely with secondary care and that the MDTs enabled them to improve their understanding of medicine-related issues, including dosage and side effects. They also suggested they had received positive feedback from a patient's family member, who was impressed by the patient-focused nature of the clinics. Further qualitative data collection on patient/carer and staff experiences is required going forward.

Health economic analysis has also indicated that where assumptions are made on admissions avoidance the benefit-cost ratio is greater than 1. This indicates that for every pound (£) spent on the MDTs, the health system receives more than £1 back in savings. Given the qualitative and subjective nature of the admission avoidance scoring, a range of benefit-cost ratios have been given. This ranges from 0.9 to 1.7.

Although the evidence appears promising, the team have faced a number of challenges in setting up the clinics. Many of these stem from this being a brand-new service, which was being delivered as a pilot. Some of these challenges have been worked through whilst others remain. The challenges and key learnings are summarised in the following section.

11.2 Key Learnings

11.2.1 Set up and planning

The first challenge faced by the implementation team was designing the MDT pilot. This was a new service so many of the documents and processes had to be developed from scratch, often with limited understanding of the time required to complete each task.

For example, for developing the data collection protocol, the team had to develop clinical system templates, pre-review patient questionnaires, patient and healthcare professional feedback questionnaires, patient information leaflets and data collection tools for evaluation.

Additionally, for the engagement and onboarding of new PCNs, the implementation team would need to meet with all interested PCNs to discuss the project in detail before they could decide to be involved. This required a lot of coordination and planning.

Finally, developing PRISM referral pathways took a significant amount of time.

Therefore, a key learning from the pilot was to ensure planning for resources and recruitment is completed at the business planning stage. All tasks must be identified and considered thoroughly, including who will complete each task and what time commitment is required. This thinking should also consider the balance between pharmacist and consultant time and what their role will be in the clinic.

It is also important that key stakeholders are actively involved in the business case planning stage of the pilot development (e.g., commissioners, service providers, governance teams, finance, and contracts teams). This will help anticipate the amount of time commitment, workload and resources/documents required to set up the pilot while also avoiding any surprises or delays.

It is also suggested that a realistic "go-live" date is in place to reduce the risk of unavoidable delays. This date should be communicated to all stakeholders and there should be widespread commitment to this timeline.

11.2.2 Data Collection

Key to the success of any pilot is the ability to track benefits a key success metrics. This often requires bespoke data collection. The MDT team developed a bespoke data collection tool as part of this work.

Completing this data collection tool proved a challenge. This was due to the amount of data being captured. In addition, the order of information on the data collection tool and PRISM referral form did not match up, resulting in the need to flick between different parts of each document to complete the data collection. The team amended and adapted the data collection tool to help make the process easier and more efficient whilst still ensuring it captured the necessary information.

They also faced delays or periods with no access to GP Clinical Systems and/or Eclipse which limited both data collection and the ability to review patients.

11.2.3 PCN Funding

At the point of this evaluation, only 4 PCNs have gone live with an MDT clinic. A further 7 PCNs either dropped out of the pilot or did not sign up. Many of these PCNs originally expressed interest in taking part but withdrew due to a lack of funding for PCNs to participate in the MDT and limited

capacity to release clinicians to take part. One PCN even withdrew from the pilot after being involved in some clinics.

Solving this critical issue, at a time when GPs are under extreme pressure, will be vitally important for Midlands-wide scaling.

11.2.4 Communication of benefits to stakeholders

Following on from the challenges faced due to the lack of PCN funding, the team also faced direct criticism from colleagues about the value of releasing time for their team to deliver the service. This criticism was received despite the pilot being supported by seniors at UHL and LLR ICB. It was often believed to be due to work pressure and service provision challenges and it being difficult for colleagues to understand the value of reviewing 4-8 patients in an afternoon.

Therefore, the benefits of the MDTs must be communicated effectively to key stakeholders within prospective PCNs and service providers. This evaluation may be used to support this communication. It will also be important to capture further patient and staff/carer experience data to support this effort.

11.2.5 Admin support

As mentioned previously the onboarding and management of the MDT clinics, require consideration of resource and staffing allocations. For example, the teams have to sort room bookings, organise meeting invites for MDT clinics, prepare templates for clinic letters and plan data collection for evaluation.

During the pilot, these tasks were picked up by the implementation teams, mainly by a senior pharmacist at UHL. However, this is not sustainable long-term as the implementation team often picks up these tasks out of hours or alongside significant clinical responsibilities.

This led to challenges such as getting letters to the patient's surgery once drafted. The MDT pharmacist would write the letter, the consultant would approve, and then the pharmacist would send the letter to the lead service pharmacist to send to practices.

The learning here is the requirement for dedicated administrative support. The challenge with recruitment during the pilot was that the team were unclear about what the admin role would involve which made it difficult to create a job profile. There was also a lack of interest for a 0.1 WTE role for a 12-month pilot project. The team tried through the bank office and internal teams.

The team will continue efforts to recruit administrative support for the remainder of the pilot.

11.2.6 Data Governance

The set-up of the pilot also required sign-off against all legal Information Governance (IG) documents. This included a Data Protection Impact Assessment (DPIA), Data Sharing Agreement (DSA), Service Specification and Memorandum of Understanding (MoU) for the pilot project.

This process took longer than anticipated and the team did not have experience completing these documents. Therefore, the project experienced long delays in governance approval for the project and documents.

The team eventually had their governance challenges escalated to allow progress with the project and evaluation. The team will continue engagement and follow-up with PCNs who expressed interest in getting governance documents in place for the pilot.

The key learnings from this included the need to engage with governance teams at ICB, UHL, NHS Midlands and Lancashire Commissioning Support Unit and Primary Care for consensus before approval.

11.2.7 Patients and staff experience data

As part of this evaluation, staff and patient feedback questionnaires, available in the Appendix of this report. were developed to gather insights into their experience throughout the pilot. However, no responses were collected. This limited data collection to the experiences of staff obtained via the data collection tool and a singular interview. A suggestion to improve future response rates would be to distribute the questionnaire link to patients immediately following their review appointment and collect staff feedback promptly after the conclusion of each clinic session.

Appendix

Template of patient letter post clinic:

Polypharmacy Clinic
Patient Letter post clir

Patient survey:

Polypharmacy
Survey - Patient (not p

Polypharmacy
Survey - Patient (pres

Staff survey:

Polypharmacy
Survey - Staff - FINAL

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