

FACT SHEET

Medicines in focus

This is one of a series of fact sheets on the use of medicines and how pharmacists within the healthcare team can contribute to better patient outcomes and quality of care. This fact sheet addresses recommendations of the Expert Panel Review of Elective Surgery and Emergency Access Targets under the National Partnership Agreement on Improving Public Hospital Services in 2011^{1,2}. The emphasis is on the National Emergency Access Targets (NEATs) and how pharmacists can assist to meet these targets, improve patient care, reduce medication misadventure, address medicine related issues early and reduce treatment delays.

Consider medication misadventure during Emergency Department attendances

Emergency departments (EDs) provide care for patients who may have an urgent need for medical, surgical or other care. EDs may also provide services for patients returning for further care, or for patients waiting to be admitted into hospital. Nationally, approximately 27% of presentations to EDs end with the patient being admitted to hospital.³ There were about 7.4 million ED presentations to public hospitals in 2009–10. These visits include both those to formal EDs in larger hospitals and those to smaller hospitals with other arrangements for providing accident and emergency services.^{3,4}

The National Emergency Access Targets (NEAT)¹ are designed to improve access for emergency patients without compromising safety and quality of care.

Early research from Western Australia lends support to this strategy.⁵ 'Front-loading' clinical pharmacy services to the ED can assist in meeting these targets.

Medicines are the most common treatment used in health care and are associated with a higher incidence of errors and adverse events than other healthcare interventions.⁶

It is estimated that in Australia, 190 000 hospital admissions a year are medication related with the cost of these estimated at \$660 million.⁷

There is variation in the complexity of medication regimens in patients presenting to ED. The increased numbers of older patients in the community with chronic complex health conditions means that many are on multiple medicines, sometimes from a variety of prescribers and sources.

Australian and international studies of hospital pharmacy services have shown that morbidity, mortality^{8,9}, adverse drug events and medication errors can be reduced where clinical pharmacists work as part of health care teams.⁸⁻¹²

Pharmacists can assist in the ED to:

- improve efficiency and patient care, reduce treatment delays and costs
- reduce medication misadventure by conducting medication reconciliation - which includes taking an accurate medication history, and medication order review
- optimise medication use and management, address medication related issues early, document known allergies and adverse drug events and counsel patients about their medicines
- reduce time spent by medical staff undertaking medication related tasks, such as determining an accurate medication history and educating patients about their medications
- support other ED clinicians
- liaise with the patient's GP and community pharmacist to clarify medication issues
- facilitate timely supply of medicines

Australian experience

A study at an Australian metropolitan teaching Hospital published in 2007 found that having a clinical pharmacist within the ED resulted in a greater than 70% relative reduction in errors²⁶. The ED pharmacist providing timely medication histories was more likely to result in admitted patients receiving an accurate medication chart early in their hospital stay.³²

In 2008 a NSW Special Commission of Inquiry report recommended "guidelines which involve consultation by and the participation of clinical pharmacists in patient care at the earliest appropriate opportunity.... to enable a clinical pharmacist to take a patient's medication history, participate in ward rounds, review the patient's medical chart during their inpatient stay and review medications on discharge."³³


At one major Australian teaching hospital a study of consecutive patients presenting to the ED in 2010 found that about 80% of ED patients during the study period were taking medicines. Using the Prince of Wales Medication Risk Assessment trigger tool criteria: age ≥ 70 years and 5 or more medicines and 3 or more co-morbidities OR a medication related presentation OR commencing warfarin – 23.1% of patients needed to be seen by a pharmacist.^{15,34}

In 2002, patients seen by an ED pharmacist at a metropolitan teaching hospital 'received a more appropriate initial medication regimen as reflected by a 75% reduction in the number of changes that the ward pharmacists had to make to the admission regimen'.²⁰ Documentation of adverse drug reactions increased, pain management was provided earlier and concordance with antibiotic guidelines increased with involvement of an ED pharmacist. Satisfaction levels were high amongst ED staff and patients.²⁶

In a report in 2011 on using a medication misadventure risk assessment tool to identify at-risk patients likely to benefit from intervention by an ED pharmacist it was noted that: 'EDs are high risk environments for medication misadventure'. Risk is increased during periods of change such as: transition from home to hospital and back; access

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Although 184 public hospitals in Australia were listed as having an ED in 2009/10¹³, pharmacists worked in only 33 of the EDs¹⁴ with most located in major cities¹⁵.

