
Rural Multidisciplinary Medication Outreach Service (rMMOS)

Initiative Type

Service Improvement

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Summary

The unique hospital pharmacist role of a rural Community Integrated Care Pharmacist (rCIC), which was created in Stanthorpe in 2019 with extensive stakeholder engagement, provides ongoing support to discharged patients including regular home visits and collaboration with general practitioners and community pharmacies. The model has grown to become a Rural Multidisciplinary Medication

Outreach Service (rMMOS) and includes hospital based rural generalists and community health nurses. The outcomes have included improved transitions of care, reduction in readmissions, improved patient adherence and improved patient understanding of medicines. Medication related adverse events are linked to 15-50 per cent of readmissions. In Australia there are up to 230,000 medication related hospital admissions each year with a cost of \$1.2 billion. Small rural hospital and health facilities are no exception to medication related admissions. Internationally, collaborative, pharmacist led programs, delivered within three to five days of discharge have demonstrated a 36 per cent reduction in readmissions. Several models of post discharge pharmacist services are currently available in Australia, including the Home Medicines Review (HMR), which although well established, is limited by timeliness and service caps. Rurally, where the availability of pharmacists credentialed to provide these services is extremely limited HMR services often cannot be initiated or waiting times can be several months. An extensive literature search prior to development of the rCIC model and rMMOS program failed to locate any significant Australian models for rural or remote multidisciplinary post discharge medication management. The model of care continued through the COVID lockdowns of 2020 with telephone and telehealth support provided by the rMMOS in place of home visits. Given the considerable levels of anxiety and feelings of isolation experienced by community members with chronic disease the rMMOS model provided a unique level of medication and healthcare support. The clinical pharmacist set about working out how best to improve:

- the medication continuum of care
- improve communication between the hospital and community based health providers
- reduce medication misadventure
- and readmissions and improve patient outcomes.

The pharmacist examined existing models of medication management, concluding that:

- The Medscheck model only facilitated a discussion between a local pharmacist and a patient.
- The widely used HMR model has proven to be effective, but has limitations in the rural setting.
- Discharge summaries go a long way to completing the continuum but completion rates can be variable and still there are vital health care providers who don't have access.

Key dates

Jan 2021

Dec 2021

Implementation sites

Stanthorpe Hospital

Key Contacts

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Aim

This model seeks to address the current gap in post discharge medication management support and pharmacist availability more acutely seen in rural and remote settings. With improved support to at risk patients the rMMOS service aims to reduce medication related readmission rates and reduce medication misadventure while strengthening partnerships between hospital and primary health care practitioners.

Benefits

A meta-analysis and systematic review of 17 studies by Mekonnen et al concluded pharmacist-led programs are effective at reducing all-cause readmission, all-cause emergency department visits and adverse drug event related hospital revisits. Mekonnen identified that those interventions that begin in hospital and continue after discharge were the most effective at preventing readmissions.

Unfortunately, despite poorer health outcomes in rural and remote communities, except for a small pilot of post discharge pharmacist tele-pharmacy in far North Queensland, no model for rural or remote multidisciplinary post discharge medication management is reported in the literature. In summary, there is a pressing and significant need for a comprehensive post discharge medication management model of care tailored to the needs of rural and remote Australians. Facilitated by rural hospital pharmacists, working collaboratively with acute care medical officers, general practitioners, community pharmacists, community nurses and allied health professionals the primary outcome of

the rMMOS is improved medication safety and reduced hospital readmissions. The secondary outcome is increased consumer understanding of medication management and in turn improved safety and effectiveness of medication use in rural and remote communities.

Background

Australians living in rural and remote areas have shorter lives, higher levels of disease and poorer access to health services than those living in metropolitan areas. Greater burden rates exist for coronary heart disease; chronic kidney disease; chronic obstructive pulmonary disease; stroke and type 2 diabetes. These disease states have been identified as causes of potentially preventable hospitalisations by the Australian Institute of Health and Welfare (AIHW) and implicated by the Australian Commission on Safety and Quality in Health Care (ACSQHC) as readmissions risks. Increased access to comprehensive health care for rural and remote Australians is considered a national priority with continuity of care and improved medication management identified as areas of need. Poor medication management during or immediately after hospital admission has been found to result in a 28 per cent increased chance of re-admission within 30 days. Polypharmacy has been particularly identified as a risk, with a predicted incremental rise of 6 per cent in readmission risk with each additional medication. Evidence suggests that pharmacist led post discharge programs delivered within 3-5 days of discharge can reduce these readmissions by up to 36%

