

SHPA Standards of Practice for Clinical Pharmacy

SHPA Committee of Specialty Practice in Clinical Pharmacy

1. INTRODUCTION

These standards supersede the previously published SHPA guidelines for the standards of practice of clinical pharmacy services.^{1,2} The definitions of clinical services described in these standards supersede those detailed in 'Definitions for hospital pharmacy services'.³ These standards have been developed for all patient care settings, and may be adapted for use in a variety of practice settings, aiming to ensure the highest possible quality of patient care.

The SHPA code of ethics provides guidance on professional conduct and its principles form the basis of the roles and responsibilities of pharmacists practising in hospitals and related areas.⁴ Reference should also be made to the Australian competency standards for pharmacists as it outlines the fundamental competencies for the provision of quality pharmacy services in all aspects of professional practice.⁵ National principles and policies relating to the quality use of medicines (QUM) should also be consulted in conjunction with these standards.⁶⁻⁸

Familiarity with the medicines management pathway or continuum and the contribution of clinical pharmacists and other hospital pharmacy services to support each

step of the pathway is useful to assist the design of clinical pharmacy services (Figure 1). These services have been recognised by the Safety and Quality Council, and Health Ministers, in the strategy to improve medication safety in hospitals.

Other SHPA practice standards and guidelines in specialty areas such as drug use evaluation, oncology and psychiatry should be read in conjunction with these standards.⁹⁻¹⁴

2. OBJECTIVE AND DEFINITION

Objective

The objective of clinical pharmacy practice is to optimise patient outcomes by working to achieve QUM.

Definition

Clinical pharmacy practice is the practice of pharmacy as part of a multidisciplinary healthcare team directed at achieving QUM. This may include:

- participation in the management of individual patients;
- application of the best available evidence in daily clinical practice;
- contribution of clinical knowledge and skills to the healthcare team;

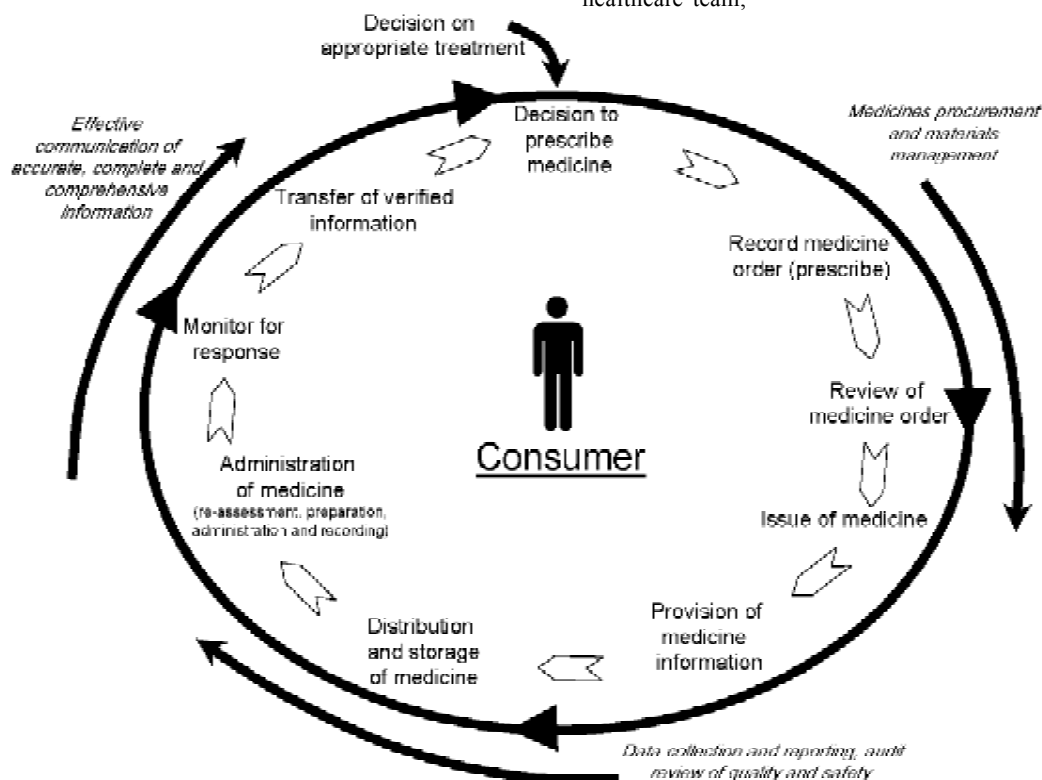


Figure 1. Overview of the medicines management pathway cycle (reproduced from J Pharm Pract Res 2004; 34: 294.)

