

The MedGap Project:

***A NEW MODEL OF CARE TO REDUCE THE
RISK OF MEDICATION-RELATED PROBLEMS
AT THE HOSPITAL-RESIDENTIAL CARE
INTERFACE***

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EXECUTIVE SUMMARY

Background

Almost 9% of hospital discharges involving patients aged 65 years and over are to residential care facilities (RCFs), and medication-related problems frequently arise during this handover of care. General practitioners or locum medical practitioners are often called at short notice to write medication administration charts, often without access to timely and accurate discharge medication information. Community pharmacists often need to supply or pack medications at short notice. Consequently medication delays and errors are common.

These problems lead to disruptions in continuity of care and, sometimes, adverse patient outcomes including suboptimal disease or symptom control and unplanned hospital readmissions. They also result in inefficient use of the healthcare workforce, and create unnecessary pressure and stress for all healthcare workers involved in the handover of care.

Objectives

The primary objective of this project was to develop and evaluate a new model of care that would enhance continuity of medication management for people discharged from hospital to residential care by:

- a) Improving communication regarding discharge medications to RCFs, general practitioners (GPs), and community pharmacies;
- b) Providing RCFs with an interim medication administration chart at the time of discharge to facilitate timely medication administration;
- c) Reviewing processes for medication supply and packing to facilitate timely access to new and changed medicines.

A secondary objective was to reduce pressure on the residential care workforce by reducing the need for urgent medical attendance at RCFs for the sole purpose of

writing or updating the RCF's medication administration chart on the day of hospital discharge.

Methods

The project was undertaken in three stages:

- Stage 1 involved evaluation of the gaps in continuity of medication management at two acute care and two subacute care hospitals across two major public health services;
- Stage 2 involved stakeholder consultation and development of a new model of care;
- Stage 3 involved implementation and evaluation of the new model of care at three hospitals, with the fourth hospital used as a control site (usual care).

To quantify gaps in care in Stage 1, and evaluate the impact of the new model of care in Stage 3, an evaluation of discharges to RCFs from the participating hospitals was conducted. Data were collected from hospital records and structured telephone interviews with RCF staff approximately 24 hours after discharge. The primary endpoint was: proportion of patients experiencing a medication administration error, defined as a missed dose, significantly delayed dose (more than 50% of prescribed dose-interval), or wrong drug/dose. Secondary endpoints included: the proportion of patients who did not have an up-to-date medication administration chart or medications packed in the RCF's preferred format available at the time the first dose of medication was due to be administered at the RCF, the proportion of patients who required locum medical practitioner attendance at the RCF, and the accuracy of discharge medication information provided by the hospitals.

Stakeholder consultation involved:

- A project advisory committee comprising representatives from all stakeholder groups involved, or with an interest, in the transition of patients from hospital to residential care;

- Meetings and/or written communications with key organisations such as the Aged Care Accreditation and Standards Agency, the Australian Nurses Federation, the Nurses Board of Victoria, and the Victorian Department of Health;
- Multidisciplinary stakeholder workshops involving RCF staff, GPs, hospital doctors, and community and hospital pharmacists.

Software modules to enable automatic population of the interim medication administration chart with the medications prescribed on discharge (via integration with the hospitals' medication dispensing software) were developed. Policies and procedures for hospitals and RCFs were developed to support the implementation and uptake of the interim medication chart.

Surveys of RCF staff, GPs and hospital pharmacists were conducted to gauge their satisfaction with the new model of care.

Results

Stage 1 – baseline data collection

The baseline study involved 202 discharges from Austin Health (AH) and 168 from Northern Health (NH). At the time that the first dose of medication was due to be given at the RCF, 57% (NH) - 60% (AH) of patients did not have an updated medication administration chart available, and 30% (NH) - 38% (AH) did not have medications available in the format usually used at the RCF. Medication administration errors occurred in 17% (NH) - 21% (AH) of patients. The majority (89%) of errors were missed doses, most commonly involving analgesic, anti-infective, cardiovascular and gastrointestinal medications.

To enable administration of medications in the absence of an updated medication administration chart or suitably packaged medications, RCF staff used potentially unsafe or inefficient 'workarounds' in 54% of cases (e.g. used a copy of the hospital inpatient medication chart or discharge prescription to record administration, or obtained phone orders from the patient's general practitioner), and/or called upon locum medical practitioners to write or update the RCF medication chart. Locums

attended RCFs within 24 hours of hospital discharge in 33% (AH) - 40% (NH) of cases.

