

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 Elective Surgery Targets (NESTs) and how pharmacists can assist to meet these targets, improve patient care, reduce medication misadventure, address medicine-related issues early and reduce treatment delays.

Medication assessment at pre-admission for elective surgery

There were 1.9 million admissions for planned (elective) surgery in Australia in 2009–10, with over 660 000 patients admitted into public hospitals from elective surgery waiting lists and over 1.2 million into private hospitals.³

The National Elective Surgery Targets (NESTs)¹ are designed to **improve access for elective surgery patients without compromising safety and quality of care.**

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.⁴ It is estimated that in Australia, 190 000 hospital admissions a year are medication related with the cost of these estimated at \$660 million.⁵

Pre-surgical assessment of all medicines taken by patients (prescribed and not-prescribed, including complementary medicines) is essential. This should be based on a medication reconciliation which includes an accurate, complete and comprehensive medication history that encompass the potential variety of prescribers and sources of medicines likely to be used by patients with chronic, complex and other health conditions.

Pharmacists can assist in an interdisciplinary elective surgery pre-admission (PAC)/anaesthetic assessment clinic (AAC) and the pre-surgical assessment of patients to:

- screen for and advise about medicines to be withheld prior to surgery and when to recommence post surgery or on discharge^{6,7,8}
- reduce preventable surgery cancellations
- reduce time spent by medical staff undertaking medication-related tasks, such as determining an accurate medication history
- compile and document an accurate, complete and verified medication list to assist the prescriber in writing the medication chart
- document known allergies and previous adverse drug events
- educate patients on the safe and effective use of their medication prior to surgery and medicines that may be required post surgery
- liaise with the patient's GP and community pharmacist to clarify medication pre-operatively, on admission and on discharge
- optimise medication use to better manage pre-surgical care^{8,9,10}
- improve efficiency and reduce costs
- support other pre-admission clinic/ anaesthetic assessment clinicians
- consult again with the patient prior to, or at admission to determine and document any medication changes since their PAC appointment^{11,12}
- assess the patient's ability to manage their medicines after discharge and advise accordingly

Pharmacists are well placed to provide all these services.

Australian experience

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..."³⁹

A randomised controlled trial of pharmacist medication histories and supplementary prescribing on medication errors postoperatively at a regional tertiary referral hospital reported in 2011 that supplementary pharmacist prescribing immediately preoperatively reduced the number of missed regular medication doses postoperatively, and reduced the incidence of errors related to dose and frequency of medications when compared with regular care (no clinical pharmacist consultation prior to surgery), or a pharmacist medication history only (at admission).¹⁰

A randomised controlled study conducted at a large metropolitan teaching hospital in 2007/8 found that the "PAC pharmacist documented significantly more prescribed regular and as required medicines, and complementary and alternative medicines per patient than the PAC doctors".¹¹


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 medication charts (for the doctor), reducing the frequency of an unintentional discrepancy.⁴⁰

Overseas experience

A pilot study in the UK assessed the impact of including a pharmacist on an elective general surgery PAC compared with a regular ward based clinical pharmacy service. Assessment by the PAC pharmacist included: taking a comprehensive

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Australian and international studies of hospital pharmacy services have shown that where clinical pharmacists work as part of health care teams, morbidity, mortality^{13,14}, adverse drug events and medication errors can be reduced.¹³⁻¹⁷

Most hospitals in Australia with a pharmacy service offer some level of a clinical - at the patient bedside - pharmacy service.¹⁸ A survey of public hospital pharmacy services in Australia found that 76.6% of hospitals that responded (n=94) had a pre-admission clinic at their hospital and of these only 18% had a pharmacist working within the clinic.¹⁹

The activities that are essential for safe and effective medication management are:

- medication reconciliation (including an accurate medication history) on admission/ transfer into hospital
- management of medication issues throughout the admission
- medication reconciliation on discharge/ transfer from hospital and provision of that verified information for ongoing care.^{4,20,21}

These activities support the safe, timely and efficient transition of patients pre and post surgery through the hospital and on discharge maintaining the continuum of care of the patient.²² Safe and effective use of medicines is the core business of pharmacists.

