BEST PRACTICE IN PHARMACY MANAGEMENT

The Contribution Of Hospital Pharmacy To Preventing Admissions And Reducing Readmissions To Hospitals

Jill Davison, Neil Gammack, Dr. Julia Blagburn, David Gibson, Steven Barrett, Richard Copeland on behalf of the Clinical Pharmacy Network: North East and North Cumbria Hospital Trusts.

Correspondence to: richard.copeland@nhct.nhs.uk

Abstract

Title
The Contribution Of Hospital Pharmacy To Preventing Admissions And Reducing Readmissions To Hospitals

Author List
Davison J, Gammack N, Blagburn J, Gibson D, Barrett S, Copeland R

Introduction
Organisations have been encouraged to innovate and implement quality improvement programs to reduce their readmission rates. The article describes work being undertaken by pharmacy staff that contributes to reducing readmission rates.

Method
The services provided in five Trusts are each described.

Results
Case examples to illustrate outcomes are provided.

Conclusion
Narrative about quality or cost-improvement in patient journeys is a more powerful tool for securing funding than presenting facts and figures. Process indicators are less valuable but much easier to measure. Longitudinal interventions around the transfer of care (such as hospital pharmacists linking with community or practice pharmacists to transfer care) are a key part of reducing readmissions.

Keywords: risk prediction, adverse drug event, PARR, LACE.

Introduction

The NHS is under increasing pressure to keep people out of hospital and, for those admitted, to reduce the likelihood of them being readmitted. This has resulted in financial penalties for secondary care providers who are not reimbursed for a proportion of emergency readmissions i.e. readmissions that occur within 30 days of discharge. This figure is agreed locally but is usually around 25% since that is the proportion judged by the Department of Health to be avoidable. The emergency readmission rate is interpreted as a quality metric and readmissions are estimated to cost the NHS £1.6 billion each year. This has encouraged organisations to innovate and implement quality improvement programs to reduce their readmission rates. The NHS Commissioning Board (now NHS England) also developed an Enhanced Service Specification to incentivise GP practices to identify and manage patients at risk of an emergency admission using risk profiling and risk stratification. A number of readmission risk prediction tools exist. These include LACE (Length of stay, Acuity of admission, Comorbidities and Emergency department visits in the past six months) and PARR-30 (Patients At Risk of Re-hospitalisation).

Pharmacy has an important role to play in preventing readmissions, irrespective of the sector in which staff work. This article describes work being undertaken by pharmacy staff employed by NHS Trusts which relates to at least two domains of the NHS England Outcomes Framework:

- Domain 1 – preventing people from dying prematurely, for example through medicines optimisation by clinical pharmacists focussing on the frail elderly, vulnerable and hard to reach patients.
- Domain 3 – helping people to recover from episodes of ill health, for example by telephone or home visit follow-up by pharmacists or technicians.

There are great opportunities for investment in pharmacy services by

"Pharmacy has an important role to play in preventing readmissions . . ."

Readmissions need to be avoided

commissioners seeking high value, bespoke services for their local communities aligned with the Better Care Fund (NHS England Publications Gateway Reference 00940) and Urgent and Emergency Care Review (NHS England Publications Gateway Reference 02132, 19th Aug 2014).

We describe a range of initiatives from five Trusts in our region: Gateshead Health NHS Foundation Trust, Sunderland Teaching Hospitals NHS Foundation Trust, Northumbria Healthcare NHS Foundation Trust, County Durham and Darlington NHS Foundation Trust and Newcastle upon Tyne Hospitals NHS Foundation Trust. Each of these Trusts has innovative medicines optimisation services to prevent admissions and reduce readmissions. The services have developed in different ways, often due to the differences in funding provided, but there are common themes in the work and learning points for colleagues elsewhere who are thinking of implementing similar services.

Background

The literature around readmissions is not robust; the studies that are published are often in narrow populations and are sometimes conflicting. Only a small number of resource-intensive interventions involving both pre-discharge and post-discharge components have successfully reduced 30-day readmissions.[1] Perhaps this should not surprise us since the reasons an individual is readmitted may be any combination of medical, social, psychological or therapeutic factors and reducing readmissions in a patient cohort requires an intervention that addresses most or all of these factors.