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- identification and reduction in risks associated with medicines use;
- involvement in the education of patients, carers, and other health professionals; and
- involvement in research.

Table 1. Relationship between the components of the Medication Action Plan and specific clinical activities undertaken

Specific clinical activities	Components of the Medication Action Plan					
	Patient-specific data	Identify clinical problem	Establish therapeutic goals	Evaluate therapeutic options	Individualise therapy	Monitor outcomes
Accurate medication history	✓	✓	✓	✓	✓	✓
Assessment of current medication management	✓	✓	✓	✓	✓	-
Clinical review	✓	✓	✓	✓	✓	✓
Decision to prescribe a medicine	✓	✓	✓	✓	✓	✓
Therapeutic drug monitoring	✓	✓	✓	✓	✓	✓
Ward round participation	✓	✓	✓	✓	✓	✓
Provision of medicines information to health professionals	✓	✓	✓	✓	✓	✓
Provision of medicines information to patients	-	-	-	-	✓	✓
Information for ongoing care	✓	-	-	-	✓	✓
Adverse drug reaction management	✓	✓	-	-	-	-

3. EXTENT AND OPERATION

Clinical pharmacy services must be supported by management to enable pharmacists to achieve QUM. A pharmacy service should provide suitably trained and qualified pharmacists supported by appropriately supervised technicians to facilitate the most effective, efficient and economical use of medicines with the aim of optimising patient care.

Clinical pharmacists should be involved in activities directed to individual patients (Section 3.1) and more broadly to support the objectives of the National Medicines Policy, especially its QUM arm (Section 3.2).

Clinical pharmacy should not be restricted to hospital practice. Communication and cooperation between institutional and community-based pharmacists is an essential element of a patient’s ongoing care.

3.1 Clinical Pharmacy Services for Individual Patients

The provision of clinical pharmacy services to individual patients consists of a range of overlapping activities, many of which are performed concurrently (Table 1, Section 4, Appendices A-J). These activities facilitate the contribution of the pharmacist’s component of the Medication Action Plan, with the goal of optimising the use of medicines. The six fundamental components of the Medication Action Plan for an individual patient and the ten specific clinical activities that contribute to the Medication Action Plan are outlined in Table 1.

3.1.1 Prioritisation of Clinical Pharmacist Activities

Pharmacy managers and clinical pharmacists may on occasion be required to prioritise the range of services that they provide. The three activities that are essential for the provision of a basic clinical pharmacy service are described in Table 2. These recommendations apply to all areas of clinical practice including inpatients, outpatients, emergency, pre-admission and post-acute care. It is imperative that priority is given to clinical activities directed towards the safe and effective use of medicines and that the fundamental requirements of the Australian Pharmaceutical Advisory Council are fulfilled.⁷

Table 2. Components of a basic clinical pharmacy service

Accurate medication history (Appendix A)
An accurate medication history must form the cornerstone of all clinical pharmacy services with all acute and complex admissions having an assessment by a pharmacist as soon as possible after admission. The critical component of this assessment is a face-to-face interview with the patient/carer, preferably within 24 hours of admission, or at least before the end of the next working day after admission. Notwithstanding this, any prescription must be reviewed prior to dispensing.
Assessment of current medication management (Appendix B)
An assessment of current medication management should occur for all acute patients at least once per day. As a minimum this should occur every working day and in some circumstances consideration should be given to providing this service every day when the clinical situation requires substantial pharmacist input. Chronic, less acute and also uncomplicated day surgery patients may be reviewed less often but this will depend on their clinical status and current medication management.
Provision of medicines information to patients (Appendix H)
All patients (inpatients and outpatients) must be educated about their medicines by a pharmacist. If this is not possible, a system of prioritisation must be established in order to reach those patients likely to gain maximum benefit from medicine education.

3.2 Clinical Pharmacy Services to Support the National Medicines Policy

Pharmacists must be involved in activities that support the objectives of the National Medicines Policy, especially its QUM arm. Such support may not directly relate to the care of individual patients (Section 3.1), but is fundamental to underpin the medicines management framework for all patients. Consequently, clinical pharmacy services and necessary resources and support must be provided as part of medicines management leadership.