Medication reconciliation^{20,21,23} 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 include pre and post surgical care^{20,21,23}

Research has shown that patient-completed medication histories are often incomplete when compared with those obtained by pharmacists working in pre-admission clinics.^{24,25} Obtaining accurate medication histories can be complex

and time consuming and the evidence suggests this task is done poorly by staff that are not focused on medication management.^{26,27} Pharmacists have demonstrated that they are skilled in undertaking this task²⁸ and it is valued by doctors.^{9,25,29}

A Pre-Admission Clinic Pharmacist project developed to optimise health outcomes for elective surgery patients at Fremantle Hospital and Health Service in Western Australia (WA) received a WA Health Award in November 2011 for its contribution to improving the patient journey.

The project has led to improvements in the medication management of patients before, during and after their surgery. It has demonstrated significant improvements in medication safety, reduced length of stay for elective surgical patients, cost saving to the hospital, and has improved the medication knowledge and compliance of patients.^{30,31}

A business case for a PAC pharmacist has been developed for ongoing provision of this service in the hospital.

patient medication history, writing each patient's usual medication and items routinely required for their procedure on the in-patient medication chart and writing the patient's discharge medication requirements on the discharge advice note (which were countersigned by a doctor prior to administration or dispensing); advising clinicians on medicines to be stopped pre-operatively; recording interventions and patient medication counselling. PAC pharmacist interventions were more proactive compared with the ward based service which is reactive to medication orders already prepared. No prescribing errors and omissions were made in the PAC group. Pharmacist workload was higher in the PAC but saved surgical and nursing staff time.⁸

A study in 2005 at a tertiary care university affiliated teaching hospital in Canada found a combined intervention of pharmacist medication assessments in a PAC and a postoperative medication order form can reduce postoperative medication discrepancies related to a patient's home medications and improve patient safety during hospital admission.¹²

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 provided services.³²

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.¹³

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.¹⁶

A study to identify discrepancies between medication histories taken by physicians, nurses and medical students and clinical pharmacists in a tertiary care teaching facility found medication histories taken by clinical pharmacists more complete than those by the other health professionals.²⁶

A prospective cohort study conducted in two surgical ICUs at an academic medical centre in the US in 2004 found discrepancies existed between surgery and anaesthesiology preoperative medication histories for most postoperative patients admitted to their surgical ICU.⁴¹

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.¹⁴

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

NEST No.	Details of relevant NEST recommendations (summarised)	How pharmacists can help	Meeting NEST: 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 healthcare teams reviewing medication charts; liaising with doctors, nurses and community healthcare service providers about medication-related issues; promoting evidence-based practice; and engaging in patient counselling and education. 15,18,19,28,32</p>	<p>Chief Executive Officers</p> <ul style="list-style-type: none"> » Are pharmacists included in the healthcare team in your pre-admission clinic (PAC), anaesthetic assessment clinic (AAC) and on your surgical wards? » Are pharmacists included in early intervention service teams/outpatient pain clinics? » Does your organisation follow the Australian Pharmaceutical Advisory Council's (APAC) <i>Guiding Principles to Achieve Continuity in Medication Management</i>²²? » Does your organisation support the ACSQHC's proposed Australian Safety and Quality Goals for Healthcare³⁷?
2	<p>That surgical taskforces, as already exist in some jurisdictions, be established in all jurisdictions and linked nationally as a means of sharing information on best practice elective surgery waiting list management.</p>	<p>Consideration should be given to include a pharmacist on surgical taskforces to assist in strategies to identify and resolve medication management issues related to elective surgery admissions and discharge.</p>	<p>» Does your organisation follow the Australian Pharmaceutical Advisory Council's (APAC) <i>Guiding Principles to Achieve Continuity in Medication Management</i>²²?</p> <p>» Does your organisation support the ACSQHC's proposed Australian Safety and Quality Goals for Healthcare³⁷?</p>
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 10 to 14) 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 <i>Staphylococcus aureus</i> bacteraemia; » healthcare associated <i>Clostridium difficile</i> 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 elective surgery and recognises the benefits of their continued reporting to assess the safety and quality of patient care. The agreed Performance Indicators are the:</p> <ul style="list-style-type: none"> » number of additional patients receiving elective surgery from waiting lists » 2number of patients removed from waiting lists for reasons other than admission as an elective patient » number and percentage of patients seen within the clinically recommended time by urgency category 	<p>The Australian Commission on Safety and Quality in Healthcare (ACSQHC), National safety and quality health service standards⁴, provides standards for medication safety which includes amongst others: medication reconciliation which includes taking accurate medication histories, documenting previous adverse medicines reactions and updating these, and reviewing medication orders.</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.^{13,16} A similar association between pharmacist numbers and lower mortality rates was also found in a study of 49 NHS organisations in the UK.¹⁴</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.¹⁷</p>	<p>Directors of medicine, nursing and pharmacy</p> <ul style="list-style-type: none"> » Is medication reconciliation completed for all patients who are admitted into hospital, assessed at pre-admission or discharged home? How early in the patient admission is this process completed? » Are patients at risk of medication misadventure identified using the checklist on the National Medication Management Plan³⁸? » Are patients assessed for risk of DVT? » Are medicines reviewed in line with falls prevention strategies? » Are antimicrobial agents prescribed in accordance with stewardship guidance? » What proportion of patients presenting for elective surgery take five or more medicines? » Do you have a pharmacist included in the healthcare team in your PAC, AAC or your surgical wards who is available to promote quality use of medicines and facilitate timely supply? » Is funding available for a pharmacist service in your PAC, AAC, surgical wards, and outpatient pain clinics included in your current business model? » Is funding for a pharmacist service in your PAC, AAC or surgical wards part of your future funding submission? » Are patients that would benefit from a Home Medication Review identified using the checklist on the National Medication Management Plan³⁸? Are the GPs of these patients alerted to