Approximately one third of 30 day readmissions occur within the first week of discharge.[2] Reaching a discharged patient quickly is often key to a successful admission prevention.

It is estimated that 6.5% of hospital admissions are due to adverse drug events (ADE), mostly adverse drug reactions.3 These are often seen as a preventable reason for readmission since they may be predictable. Older people admitted to hospital following an ADE have a higher probability of a future admission with an ADE.[4] The lack of published interventions achieving a reduction in ADE after discharge suggests again that prediction does not lead easily to prevention.[1]

There are a number of validated predictive models which some Trusts use to allocate resources to patients who are at greatest risk of readmission to hospital or identify where a transitional care intervention such as intermediate care might be appropriate for patients.[5]

Prediction tools have been derived through analysis of retrospective administrative data and real-time data. Models such as PARR were developed using hospital episode statistics (HES) data together with variables from the national census.[6] The Combined Model used a combination of primary care Read Codes and secondary care data, allowing it to be applied to the majority of the

population who have not had a recent hospital admission.[7]

LACE is one of the commonly used 30 day readmission prediction tools,[8] generating a score based on length of stay, acuity of admission, comorbidities (using the Charlson comorbidity index[9]) and number of emergency room visits. For example, a patient staying in hospital for five days (equivalent to 4 points) following an emergency admission (3 points) who has a history of myocardial infarction and congestive heart failure (3 points) with two other visits to hospital in the six months before admission (2 points) would have a total LACE score of 12. LACE was developed from outpatient population data in Canada and has been shown to be a poor predictive tool in older UK inpatients;[10] interestingly it was a better predictor of mortality than emergency readmission.

Pharmacy practice was key to the transitional bundle of care implemented at Kaiser Permanente (Northwest Region) and their emergency readmission rate was reduced to 10%.[11] The care bundle included low, medium and high-risk stratification using the LACE tool, standardised discharge summary to improve communication to primary care, medication reconciliation, post-discharge phone call and timely follow-up from the patient's primary care physician. Phone calls were undertaken 72 hours after discharge for high LACE scores (≥11). It has been suggested that because of integration throughout the system, efficient management of hospital use and greater investment in information technology, the Kaiser model achieved better performance at roughly the same running cost as NHS care.[12]

Service Descriptions

Readmission Avoidance Collaborative (RAC) team - Sunderland

The Clinical Commissioning Groups (CCGs) in Sunderland have funded a multidisciplinary readmission avoidance scheme with a project lead employed by the local authority. It took around 9 months from inception in December 2013 to service delivery, hampered initially by the lack of a project lead. Four pharmacists have been employed to work on three wards, 7 days per week, identifying patients at high risk of readmission (LACE score 8-15), undertaking clinical medication review before and after discharge and facilitating transfer of pharmaceutical care. After the initial LACE score has been completed, the patient is then risk stratified to predict the likelihood of readmission. This risk stratification determines the level of input beyond their discharge (this could range from a same day of discharge home visit to a phone call after 7 days). As part of the collaboration, a Community Nurse Care Co-ordinator (CNCC) co-ordinates the services that are required for patients after their discharge. Some of the pharmacists are prescribers and they find this invaluable in facilitating prompt action following their review because there is limited medical input to the service. A central record-keeping document for the service has been a key benefit to collaboration. Outcome measures include numbers of patients contacted within 72 hours of discharge, number of home visits made within this time, medication interventions per risk stratification in order to validate risk strategy and service user feedback. When patients are readmitted to hospital within 30 days of discharge, the length of inpatient stay is monitored, reasons for readmission are reviewed and ongoing care planning is optimised.