3.2.1 Access, Equity and Continuum of Care

Pharmacists should be involved in contributing to processes involved in selecting new medicines, approving institutional procedures and guidelines, and reviewing access and availability of various therapies. Pharmacists must attempt to ensure patient outcomes

are the major factor, in addition to economic considerations, in the provision and availability of selected medicines. This includes availability of appropriate medicines in both range and patient access. Pharmacists must consider this not only for hospitalised patients but also for patients planned for transfer to the ambulatory setting. Pharmacists need to contribute to decisions regarding transition from hospital to other providers/carers including involvement in discharge planning teams. Pharmacists should be represented and involved in drug and therapeutics committees as specific members or co-opted as required.

3.2.2 Decision Support Tools

Pharmacists should be involved in the identification, formulation, implementation and evaluation of decision support tools for medicines management. This could range from contribution to the development and review of clinical pathways through to interactive computer-based applications. Pharmacy managers, administrators and clinicians must consult with pharmacists when developing these tools. The degree of involvement will vary depending on the skills and experience of the pharmacist and the practice and requirements of the institution.

3.2.3 Drug Use Evaluation

Drug use evaluation is an essential component of clinical pharmacy services.^{9,16} Involvement by pharmacists could include identification of the clinical areas requiring evaluation and the design, methodology and provision of educational programs.

3.2.4 Patient Information and Education Programs

Pharmacists should be involved in presentations and education programs to patient groups, e.g. cardiac rehabilitation, and participation in public health education programs, e.g. smoking cessation.

3.2.5 Clinical Risk Management

Pharmacists should be involved in the design and prioritisation of programs for assessing the quality of clinical services including but not limited to clinical pharmacy services. This could include a range of specific risk management activities including documentation of pharmacist interventions (Section 10.4.1), adverse event monitoring, and contribution to quality programs relating to medication safety, health system design and access to services. Performance improvement for the clinical pharmacy service, pharmacists and students should be a focus of all clinical pharmacists and include the education, training and competency assessments of pharmacy staff.

3.2.6 Training and Education

Clinical pharmacists have a responsibility to contribute to the training and education of other pharmacists, pharmacy students and health professionals (Section 5). This may involve experiential training of undergraduate and postgraduate students, or the orientation and training of inexperienced pharmacists or those recently returning to the workplace. Involvement should include:

- experiential education of pre-registration pharmacists;
- orientation and training of pharmacists in specific fields of practice;
- education of health professionals in areas relevant to QUM; and
- patient and carer education.

Types of services that may be provided include:

- specific undergraduate pharmacist education;
- design and planning of undergraduate and postgraduate pharmacy course programs;
- design and planning of patient-focused education programs;
- development of training programs and courses on selected aspects of clinical pharmacy practice; and
- publication of training programs and education tools.

3.2.7 Research

Clinical pharmacists should contribute to research into optimal use of medicines and the practice of clinical pharmacy. Support in terms of funding, time and resources is required from the pharmacy department, institution and clinical units. Pharmacists should support, initiate and participate in research projects whenever possible (Section 6). Pharmacists involved in research activities must adhere to the principles and procedures outlined by key authoritative bodies¹⁷⁻²⁰ and those of individual institutional research and ethics committees.

4. PROCEDURES FOR CLINICAL PHARMACY SERVICES FOR INDIVIDUAL PATIENTS

There are a range of activities that contribute to the provision of clinical pharmacy services to individual patients. This section outlines the fundamental components of a clinical pharmacy service and details the discrete activities that are performed. There are two overlapping components, a Medication Action Plan, and the discrete clinical activities that contribute to the plan.

4.1 Medication Action Plan

The relationship between specific clinical activities and fundamental components of the Medication Action Plan are outlined in Table 1. The Medication Action Plan focuses on overall patient outcomes and in order to carry out this plan, the pharmacist will perform a number of specific clinical activities. The clinical pharmacy activity descriptions in these standards aim to aid in the development and assessment of services and to assist in the education and training of clinical pharmacists.

The six fundamental components of a Medication Action Plan for an individual patient are:²¹

1. interpretation of patient-specific data (Section 4.1.1);
2. identification of clinical problems (Section 4.1.2);
3. establishment of therapeutic goals (Section 4.1.3);
4. evaluation of therapeutic options (Section 4.1.4);
5. individualisation of therapy (Section 4.1.5); and
6. monitoring of patient outcomes (Section 4.1.6).