Changes to patients' regularly scheduled medications were made in hospital for 98% of patients, but only 51% of changes were communicated in patients' medical discharge summaries. Thirty three (9%) patients had an unplanned readmission to hospital within 7 days of discharge, and for 2 (0.5%) patients a medication administration error may have been a contributing factor.

Stage 2 – Development of the new model of care

Review of Stage 1 data indicated that lack of an up-to-date medication administration chart at the RCF was the main factor contributing to both medication administration errors and use of 'workarounds' by RCF staff. Overall, 83% of medication administration errors occurred when an up-to-date medication chart was not available. Having a resident's new or changed medications available at the RCF in original packaging instead of re-packed in the RCF's preferred format was less frequently associated with a delay in medication administration, provided an up-to-date medication chart was available. It was therefore decided that the new model of care to be developed and evaluated in this project would be based around a hospital-provided interim residential care medication administration chart (IRCMAC), with no change to the way medications were supplied by the hospitals. The purpose of the IRCMAC was to:

- a) provide an accurate list of discharge medications,
- b) provide information about the time of the last dose for each medication,
- c) enable the medications to be safely and legally administered and recorded as soon as a patient arrives at the RCF,
- d) provide information about medication changes to supplement data provided in medical discharge summaries.

To ensure sustainability and maximise patient safety, the new model of care was designed to:

- have the minimum possible impact on the workload of hospital staff

- not involve an additional step of manual transcription of discharge medication lists
- ensure that the IRCMAC was produced only after review and reconciliation of the discharge prescription(s) by a hospital pharmacist, to minimise risk of discrepancies between the IRCMAC and intended discharge medications.

Three software modules were developed that could be linked or integrated with the hospital pharmacy dispensing programs used at the participating health services, to enable electronic generation of the IRCMAC as part of the discharge process. The format of the IRCMAC was based on existing medication charts used by RCFs, and the National Inpatient Medication Chart, adapted for electronic production by a pharmacist. The chart was designed to last for 7 days, to provide enough time for the patient's usual GP to attend the RCF to review the patient and write a long-term RCF medication chart. Sections for communicating medication changes and medications ceased in hospital were included.

In addition to the IRCMAC, other minor changes were made to the hospital pharmacists' discharge procedures in order to standardise and streamline their processes.

Stage 3 – Evaluation

The post-intervention study involved 226 discharges from two hospitals within Austin Health and 33 from one subacute hospital within Northern Health. The control group included 114 discharges from one acute care hospital within Northern Health.

For discharges from the intervention hospitals, the proportion of patients without an up-to-date medication administration chart at the time the first dose of medication was due to be given at the RCF fell from 60% to 3% for Austin Health discharges, and from 60% to 4% for Northern Health intervention site discharges. Medication administration errors fell from 20% to 2% for Austin Health discharges, and from 11% to 0% for Northern Health intervention site discharges. Locum medical practitioner attendances dropped from 33% to 11% for Austin Health discharges and

from 37% to 21% at the Northern Health intervention site. At the control hospital the incidence of medication administration errors (17%) and locum attendances (39%) did not change significantly compared with Stage 1.

Surveys of RCF staff and GPs indicated very high levels of satisfaction with the IRCMAC: 98% of GPs were comfortable with the interim chart being used at the RCF for up to 7 days; 89% thought it reduced the urgency for them to attend the RCF; 95% thought that the “change status” and “medications ceased” information provided on the IRCMACs was helpful; and 98% agreed that it should be standard practice for all patients discharged from hospital to a RCF. Seventy-nine percent of RCF staff thought the IRCMAC improved patient transfers.

Most hospital pharmacists (78%) reported that preparing the IRCMAC increased their workload (by an average of 9 minutes per discharge including pharmacy technician’s time), however all agreed that it is important for patients to be discharged to RCFs with an up-to-date medication administration chart.

Conclusions

Lack of an updated medication chart at RCFs is a barrier to continuity of care, a cause of unnecessary workload, frustration and stress for RCF staff, and a source of unnecessary use of locum medical services.