Readmission prevention pharmacist (Northumbria)

A pharmacist prescriber is also employed in Northumbria to focus on reducing readmissions to hospital, funded via CCGs. Telephone calls are undertaken 2-3 days following discharge. Patients are identified by the pharmacy team or by nurses in the discharge lounge. Bespoke referral criteria were developed for the service. In practice, the telephone calls are made by a number of members of the pharmacy team, ensuring that the resource invested does not remain with one individual alone. Home visits are also undertaken for selected patients when this is deemed necessary, and also for patients identified by care of the elderly physicians for patients attending as day cases. Outcome measures are:

- numbers of patients contacted
- home visits undertaken
- interventions made
- incidents reported
- patient feedback during telephone conversations.

The number of patients re-admitted within 30 days of discharge for whom a telephone call was attempted, or a domiciliary visit organised, are recorded.

30 day readmissions for patients with a LACE score > 10 were lower in the patients receiving the telephone intervention compared to those not receiving (25% versus 47%). It should be noted, however, that these figures may be subject to selection bias and a range of other confounders. The service

"30 day readmissions for patients with a LACE score > 10 were lower in the patients receiving the telephone intervention compared to those not receiving (25% versus 47%)."

has overcome a number of barriers. Information technology infrastructure was insufficient for prospective identification of higher risk patients. There are time limitations for the availability of patient's notes, as a result of targets for coding, and also targets for delivery of consultant letters to General Practitioners. If the patient's notes are not available there are limited data available during the telephone call; in many cases, the pharmacist was referring to the temporary discharge summary, which includes a summary of reason for admission planned following discharge and record of medicines stopped and those being taken on discharge. Northumbria covers a large area geographically, and home visits have therefore had to be limited to one part of the Trust based round a semi-urban population.

Frail elderly services pharmacist (Northumbria)

A pharmacist prescriber provides this service for a population of 500,000, with funding from CCGs. The pharmacist visits about 60 patients per month in their own homes following referral from general practices. The patients may be listed on a 'high risk' register or may be referred for other reasons, even if they do not feature on this register. As the review is conducted in the patient's own home, then issues of adherence and understanding of medicines can be assessed. In addition, access to the full medical record is available by that person's general practice. As the pharmacist is a qualified prescriber, then changes can be actioned without the need to ask a doctor to initiate the change; in this case, this process will have been agreed prior to the review with the person's general practitioner (GP). Alternatively, the pharmacist can make recommendations to the GP for subsequent action. The former approach is obviously more efficient, but is dependent on building the GP's confidence in the pharmacist undertaking the review and the system as a whole. In both cases, a shared approach to decision making is adopted with the patient. Outcome measures for this service are the same as those for Northumbria's readmission prevention pharmacist.

Intermediate care pharmacist (Gateshead)

The intermediate care service in Gateshead developed as an extension of secondary care older person's services. For a number of years, the pharmacist received referrals from other professionals in the intermediate care team on a bespoke referral tool and made domiciliary visits to patients. The number and geographical spread of patients using intermediate care services meant that it was not possible for one pharmacist to see every patient, so their work was targeted by other healthcare professionals using the referral tool.

Medicine-related problems were either resolved directly with patients or by liaising with other healthcare professionals e.g. community pharmacists, general practitioners or hospital consultants. Unfortunately, patient outcome measures were not robustly measured and not fed back to service commissioners. Gateshead covers quite a large geographical area and the pharmacist's travelling costs from a hospital base were felt to be disproportionate and not financially viable, hence the service was terminated. Potentially, economies of scale and reduced travelling costs might mean that pharmacist support for intermediate care services is more viable from a practice pharmacist team or a network of community pharmacies.

Intermediate care pharmacy technicians (Durham and Darlington)

Since May 2014, a pharmacy technician has visited all patients under review by the intermediate care service and participates in weekly multi-disciplinary team (MDT) meetings. The technician talks with the patient about their medicines and undertakes medicines reconciliation before discharge from hospital. They visit the patient again after discharge and undertake a medicines review and assessment of each patient's ability to manage their medicines in their home environment. The technician liaises with the general practice and the community pharmacist to organise support for medicines adherence, an example might be a multi-compartment compliance aid. Funding was provided by the local authorities. The primary outcome measure is the number of patients who have medicines reconciliation; the target is 90% of patients. Rates of hospital readmissions are also assessed in order to reflect the input of the whole MDT. The major limitation in this service is a lack of community or hospital pharmacist support for the pharmacy technician, who is generally working in isolation. This will be addressed moving forward.

