Pharmacy input in medications review improves prescribing and cost-efficiency in care homes

Abstract

The Nursing Homes Medical Practice was set up in Greater Glasgow to improve medical care to those living in nursing care homes. The addition of a pharmacy service to the practice to improve cost-effective and quality of prescribing has resulted in considerable savings and improved pharmaceutical care. Further multidisciplinary collaboration is contributing to enhanced patient care in specific areas of non-drug prescribing.

Introduction

The Greater Glasgow Nursing Homes Medical Practice (GGNHMP) was established in November 2002, set against a history of significant variations in general practitioner care for those living in nursing care homes in Glasgow.[1] Its aim was to improve patient care through regular GP visits and assessments, taking a pro-active rather than reactive approach to patient care. The GGNHMP is now the largest provider of GP medical care to nursing care homes in the UK, with 13 practices covering 2700 residents across 60 nursing care homes.[1]

In addition to the vast array of patient co-morbidities and palliative care issues identified by the GPs, a major challenge involved prescribing in this specific patient group. Polypharmacy is a major issue in addition to the extent of non-drug prescribing for care home residents. In agreement with other work undertaken in care homes[2,3] it became apparent to the GPs in the practice that pharmaceutical care to this patient group could be significantly improved. Thus, funding was secured by the practice at PCT level through identified potential prescribing savings to expand the original GP service to include a prescribing support pharmacist, who would be attached to one practice, but would have responsibility for conducting medication reviews for the 13 practices in the region. She was allocated two pharmacy technicians who conducted monthly stock checks in the care homes.

The prescribing support pharmacist set out to improve the appropriateness, quality and cost-effectiveness of prescribing through medication reviews. The reviews also identified that significant improvements could be made to the existing repeat prescribing systems, such that implementation of a robust prescribing system could reduce over-ordering of prescriptions and thus decrease prescribing costs. The aims of the pharmacy service to the practice were to improve appropriate individual patient prescribing, ensure an efficient, accurate repeat prescribing system and plan future service developments based on prescribing data.

Methods

Medication review

Medication reviews were carried out by the prescribing support pharmacist in all practices in the region. Standard, documented medication review procedures, similar to those used in other areas, were followed.[4,5] Two technicians worked with the prescribing support pharmacist to perform monthly stock checks in the care homes, in an effort to reduce wastage.

Using the practice GPASS (General practice administration system for Scotland) system, summary sheets for each patient were printed detailing the clinical markers (diagnoses/indicators), repeat and acute medications. The recorded medications were checked against the medication listed on the care homes medications administration record (MAR sheet), and any discrepancies were documented.

Full medication reviews were undertaken using the GP and nursing notes. Any recommendations raised in the reviews were discussed face-to-face with the residents' carers — usually the senior staff nurse. Unfortunately, because of the high level of cognitive impairment in our residents, direct patient discussions were mostly not possible. All discussed recommendations were referred to the GP for approval using standard documentation.

Residents were reviewed on a home-by-home basis. The rationale for this system was to ensure all agreed medication changes could be made to the MAR sheets together at the monthly repeat prescription order, thereby reducing complications for the dispensing pharmacy and the care home. In addition, all agreed medication changes were updated on GPASS.

Repeat prescribing audit

During the repeat medication reviews it was apparent there was a significant amount of over-ordering of medication and products on the MAR sheets. To further investigate the extent of the problem a repeat prescribing audit was carried out. This was a very simple audit in which eight care homes were selected at random. The monthly repeat prescriptions were generated from the MAR sheet order by the practice receptionists as usual. At this point, potentially 'unneeded' items were

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identified (in particular creams, ointments, dressings, catheter products and 'when required' medications). The stock held in the care home was then checked against the order. Items that were ordered and of which there was deemed sufficient existing stock for the month were classed as 'over-ordered' and the cost of these were calculated. As additional evidence, the monthly wastage of items being returned to the pharmacy were also documented and costed.

The results from this audit are described fully below. However, the potential savings identified from this piece of work secured funding for two pharmacy technicians to implement a robust, cost-effective repeat prescribing system.

Pharmacy technicians' work

Protocols and standard operating procedures were developed by the technicians to improve the current repeat prescribing system. In short, each pharmacy technician has responsibility for repeat prescribing in 22 care homes. This involves a monthly visit to each care home to assist the nursing staff in the monthly order, check the stock in the care home, ensure accuracy between the MAR sheets and the GPASS records and print off the monthly prescriptions.