The ten specific clinical activities that contribute to the components of a Medication Action Plan are:

1. accurate medication history (Appendix A);
2. assessment of current medication management (Appendix B);
3. clinical review (Appendix C);
4. decision to prescribe a medicine (Appendix D);
5. therapeutic drug monitoring (Appendix E);
6. participation in multidisciplinary ward rounds and meetings (Appendix F);
7. provision of medicines information to health professionals (Appendix G);
8. provision of medicines information to patients (Appendix H);
9. information for ongoing care (Appendix I); and
10. adverse drug reaction management (Appendix J).

4.1.1 Interpretation of Patient-Specific Data

Patient-specific data should be reviewed to assist pharmacists in establishing the goals of therapy and management plan. This allows pharmacists to identify medicine-related problems and assess the appropriateness of therapy. The data collected should be succinct and relevant. Although it may be desirable to have a comprehensive database for all patients, this will not be practical in most circumstances. Methods for recording and organising patient-specific data will vary with the practice setting (Section 10.1). The key focus should be on obtaining the most relevant data rather than collection of all information.

4.1.2 Identification of Clinical Problems

The patient-specific data collected must be used to identify either actual or potential clinical problems. These may be related to disease, treatment or other patient factors. It is important to identify these issues early and on an ongoing basis through regular clinical review.

Pharmacists need to focus attention on those problems that require their expertise and in which they can influence patient care and consequently outcome. It is paramount that pharmacists have a problem-orientated approach to patient care rather than a reactive response to changes in medicines in isolation from other influencing parameters. Assessment of factors such as significance, severity and acuity are also important in prioritisation of management of the various clinical issues identified.

4.1.3 Establishment of Therapeutic Goals

The overall goal of patient management (e.g. cure, symptom control, prevention) needs to be identified to enable the formulation of a focused Medication Action Plan. These goals need to be established in conjunction with the healthcare team and the patient. Goals for individual aspects of therapy, including medicine use, need to be consistent with the overall goals outlined above.

4.1.4 Evaluation of Therapeutic Options

The choice of a particular therapeutic option is based on the planned therapeutic goal, the evidence available and patient preference. The process of evaluating various therapeutic options involves consideration of efficacy, safety, availability and costs, to name a few. In some cases the most suitable option may not include treatment using medicines.

4.1.5 Individualisation of Therapy

In circumstances where more than one therapeutic option may exist, the suitability of each treatment must be weighed against individual patient factors to ensure that the one selected will provide the best possible outcome. The planned therapeutic goals, benefits and risks of therapy, and level of available evidence need to be considered in the individualisation of therapy. Throughout this process it is imperative that patients/carers are kept informed and involved in the decisions.

4.1.6 Monitoring of Patient Outcomes

Monitoring of patient outcomes requires a structured yet responsive approach by the pharmacist that considers the important potential outcomes (planned and unplanned). Monitoring should be patient-focused and directed to the key endpoints relating to therapy and the clinical problems identified. The frequency of monitoring

will depend on the acuity of the patient, complexity of the therapies, timeframe for expected changes and the potential risks associated with the therapy.

5. TRAINING AND EDUCATION

The training and education of pharmacists providing clinical services must encompass orientation, clinical competency assessment and performance appraisal supported by a structured and documented program.

5.1 Training and Education of Clinical Pharmacists

5.1.1 Orientation

A suitably experienced clinical pharmacist should ensure that pharmacists commencing practice in an unfamiliar ward, department or unit receive a thorough orientation to the workplace, the department and the clinical pharmacy procedures of the site. A policy and procedure manual that provides a framework for the clinical pharmacy procedures of the workplace should be used in the orientation of pharmacists. This manual should contain the SHPA standards of practice for clinical pharmacy, describe the duties and responsibilities of pharmacists at the site and be regularly updated to reflect changes in clinical practice within and outside the workplace. It should also clearly define the expectations, extent and quality of the clinical pharmacy service.

Orientation shall include introduction to pharmacy, medical, nursing, clerical and allied health staff, orientation to patient care areas, patient medication charts, patient histories, the laboratory system and other aspects of daily patient care activities.