Preventing medication-related readmissions pilot (Newcastle)

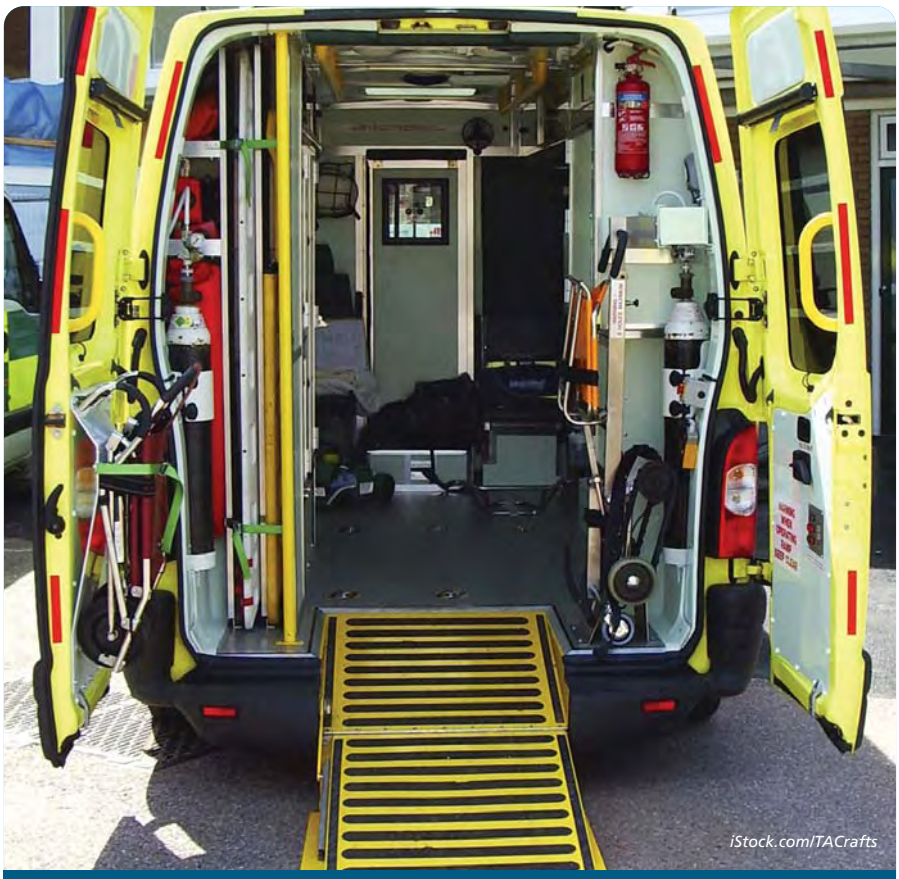
A person-centred model of pharmaceutical care, designed to reduce avoidable readmissions relating to medicines, was implemented to an older people's medicine ward in February 2013 with non-recurrent funding from the CCG. The funding enabled employment of 0.4 WTE pharmacy technician time plus 0.25 WTE administrative support. The pharmacist and technician received training in shared decision making and health coaching so they could practice in a person-centred way. The emergency readmission rate for that ward was monitored for 12 months and compared with the emergency readmission rate for a very similar older people's medicine ward with a basic clinical pharmacy service (medicine reconciliation at admission, clinical pharmacist medication review and discharge support). The hypothesis was that addressing the needs of each individual for information about or support with their medicines might be more effective at reducing emergency readmissions relating to medicines than adding medicines risk factors to an existing readmission prediction tool such as LACE or PARR-30. The majority of the

pilot service was provided by a pharmacy technician with an accredited medicines management qualification; they required additional information or support from a pharmacist for only a small minority of patients. The pharmacist was always available by telephone when the technician was working in domiciliary settings. The primary outcome measure was 30 day emergency readmission rate for the intervention and control wards. At the start of the project these were not significantly different but the readmission rate was significantly lower for the intervention ward during the 12 months of the pilot. Three elements of the model appeared to have the largest impact on readmission rates; medicine reconciliation at admission, referral for community pharmacy advanced services and home visits by hospital pharmacy staff for housebound patients who were otherwise eligible for NMS/MUR.