Solutions Implemented

The CIC pharmacist, working as part of a Rural Multidisciplinary Medication Outreach Service Team, coordinates medication management for all patients discharged from hospital. The CIC pharmacist assists patients to navigate their medication management from the hospital care setting back to their community or primary health care setting and rural home. With the focus on integrated medication management from the hospital to primary health settings, tiered levels of post-discharge care are provided. Recognising that not every patient requires the same level of support, the CIC pharmacist uses an inhouse rural medication risk tool and stratification framework to establish the most appropriate level of care post discharge. There are 3 levels: **Low risk - Hospital Referred Medscheck (HMC) Service** The low risk pathway aligns with the existing Commonwealth Funded model of Meds-check, however, it facilitates community pharmacist access to hospital medication reports. A referral letter is sent to the patients community pharmacy of choice a Discharge Medication Report (DMR) and relevant medical management are included in the referral. The community pharmacist conducts a HMC, and closing the loop, provides feedback to other members of the care continuum including GPs. **Moderate risk - CIC Pharmacist Service** The intervention for those patients identified as moderate risk is referral to the Community Integrated Care Pharmacist Service. Initial Home visits are conducted within three to five days of discharge, with telephone support available immediately. A follow up report to rMMOS, Community Pharmacy and GP is also provided. **High risk - Intake into the extended Rural Multidisciplinary Medication Outreach Service** Medical and Allied Health needs are assessed by the team Medical Officer with options for and extended team home visit or joint GP/rMMOS visits. There is no predetermined time frame for enrolment in the service, unlike traditional transitional care models there is no end date, defined

length of service or cap on home visits or follow-up interactions. For those patients living > 30km from township tele pharmacy support is provided. During COVID-19 lockdowns and restrictions all follow-ups were conducted by tele pharmacy.

Evaluation and Results

Anecdotally, the outcomes have been reduced readmissions, reduction in medication misadventure and greater continuity of care. Preliminary cost analysis as part of research protocol development has identified the potential for significant cost savings to the healthcare system. The AIHW suggests that costs by public hospitals to deliver an average service to acute admitted patients ranges from \$3,100-\$6,100. Thus, even a modest reduction in admission rates of 15 per cent at Stanthorpe hospital with approximately 2400 acute admissions per year would be expected to offer an on-paper cost saving between \$500k - \$1m based on relative reduction in bed days. With endorsement by the President of the Pharmaceutical Society of Australia, Dr Chris Freeman, commentary on the model was published in the Australian Pharmacist in late 2019.⁶ More recently the model received national acknowledgment with presentation to the National Medicines Symposium in May 2021. We have devised a substantial data collection tool using RedCap, have applied for ethical approval to conduct a service evaluation and have some very preliminary results.

We are benchmarking our readmission rates against a validated readmission risk tool, the LACE score. It showed that with a score of 41 some 34% of our patients have a high or very high risk of readmission.

Lessons Learnt

The model has been very well received by all stakeholders with positive feedback from patients, hospital staff and primary health care practitioners. The greatest challenges are ensuring all eligible patients are identified. As a small rural facility, patients with high care needs are often retrieved to large regional or tertiary care facilities and subsequently discharged directly home. Unfortunately, this means these patients are overlooked for inclusion in the model. An outlier report has been made available through the health service patient flow software which allows identification of local patients treated at the regional facility however as yet no framework for referral to the service exists from tertiary facilities such as Princess Alexander or Royal Brisbane and Womens Hospitals.

References

1. Australian Commission on Safety and Quality in Healthcare.
<https://www.safetyandquality.gov.au/our-work/indicators/avoidable-hospital-readmissions>.
In:2019.
2. Shull MT, Braitman LE, Stites SD, DeLuca A, Hauser D. Effects of a pharmacist-driven intervention program on hospital readmissions. *Am J Health Syst Pharm*. 2018;75(9):e221-e230.

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3. Sehgal V, Bajwa SJ, Sehgal R, Bajaj A, Khaira U, Kresse V. Polypharmacy and potentially inappropriate medication use as the precipitating factor in readmissions to the hospital. *J Family Med Prim Care*. 2013;2(2):194-199.
 4. Rothwell M, Fu E. Minimising Medication Misadventure in Rural Communities: Bridging the Gap between General Practitioners and Medication Reviews. 15th National Rural Health Conference; 2019; Tasmania
 5. Health ALo, Welfare. Hospital Performance: Costs of acute admitted patients in public hospitals from 2011/12 to 201. Canberra: AIHW;2016.
 6. Knight K, Halliday D. Pharmacy and Rural Hospital Integration. *Australian Pharmacist*. 2019;38.
 7. Halliday D, Knight K. Pharmacist led Rural Multidisciplinary Medication Outreach Service. Paper presented at: National Medicines Symposium2021; Online.
 8. Health ALo, Welfare. Rural & remote health. Canberra: AIHW;2019.
 9. Dorajoo SR, See V, Chan CT, et al. Identifying Potentially Avoidable Readmissions: A Medication-Based 15-Day Readmission Risk Stratification Algorithm. *Pharmacotherapy*. 2017;37(3):268-277.
 10. Roughead EE, Semple SJ, Rosenfeld E. The extent of medication errors and adverse drug reactions throughout the patient journey in acute care in Australia. *Int J Evid Based Healthc*. 2016;14(3):113-122.
 11. Mekonnen AB, McLachlan AJ, Brien JA. Effectiveness of pharmacist-led medication reconciliation programmes on clinical outcomes at hospital transitions: a systematic review and meta-analysis. *BMJ Open*. 2016;6(2):e010003.
 12. Rothwell M, Hogan A. Clinical pharmacists connecting with patients in rural and remote towns via telehealth. Paper presented at: 13th National Rural Health Conference2015.