Service development

To plan areas of service development in relation to prescribing, new PRISMS (Prescribing information system for Scotland) is used to monitor budgets and areas of greatest spend. New PRISMS is a secure, web-based application that allows a wide range of staff across NHS Scotland to access and interrogate prescribing data. These data are similar to PACT data and allows analysis, for example, of expenditure versus budget reports and generic savings reports. It allows practice pharmacists to monitor formulary compliance and to audit prescribing behaviours, among other things. From these data projects or audits can be identified to improve the cost-effectiveness of prescribing.

Results and Discussion

Medication reviews

To date approximately 1340 residents have had a full medication review across 40 care homes. The total number of medicine intervention referrals made to the GPs was approximately 4000, with 93% of these referrals being agreed and implemented. This equates to approximately three proposed medication changes per patient. As found in other studies of care home medication reviews, the majority of interventions involved stopping or withdrawing ineffective or no longer appropriate medicines.[2,5,6] Most common classes of medication stopped included haematinics, antihistamines, anticholinergics, topical steroid creams, diuretics and non-steroidal anti-inflammatory analgesics. Many reviews also recommended reducing or stopping antipsychotic and hypnotic medicines. In addition, many of the recommendations involved ensuring appropriate blood tests and blood pressure (BP) monitoring was being carried out.

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By ensuring appropriate prescribing, savings of around £100 per patient per annum have been generated. These savings are similar to those generated in other, similar UK and US studies.[7,8] The reviews have also improved the quality of patient care by ensuring that appropriate therapeutic drug monitoring and blood tests were conducted. Examples of these included lithium and methotrexate monitoring, U+Es when taking ACE-inhibitors or diuretics and HbA1c levels for diabetics. The BP measurements also highlighted several residents who were taking antihypertensives or other BP-lowering drugs, and whose low BPs might have contributed to their falls.

Most interventions involved stopping medication that no longer had an appropriate indication. The medication reviews are in line with the medicines-related aspects of the *National Service Framework (NSF) for older people*, which are in place to ensure that older people gain maximum benefit from their medication to maintain or increase their quality and duration of life, and to ensure that older people do not suffer unnecessarily from illness caused by excessive, inappropriate or inadequate consumption of medicines.[9] Thus, it is apparent that considerable cost savings and improved pharmaceutical care can be gained from individual patient clinical medication reviews.

We only have care home residents in our practice and are thus able to make a direct observation of care home spend and prescribing trends. Therefore, in addition to individual medication reviews, prescribing analysis against our practice code allows us to determine where service development is required to allow more cost-effective prescribing. Further investigation into the specific areas in which most of the prescribing budget was spent was carried out using new PRISMS. PRISMS analysis identified that the practice population received an average of 8.15 items per patient versus 1.32 for the Health Board, signifying our nursing care home residents received on average six times more prescription items than those in the community. This is higher than similar documented studies in which the average number of medicines the average care home resident receives is often quoted to be four.[10]

The average cost per patient per month for the practice (comprising 60 care homes) was £99.32 compared to £15.25 for the Health Board. However, the average cost per item was not significantly more expensive, being £12.18 per item for the

practice versus £11.50 for the Health Board. Thus the huge difference in cost is mostly attributed to the number of items that a patient was prescribed as opposed to the prescribing of more expensive items.

Repeat prescribing and pharmacy technician input

We aimed to tackle this 'over-prescribing' in two ways. First, polypharmacy and inappropriate prescribing were addressed through individual patient medication reviews. Second, the repeat prescribing systems used within our care homes were investigated and a simple audit carried out. Eight homes, with a total of 295 residents were audited. This identified around £3,500 of inappropriate over-ordering of items per month. In addition, the cost of items being returned to the pharmacy as wastage totalled £450 per month. These returns consisted mainly of wound management products, creams and 'prn' medications. Extrapolation of this data to all 60 care homes would indicate that potential savings of around £26,000 per month — and around £300,000 per annum — could be achieved by reducing over-ordering alone.