An electronically generated IRCMAC, linked to the discharge medication dispensing process, is an effective tool for streamlining handover of medication management and reducing medication errors. Although a formal cost-benefit analysis was not undertaken, the provision of a hospital-provided IRCMAC also has potential for considerable cost-savings as a result of reduced locum medical practitioner attendance at RCFs to write medication charts (at least \$126 per attendance, compared with approximately \$5 to produce a hospital-generated interim medication administration chart).

RECOMMENDATIONS

Based on the findings of this project, we make the following recommendations to hospitals, governments and professional organisations:

Recommendation 1

All patients discharged from hospital to a residential care facility should be provided with a 7-day interim residential care medication administration chart.

Rationale: An interim residential care medication administration chart enables medications to be safely administered and recorded as soon as a patient arrives at the residential care facility and reduces the need for urgent medical practitioner attendance for the sole purpose of writing a medication chart.

Recommendation 2

The process used to produce the interim residential care medication administration chart should ensure that the chart is consistent with the intended discharge medications (usually the final reconciled discharge prescription(s)).

Rationale: Discrepancies commonly occur between discharge prescriptions and other sources of discharge medication information. The discharge prescription, provided it has been reviewed and reconciled against the patient's pre-admission medication list and current inpatient medication chart (usually by a hospital pharmacist), is usually the most reliable discharge medication list. Discrepancies between the interim residential care medication administration chart and discharge prescriptions could lead to medication errors and adverse patient outcomes. To minimise risk of discrepancies, the interim residential care medication administration chart should not be produced until the discharge prescription(s) have been reviewed and reconciled as described above. Once the interim medication chart is produced it should also be reconciled against the final confirmed discharge prescription(s) before it is provided to the residential care facility.

Recommendation 3

The time that the last dose of each medication was administered in hospital on the day of discharge should be provided on the interim residential care medication administration chart.

Rationale: Providing information about the time of the last medication dose facilitates accurate continuity of medication administration at the residential care facility and reduces the need for residential care facility staff to call the hospital and/or obtain copies of hospital inpatient medication charts (which can lead to confusion about what medications the patient needs to receive after discharge from hospital).

Recommendation 4

The interim residential care medication administration chart should be used to communicate information about discharge medications and medication changes made in hospital to residential care staff, general practitioners and community pharmacists (unless hospitals have an alternative system for reliable and timely provision of medication information to all healthcare team members involved in medication management in residential care). Information provided on the interim medication administration chart should supplement rather than replace information provided in medical discharge summaries.

Rationale: Residential care staff, general practitioners and community pharmacists need to have access to accurate discharge medication information as soon as the patient arrives at the residential care facility. Medical discharge summaries are not consistently available on the day of hospital discharge. Even when the medical discharge summary is available on the day of discharge, the medication information provided may be incomplete, and copies are not provided to all members of the healthcare team involved in the handover of medication management.

Recommendation 5

The interim residential care medication administration chart should be provided in a standardised format by all hospitals, and processes should be put in place to oversee and fund nation-wide implementation and to manage version control.

Rationale: Residential care facilities receive patients from numerous hospitals, so it is important that a standardised interim medication administration chart format is used by all hospitals (similar to the National Inpatient Medication Chart), to minimise the risk of medication administration errors. Uncoordinated implementation, and lack of implementation support, may result in multiple versions of the interim residential care medication administration chart.

Recommendation 6

The use of interim residential care medication administration charts, including hospital pharmacist generated charts (not signed by a medical practitioner), should be written into relevant practice guidelines and standards for residential care.

Rationale: Residential care staff rely on practice guidelines and standards to guide their professional practice. There is sometimes reluctance to implement new processes if they are not supported by relevant practice guidelines and standards. The legality of using a medication administration chart that is not written or signed by a medical practitioner should be confirmed for states other than Victoria.

Recommendation 7

Further work to improve medication supply and packaging arrangements during the transition from hospital to residential care should be undertaken.

Rationale: Problems associated with medication supply and packaging contribute to medication administration errors and use of potentially unsafe and inefficient practices by residential care facility staff, especially in low-level care RCFs and special residential services. They are a source of inefficient work practices for

hospital and community pharmacists, RCFs and GPs. They also result in wastage of government-subsidised medications (especially in states that use the Pharmaceutical Benefits Scheme for hospital discharge medications), for example when the community pharmacy contracted to supply medication to the residential care facility outsources medication supply to a unit-dose packaging company that cannot use the hospital-supplied medications.