Patient satisfaction with post-discharge follow-up from hospital pharmacy staff was high. GPs perceived the discharge communication for patients discharged from the intervention ward to be moderately improved when compared to the control ward. The delivery of the project was occasionally impaired by unplanned staff leave because of the small resource allocation. It is not yet known whether the results are reproducible on a larger scale. The major barrier to hospital referral for community pharmacy advanced services was a lack of a robust referral pathway. Since the pilot finished, an electronic referral pathway between hospital and community pharmacy has been developed using a commercial web portal and the number of referrals made has risen dramatically.

Specialist Care Home Support Pharmacist (Newcastle)

A pharmacist was employed in April 2014 to support a team of specialist nurses working into local care homes with the highest numbers of hospital admissions. The pharmacist undertakes clinical medication review for patients referred to them with the link GP and specialist nurse.



Work by pharmacists can help avoid readmissions

Referrals come from the hospital pharmacy team, the specialist nurses or care home staff and are taken for any potential medicine-related problem. The pharmacist's interventions are scored for likelihood of preventing a readmission with the RiO tool (NHS Croydon's adapted RiO tool – available via the NICE NHS Evidence Search site) and validated by a senior clinical pharmacist; the pharmacist reviews between 20 and 25 patients per month and has prevented between 9 and 13 admissions per month. The pharmacist also works with the care homes to improve medication safety culture, using the NHS Medication Safety Thermometer as the metric for this. The main barrier to gaining funding for this post was a lack of understanding of the value of the pharmacist by commissioners. The impact of the pharmacist on patient outcomes, presented as narrative, was more influential with commissioners than facts and figures about medicine-related problems.

Case Examples

Sunderland RAC service

Collaborative working has benefitted patients in allowing them to access essential services earlier. Examples of this with the RAC team include:

- identification of a patient who presented with opioid toxicity after inadvertently taking too much opioid medication and arranging for the chronic pain team to rationalise treatment for this patient.
- titrating a patient's heart failure therapy recommended by the Heart Failure team in the community, therefore preventing a readmission to do this.

The collaborative approach continues to result in patients accessing services in a timely manner which should then result in a reduction in readmissions.

Northumbria – discharge follow-up calls

- Patient discharged on new bumetanide (switched from furosemide) and

reduced perindopril. Pharmacist contacted patient to discuss but they were confused over the telephone so pharmacist offered to visit at home to review. Patient had not been taking new bumetanide or old furosemide and was still taking the old dose of perindopril. Pharmacist discussed with patient and excluded signs of worsening heart failure that would require immediate assessment. Pharmacist discussed with patient and daughter who visits regularly. Pharmacist produced a medicines reminder chart to help patient and daughter. Pharmacist removed all discontinued medicines from cupboard.

- Patient was discharged with courses of rifampicin and doxycycline for six weeks to treat a joint infection. Patient had been experiencing diarrhoea and developed a rash on abdomen but not informed anyone. The pharmacist contacted the consultant microbiologist who recommended the treatment. Consultant microbiologist thought best to discuss with the GP once patient had been seen. Pharmacist liaised with the practice and asked patient to attend an emergency appointment with the GP. Microbiologist contact number was given to GP to discuss the change to treatment after GP assessment.
- Patient discharged with new amiodarone at a dose of 400mg three times daily to reduce to 200mg daily in 4 days. Patient had been counselled on the ward by the pharmacy team. Pharmacist attempted to contact throughout the following week without answer. A week after discharge patient answered phone. Pharmacist discussed medicines changes with wife who had misunderstood the instructions and reduced dose to 200mg three times daily instead of intended once daily. Reassured by pharmacist that this would not be harmful and to reduce to once daily from now. Pharmacist reinforced counselling on side-effects of amiodarone to monitor for.
- Patient admitted with infective exacerbation of COPD was discharged from hospital to care home but rescue packs were missed off the summary. Pharmacist reviewed allergies, previous treatment and sensitivities (no notes available) and amended discharge summary to include appropriate antibiotic and steroids. As the care home was distant to hospital the pharmacist thought it best to contact the GP receptionist to organise a prescription to supply to care home. Patient was new to care home and staff were concerned with patient's breathing and discussed symptoms with pharmacist who advised it would be appropriate to start rescue packs. Care home staff counselled on use of rescue packs for the future. GP was unavailable to speak to so pharmacist relayed situation to GP receptionist who would ask GP to issue prescriptions for antibiotics and steroids, with home visit if they thought necessary.