Previous research has estimated that repeat prescriptions account for about 75% of all prescriptions and that poor practice in repeat prescribing can impact on drug budgets and patient care.[11] In our audit, over-ordering and stockpiling both of drug products and, particularly, of 'non-drug' products were identified as major issues. Our preliminary studies identified significant cost-savings that could be made by implementing a robust, quality repeat-prescribing process. These themes have also been identified in other studies where current practice was generally acknowledged to provide inadequate control resulting in over-prescribing and drug stockpiling.[11]

Addressing the problems

Two pharmacy technicians were employed to address the over-prescribing and stockpiling issues. This involved the technicians assisting the care home staff of the 22 homes with their monthly repeat prescription order. The technicians checked the stock of each item ordered and cancelled any item where there was sufficient stock, thus reducing over-ordering.

The technicians are routinely responsible for generating the prescriptions, ensuring GP practice records are kept up to date and identifying any discrepancies between the care home or community pharmacy records and the GP practice records, thus improving quality. Their input covers several of the key factors identified by the *NSF* document that influence the effective use of medicines in older people, including improvement of the repeat prescribing system, reduction in wastage through inequivalence of repeat prescribing and changes in medication — both by the GP and after hospital discharge.

Evaluation of technician input between June 2005 and June 2006 identified £160,000 of savings generated through improving the repeat prescribing system in the practice. A pilot withdrawal of technician support in six homes resulted in recurrence of previous problems and medicines wastage and a corresponding loss of savings. However, savings continue to be made provided technician input is maintained.

The systems implemented by the technicians also address safety issues and reduce the risk of medication error. For example, they highlight discrepancies between nursing home and GP medication records. In addition, the technicians are responsible for maintaining residents' medication records on hospital discharge. Any queries or discrepancies in medication are flagged to the GP and the technician provides sufficient medication until the next monthly order. Apart from the cost-savings several potential medication errors have been highlighted by the technicians, thereby improving patient safety.

Service development

The challenges of prescribing for our practice are not solely related to medication costs. PRISMS analysis identified the greatest spend for our practice, accounting for more than 35% of our budget included enteral nutrition (sip feeds), foods for special diets, wound management products and dressings. These are potentially expensive products mainly used in residents with significant co-morbidities — as seen in our patient population. These are areas in which pharmacy is perhaps not the best-placed profession to deal with such 'non-drug' prescribing costs.

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There are many other potential service developments to improve the quality and cost-effectiveness of prescribing in the care home setting and future work may include further links with the dietetic and continence services. Multidisciplinary working will be an extremely important aspect in continuing to improve prescribing in care homes. Work is currently being undertaken with the tissue viability nurse and practice nurse to improve the provision, and advice on use, of wound management products.

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Conclusion

The pharmacy service to the GGNHMP has improved prescribing, implemented a robust repeat prescribing system and ultimately reduced costs. Areas identified for future service development include rolling out non-drug prescribing proposals and further multidisciplinary projects.

Acknowledgements

I would like to thank all the staff at the Nursing Homes Medical Practice, in particular the pharmacy technicians Liz

McClusky and Jim Campbell and the clinical director, Jean Hannah. I would also like to thank Lynne Watret, tissue viability nurse and Liz McLure, practice nurse.

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NPCi is a new NHS e-learning resource designed specifically for busy health care professionals and managers. It is a free resource and is accessible without registration requirements. The content covers prescribing, therapeutics and medicines management, which is presented in 'bite sized chunks' — small summaries of evidence and information on topics that are most often encountered by pharmacists.

Current therapeutics areas include: cardiovascular (including diabetes), CNS and mental health, common infections, pain management and respiratory tract conditions. Other areas are devoted to information mastery and medicines management — including developing people and organisations, general medicines management, improvement skills and tools, patient safety and risk, patients and their medicines, review of medicines, and service efficiency and reducing waste.

NPC blogs are available appraising recent newsworthy health issues related to prescribing or medicines. Existing blogs concern the ADVANCE study, the ASPEN study and annual bisphosphate infusion for secondary prevention of osteoporotic fracture, and can be viewed at http://www.npci.org.uk/blog/. Podcasts are available on a variety of topics including: switching statins, a negative study of atorvastatin in type 2 diabetes, blood pressure in type 2 diabetes, COPD, steroids and pneumonia, and these can be downloaded from http://www.npci.org.uk/podcast/. The site also includes recorded workshops, tests of your knowledge and facility to join in discussions.

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