The **ED pharmacist** has a role in maintaining the continuum of care from the community to the hospital environment, and for patients discharged directly from the ED back to community services.¹⁶⁻¹⁹

Patients identified as being most at risk of medication misadventure²³, those with multiple co-morbidities, the elderly, and those taking complex medication regimens and from culturally diverse backgrounds may benefit from being prioritised for a review by the ED pharmacist.

“An elderly gentleman attended a Melbourne ED in 2011 having driven his car into a pole and was treated for his injuries. The ED pharmacist attended the patient to determine whether he was taking any medicines. He was very vague about what medicines he usually took, but the ED pharmacist determined that a relatively high dose of amitriptyline had been regularly dispensed. This medication and its high blood level may have contributed to the patient being confused and his subsequent collision. However, his attendance was documented as an injury related to a motor vehicle collision and not medication misadventure. Had a pharmacist not been involved with this patient’s ED care, this potential cause for the presentation would likely not have been identified. The amitriptyline dose was subsequently reduced and the patient referred back to their GP for review.”¹⁵

Assessment of the patients’ ability to manage their medication regimen after discharge should be part of the admission¹⁶ and discharge process from ED. ED pharmacists should initiate the discharge planning process for patients admitted to hospital communicating medicines-related problems to relevant members of the health care team as part of clinical handover.¹⁶ Patients in need of follow up services such as Home Medicines Reviews can be identified during this assessment.

Medication reconciliation²¹⁻²³ is a formal process of obtaining and verifying a complete and accurate list of each patient’s current medicines **matching** the medicines the patient **should** be prescribed to those they are **actually** prescribed. Any discrepancies are discussed with the prescriber and reasons for changes to therapy are documented. When the care of the patient is transferred (e.g. between wards, hospitals or home), a current and accurate list of medicines, including reasons for change is provided to the people taking over the patient’s care. Points of transition/ handover that require special attention are:

- admission from the ED to other patient care areas (wards, Intensive Care)
- transfer between patient care areas in the hospital
- from the hospital to home, residential aged-care facilities or to another hospital.²¹⁻²³

Although accurate medication histories are vitally important to optimal patient care, obtaining them can be complex and time consuming and the evidence suggests this task is poorly done by staff that are not focused on medication management.²⁴ Pharmacists have demonstrated that they are skilled in undertaking this task²⁵ and it is valued by doctors in ED and admitting units.^{18,26,27}

to medicines and lack of pharmacists in the ED to review medicines, supply and administration; limited counselling of patients on new therapies and or changes to existing medication (on discharge); and the chaotic and stressful nature of EDs.³⁵

Pharmacist charting of medication histories was compared with eliciting histories in the ED after medications had been prescribed by doctors at a teaching hospital in Australia. The study found that accuracy increased when the pharmacist prepared the medication charts (for the doctor), reducing the frequency of an unintentional discrepancy.³⁶

A study into paediatric ED attendances associated with drug-related problems at three hospitals in Victoria found that the ED attendance of 3.3% of all patients (eligible to be included in the study) was associated with drug related problems of which half were considered preventable.³⁷

Recent research from WA showed improvements in ED overcrowding/access block (through whole-of-hospital approach) after introduction of the 4 hour rule and suggests this coincided with a significant fall in the overall mortality in 2 of 3 tertiary hospitals in the study.⁵

A population based longitudinal study of ED utilisation found demand increased beyond that expected from demographic changes alone. The authors noted there is a need for whole system redesign to meet the proposed 4 hour targets.³⁸

Overseas experience

A 2010 systematic review examining the effects of US pharmacist – provided patient care at the bedside noted that mortality, hospitalisation/ readmission, inpatient length of stay, and ED visits benefit greatly from pharmacist services.³⁹