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	Details of relevant NEST recommendations (summarised)	How pharmacists can help	Meeting NEST: what to consider
3 (cont)	<ul style="list-style-type: none"> » median waiting time for the 15 indicator procedures (including knee and hip replacements, cataract surgery, septoplasty, etc) » median waiting times by urgency category » number of elective surgical episodes with one or more adverse events and » number of unplanned readmissions within 28 days of discharge from hospital following an episode of elective surgery. <p>The Panel recommends measures of access to emergency surgery, such as ‘time to operative repair of a fractured neck of femur’, 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>Pharmacists play an active role in antimicrobial stewardship³³. 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 reactions to medicines.^{33,34}</p> <p>Pharmacists can conduct medication reconciliation and review early in the attendance of patients in the PAC/ AAC or on admission to hospital. Early identification of medication-related issues facilitates a smoother transition.^{8,9,11,12,25,35}</p> <p>Ensuring patients are using their medications as prescribed and identifying and promptly addressing any medication problems assists in optimising the patient for their planned surgery.^{11,36}</p>	<p>Local Hospital Networks, Medicare Locals</p> <ul style="list-style-type: none"> » Does your organisation have liaison pharmacists? » Are pharmacists included in your planning of seamless transition between community and hospital care? » Does your organisation subscribe to the APAC <i>Guiding Principles to Achieve Continuity in Medication Management</i>²² and the ACSQHC proposed Australian Safety and Quality Goals for Healthcare³⁷?
11	<p>That the current elective surgery target and the National Access Guarantee be replaced by a National Elective Surgery Target (NEST) where 100 per cent of patients are treated within clinically recommended times, across all urgency categories.</p> <p>Reward funding will apply.</p>	<p>Early intervention service (EIS) teams may assist in managing patients on surgery waiting lists by working with patients to engage with multidisciplinary healthcare service providers who may offer interventions in care which improve function, pain control and optimise patients, or reduce the urgency, for elective surgery.³⁶</p>	
14	<p>That a measure of surgical access time (‘National Elective Surgery Access Time’), that is from GP referral to patients receiving surgical care, be developed to determine the true waiting time and demand for elective surgery, and that consideration be given to utilising such a measure of elective surgery performance in future agreements.</p>	<p>Pharmacists working across the healthcare spectrum –in the community, in hospitals, in GP practices, within healthcare teams and within Medicare Locals– can assist patients waiting for surgery to manage their medication safely, effectively and optimally. They can also assist in/conduct pain clinics to review the management of pain in patients waiting for surgery.³⁶ Pharmacists can also triage patients to other healthcare service providers or community programs such as self care or ‘prehab’ programs.</p>	

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

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 mission

Includes advocating for the safe and effective use of medicines across the continuum of care, partnering with key medicines stakeholders