Northumbria – Frail Elderly Services home visits

Mr AP, 81 years old, was referred by his GP for a domiciliary medication review following complaints by the patient of unresolved pain, despite his analgesia being increased significantly over the last few weeks. The patient was also complaining of increased SOB despite being on a few inhalers. The GP noted that he had not had a medication review since 2003 due to reduced mobility and becoming housebound. Mr AP's past medical history included osteoarthritis, COPD, insomnia and a total right hip replacement.

Mr AP was taking oxycodone m/r 100mg BD, which had been increased from oxycodone m/r 10mg BD in gradual increments over the last 6 weeks, but he was not getting any pain relief. On review of his medication it was apparent that he had not been taking any oxycodone due to fear of becoming addicted to it. This patient was counselled regarding pain control and we left with a plan to reduce his dose of oxycodone m/r 10mg BD and oxycodone i/r 5mg QDS PRN for breakthrough pain. His excess stock was removed and he had two boxes of the 10mg m/r tablets and i/r 5mg tablets, which were both in date so, to prevent waste, they were left to be used. The patient was also advised to take regular paracetamol 1g QDS for a synergistic effect. After two weeks, a follow-up visit was made and the patient had been taking his medication as discussed and was feeling the benefit. He stated that he was able to mobilise more and had even walked to see his friend next door, which despite only being a 25m walk, made him feel better in himself.

Mr AP was also on lansoprazole 30mg daily, which had been commenced when he was started on diclofenac in 1995. This was initially prescribed as an acute course following inflammation in his knee, but there were no longer pains in his knee, despite not being on it for over 20years. There was no evidence of any gastric history so his lansoprazole dose was reduced to 15mg daily for 1 month and once confirmed that he was asymptomatic, the medication was discontinued.

Mr AP was currently taking citalopram 20mg at night, this having commenced following a family bereavement in 2007. He stated that no-one had ever asked him about his mood since starting this medication and there was no documentation on the GP records of a review; he did not feel low in mood anymore and was starting to feel better since he could at least get to see his friend next door and go into the garden now. He was keen to come off this medication, so a dose reduction to 10mg at night for 1 month was agreed. Subsequently, he stopped this with no problems.

The final issue to resolve was Mr AP's SOB. From a prescription review it looked like he was ordering his salbutamol 100microg/puff Evohaler on a monthly basis along with his tiotropium 18microg handihaler and Seretide '500' Accuhaler. There was significant stockpiling with 5 tiotropium handihalers and over 10 months worth of capsules and also 12

Seretide Accuhalers. Mr AP was not using his Seretide Accuhaler because he thought he thought he'd been told to stop using it. He also explained that he had never been shown how to use his tiotropium inhaler, so was not putting any capsules into it. Mr AP was counselled appropriately on the use of his inhalers and a note was also put on the system indicating that he was still on these medications but did not require any new supplies at present.

The benefits of seeing Mr AP, a previously housebound patient, within his own home can be seen. It provides the opportunity to assess how a patient is managing their medication at home and equally, allows the patient the chance to voice any concerns they have.

Learning points

With the exception of the service which had been in place in Gateshead, the services we describe have all been introduced within the last two years; this may reflect the recent rise of medicines optimisation in the NHS Productivity agenda.

Whilst it would seem desirable to relate the work undertaken to avoidance of admission or reduction in readmissions, the reasons for these are usually multifactorial. It would be wise to seek support from your local university or service improvement team on using readmissions as an outcome measure, especially if your team lacks research design and analysis expertise. Other outcome indicators, such as patient satisfaction or surrogate markers like the RiO score, are valuable to commissioners considering funding a new service and easier to measure truly.