In the US, research has found that pharmacy staffing, clinical pharmacy services which include pharmacist-provided admission drug histories, in-service education, adverse drug reaction management, drug use evaluation and drug protocol management were associated with reduced mortality rates.⁸

A study into clinical pharmacy services, hospital pharmacy staffing and medication errors in US hospitals list pharmacist-provided drug admission histories and increased staffing levels of clinical pharmacists amongst factors associated with decreased medication errors.¹¹

A study to identify discrepancies between medication histories taken by ED providers: physicians, nurses and medical students and clinical pharmacists in a tertiary care teaching facility found that the medication histories taken by clinical pharmacists were more complete than those by the other health professionals.²⁴

A study of 49 National Health Service organisations in the UK found an association between the number of pharmacists employed (more pharmacists on staff and involved in clinical activities) and lower mortality rates.⁹

Table 1. Selected recommendations from the Expert Panel Review of Emergency Access Targets¹ and how pharmacists can help

NEAT No.	Details of relevant NEAT recommendations (summarised)	How pharmacists can help	Meeting NEAT: what to consider
1	<p>That significant effort be made to develop and implement strategies to promote clinical engagement, best practice and shared learning within and between jurisdictions, and that this matter be progressed through the Standing Council on Health</p>	<p>Pharmacists practicing in the clinical setting within hospitals are already working within health care teams reviewing medication charts; liaising with doctors, nurses and community healthcare service providers about medication related issues; promoting evidence based practice; engaging in patient counselling and education.^{10,18,25-28}</p>	<p>Chief Executive Officers</p> <ul style="list-style-type: none"> » Does discharge planning commence in the ED for both admitted and non-admitted patients? » Are pharmacists included in the health care team in your ED to facilitate assessment of patients? » Are safety and quality indicators related to medication management collected in your ED? Does your organisation support the ACSQHC's proposed Australian Safety and Quality Goals for Healthcare³¹? » Does your organisation follow the Australian Pharmaceutical Advisory Council's (APAC) Guiding Principles to Achieve Continuity in Medication Management¹⁷?
3	<p>That hospitals and Local Hospital Networks collect a suite of indicators to measure the impact of the implementation of the National Emergency Access Target (Recommendations 4 to 9) on the safety and quality of patient care.*</p> <p>A subset of these indicators will be reported by the National Health Performance Authority under the Australian Health Ministers' Conference agreed Performance and Accountability Framework.</p> <p>This subset includes:</p> <ul style="list-style-type: none"> » hospital standardised mortality ratio; » in-hospital mortality rates for selected diagnostic categories; » unplanned hospital re-admission rates for selected diagnostic categories; » healthcare associated Staphylococcus aureus bacteraemia; » healthcare associated Clostridium difficile infection; and » measures of the patient experience with health services. <p>The Panel notes the indicators that are reported in the National Partnership Agreement on Improving Public Hospital Services for emergency access and recognises the benefits of their continued reporting to assess the safety and quality of patient care, namely:</p> <ul style="list-style-type: none"> » The percentage of ED patients, who either physically leave the ED for admission to hospital, are referred for treatment or are discharged, whose total time in the ED is less than four hours, where clinically appropriate to do so. » The number, source and percentage of ED attendances which are unplanned re-attendances within 48 hours of previous attendances. <p>The Panel recommends measures of access block for emergency department patients, be collected and reported. The recognised National Health Performance Authority / Standing Council on Health process will need to apply to the development and acceptance of these indicators.</p>	<p>The Australian Commission on Safety and Quality in Healthcare (ACSQHC) <i>National Safety and Quality Health Service Standards</i>⁶, provides standards for medication safety which includes amongst others: taking accurate medication histories, documenting previous adverse medicines reactions and updating these, reviewing medication orders and medication reconciliation.</p> <p>Large research studies from the US have shown that a greater number of pharmacists on staff in hospitals and pharmacists at the bedside providing clinical pharmacy services (particularly admission drug histories), are associated with reduced morbidity, mortality and decreased medication error rates.^{8,11} A similar association between pharmacist numbers and lower mortality rates was also found in a study of 49 NHS organisations in the UK.⁹</p> <p>Pharmacists can assist with patient medication assessment, which can help prevent readmission. Research from Australia has shown that clinical pharmacist review to optimise the use of medicines contributed to reduced length of stay, reduced potential for hospital readmission and associated savings in the cost of care.¹²</p> <p>Pharmacists play an active role in antimicrobial stewardship²⁹. They provide guidance to clinicians regarding availability, guidelines and optimum use of antibiotics within hospitals. They counsel patients on safe and effective use of prescribed antibiotic medications as well as document allergies and adverse drug reactions to medicines.^{29,16}</p>	<p>Directors of emergency services, directors of medicine, nursing and pharmacy</p> <ul style="list-style-type: none"> » How many presentations to your ED are medicines related? » What proportion of ED patients take five or more medicines? » Is medication reconciliation completed in the ED for all patients who present, are admitted into hospital or discharged home? How early in the patient presentation is this process completed? » Are patients at risk of medication misadventure identified using the checklist on the <i>National Medication Management Plan</i>²⁰? » Are patients that would benefit from a Home Medication Review identified using the checklist on the <i>National Medication Management Plan</i>²⁰? Are the GPs of these patients alerted to this issue? » Are medicines reviewed in line with falls prevention strategies? » Are antimicrobial agents prescribed in accordance with stewardship guidance? » Do you have a pharmacist in the ED who is available to promote quality use of medicines and facilitate timely supply? » Is funding available for an ED pharmacist to cover 2 or 3 shifts each day in your current business model? » Is funding for an ED pharmacist part of your future funding submission?

Table 1 Selected recommendations from the Expert panel Review of Emergency Access Targets¹ and how pharmacists can help

NEAT No.	Details of relevant NEAT recommendations (summarised)	How pharmacists can help	Meeting NEAT: what to consider
4	That the four hour National Access Target for Emergency Departments be retained but renamed the 'National Emergency Access Target' ('NEAT') to change the focus from being entirely on the emergency department to emphasise the whole-of-hospital changes that are required to improve emergency patients' access to care.	ED Pharmacists can assist in the timely transition of patients through the ED by conducting medication reconciliation and review early in the attendance of patients in the ED. Early identification of medication related issues facilitates a smoother transition. ^{16,26,28}	<p>Local Hospital Networks, Medicare Locals</p> <ul style="list-style-type: none"> » Does your organisation subscribe to the APACs <i>Guiding Principles to Achieve Continuity in Medication Management</i>¹⁷ and the ACSQHC proposed Australian Safety and Quality Goals for Healthcare³¹? » Are pharmacists included in your planning of seamless transition between community and hospital care? » Does your organisation have liaison pharmacists?
5	90 per cent of patients leaving the emergency department within four hours of presentation	ED Pharmacists can assist in the timely transition of patients through the ED by conducting medication reconciliations and review early in the attendance of patients in the ED. This facilitates timely supply of medications to the ED and the identification of medication related issues early in the process. ^{16,26,28}	
6	That staged implementation across all triage categories by calendar year commence in 2012.		
7	For NEAT, the clock starts at the first recorded contact, which will be with either nursing triage or clerical staff.		
8	Definition of what constitutes a 'short stay unit' or equivalent include: designed for short term stays no longer than 24 hours	Patients with multiple co morbidities, the elderly, those taking complex medication regimes, patients identified as being most at risk of medication misadventure and from culturally diverse backgrounds ³⁰ may benefit from being prioritised for a review by the ED pharmacist. This facilitates patient assessment and the discharge of patients from the ED back home or to community health services. 'Front-loading' clinical pharmacy services to the ED facilitates the assessment of patients that require admission.	

An electronic version and complete list of references is available at <http://www.shpa.org.au> (Updated March 2012)

*A set of indicators from which hospitals could choose is provided in the Supplementary Annexure to the Expert Panel Report

The Society of Hospital Pharmacists of Australia (SHPA) is the professional body which represents over 4,000 pharmacists, pharmacy students, pharmacy technicians and associates practising in all parts of the Australian health system.

SHPA vision

Excellence in Medicines Management.

SHPA purpose

Deliver value through people, systems and processes and processes for the best patient outcomes