Narrative about quality or cost-improvement in patient journeys is a more powerful tool for securing funding than presenting facts and figures. Process indicators are less valuable but much easier to measure and the key performance indicators set by commissioners for new services like these are often quantitative targets such as 'review x patients per month'.

Longitudinal interventions around the transfer of care (such as hospital pharmacists linking with community or practice pharmacists to transfer care) are a key part of reducing readmissions. Person-centred pharmaceutical care involves patients in treatment decisions, respects patient autonomy and values and empowers people to take responsibility for achieving their own health outcomes where possible. However you choose to identify your target population to work with, for example by referral or predictive models, practice person-centred pharmaceutical care with each individual in that population for optimum results.

Declaration of interests

- The authors have nothing to disclose.

"Whilst it would seem desirable to relate the work undertaken to avoidance of admission or reduction in readmissions, the reasons for these are usually multifactorial."

REFERENCES

1. Shoeb M, Rennke S, Nguyen O et al. Interventions to prevent adverse events and readmissions after hospital discharge: A systematic review. Journal of Hospital Medicine. 2012;7:S13-S14.
2. Dharmarajan K, Hsieh AF, Lin Z, Bueno H, Ross JS, Horwitz L et al. Diagnoses and timing of 30-day readmissions after hospitalization for heart failure, acute myocardial infarction, or pneumonia. JAMA. 2013;309(4):355-63. Available at: http://jama.jamanetwork.com/article.aspx?articleid=1558276 .
3. Davies EC, Green CF, Mottram DR et al. Emergency readmissions to hospital due to adverse drug reactions (ADRS): A retrospective study. International Journal of Pharmacy Practice. 2009;17(S2):B17-B18.
4. Hauvillier L, Eyvrard F, Garnault V et al. Hospital readmission for adverse drug reactions (ADRs): Experience in Toulouse university hospital. Fundamental and Clinical Pharmacology 2012;26:23.
5. Kansagara D, Englander H, Salanitro A, Kagen D, Theobald C, Freeman M et al. Risk Prediction Models for Hospital Readmission - A Systematic Review. JAMA. 2011;306(15):1688-1698. Available at: http://jama.jamanetwork.com/article.aspx?articleid=1104511 .
6. Billings J, Dixon J, Mijanovich T, Wennberg D. Case finding for patients at risk of readmission to hospital: development of algorithm to identify high risk patients. Br Med J. 2006;333:327. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1539047/ .
7. Wennberg D, Siegel M, Darin B, Filipova N, Russell R, Kenney L et al. Combined predictive model: final report and technical documentation. London: Health Dialog/King's Fund/New York University. 2006. Available at: http://www.kingsfund.org.uk/document.rm?id=8248 . [Accessed 1 Aug 2014].
8. van Walraven C, Dhalla IA, Bell C, Etchells E, Stiell IG, Zarnke K et al. Derivation and validation of an index to predict early death or unplanned readmission after discharge from hospital to the community. CMAJ. 2010;182(6):551-557. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2845681/ .
9. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. J Chron Dis. 1987;40(5):373-382.Available from: http://www.sciencedirect.com/science/article/pii/0021968187901718 .
10. Cotter PE, Bhalla VK, Wallis SJ, Biram RWS. Predicting readmissions: poor performance of the LACE index in an older UK population. Age and Ageing. 2012;41:784–789. Available at: http://ageing.oxfordjournals.org/content/41/6/784.full.pdf+html .
11. Tuso P, Huynh DN, Garofalo L, Lindsay G, Watson HL, Lenaburg DL et al. The readmission reduction program of Kaiser Permanente Southern California-knowledge transfer and performance improvement. Perm J. 2013;17(3):58-63. Available from: http://www.thepermanentejournal.org/files/Summer2013/TheReadmissionReductionProgram.pdf .
12. Feachem RG, Sekhri NK, White KL. Getting more for their dollar: a comparison of the NHS with California's Kaiser Permanente. BMJ 2002;324(7330):135-41. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC64512/ .