5.1.2 Clinical Pharmacy Education

An experienced clinical pharmacist or clinical education pharmacist should have dedicated time to provide clinical pharmacist education. For the purposes of this section both will be referred to as clinical education pharmacist. Training should be tailored to the experience and practice of the pharmacist undergoing training. The baseline clinical pharmacy skills and previous clinical experience should be determined. Clinical pharmacist education should include orientation, review of skills using an assessment tool where possible and an ongoing program of guided clinical development and performance review.²¹⁻²⁴

The clinical pharmacy training model appropriate for a workplace will depend on its size and the extent of operation of the clinical pharmacy services. A large clinical pharmacy service may support a dedicated clinical education pharmacist and a mentoring team of pharmacists who have experience in particular clinical areas. Smaller departments may utilise a single pharmacist for management, orientation and education and may need to draw on academics, doctors, nurses and other health professionals to play a role in the education of pharmacists. The core clinical education should, however, be delivered by pharmacists.

The clinical pharmacist education should focus on the goals and procedures for the clinical pharmacy activities (Appendix K). Initially, the pharmacist undergoing training should work alongside the clinical education pharmacist. The duration will be commensurate with the experience and skill of the pharmacist undergoing the training. This pharmacist should observe the clinical education pharmacist perform a range of clinical activities. These activities include the specific clinical pharmacist activities (Appendices A-J).

The clinical education pharmacist should observe the pharmacist's encounters with patients, medical, nursing and other staff and observe their performance of the clinical pharmacy activities. This permits the clinical education pharmacist to brief the pharmacist undergoing training before the clinical activity, to debrief and reflect after the activity, to give feedback on performance and to plan the next clinical experience.²⁵ The pharmacist undergoing training should be given increasing levels of responsibility once an appropriate level of clinical ability has been demonstrated.

The clinical pharmacist education should also include specific clinical and therapeutic information relevant to the specific area of clinical practice. This may include basic ward information, daily clinical pharmacist activities, information regarding the types of patients and common procedures undertaken on the particular ward or clinical area, treatment protocols, related clinical information and relevant references. This information may be contained in a ward information folder or be accessible electronically. Clinical pharmacists should add to this information during their work in a particular clinical area, and experienced pharmacists should ensure the currency of the information at regular intervals.

5.1.3 Clinical Competency Assessment

The clinical education pharmacist should assess the clinical competency of the pharmacist undergoing training using published assessment templates or assessment tools which have been modified to meet specific site requirements.^{23,24} The clinical practice skills that could be assessed include perception of the need for a medicine, selection of a specific medicine, evaluation and review of a treatment regimen, monitoring effects of therapy and patient education.²⁵ The pharmacist undergoing training should demonstrate competency in a range of clinical areas prior to working independently with a full clinical load.

As a minimum, a clinical education pharmacist or clinical pharmacy manager should undertake an evaluation as to whether a pharmacist is able to perform the basic clinical pharmacy activities to a level that will allow them to practise safely in the particular work setting. This assessment of overall intuitive competency should take place after a period of orientation and training and should involve direct observation of the pharmacist's performance.

The clinical competency of existing clinical pharmacists should also be reviewed on a regular basis. Specific areas of clinical practice and their components could be assessed using published assessment templates, self-assessment, the technique of observed structured clinical examination or using the methods described under clinical performance review (Section 5.1.5).²³⁻²⁶

5.1.4 Clinical Support and Mentoring

In addition to orientation, training and assessment, workplaces should have a system in place to guide clinical development. Some workplaces may find it useful to develop a mentoring system and formally allocate experienced pharmacists to supervise junior or inexperienced pharmacists to provide encouragement, support and feedback. Ideally, the mentor and pharmacist should meet regularly and discuss medicine issues, clinical problems and individual patients. Regular supervised clinical practice, ward visits or education sessions at clinical pharmacy staff meetings can facilitate mentoring.

5.1.5 Performance Appraisal and Continuing Professional Development

Review and assessment of clinical performance is an essential component of a clinical pharmacy service and must be adequately resourced. Clinical performance appraisal is multifaceted and should involve assessment of the performance of the major clinical pharmacy activities through clinical competency assessment (Section 5.1.3). This should also assess the extent of pharmacist involvement in education, departmental activities, research and projects and incorporate feedback from key stakeholders.

Ongoing clinical performance review can be patient or problem based and take place at ward level or within the department. This may involve review of patient-specific data that has been collected and documented by the clinical pharmacist. Useful methods for reviewing the performance of a clinical pharmacist include:

- review of Medication Action Plans;
- review of medication charts;
- discussion of a patient's clinical problems including the pharmacist's plan for addressing these problems;
- assessment of case presentations;
- review of pharmacist recommendations for changes to medicines (clinical pharmacy interventions); and
- review of pharmacist's performance against key performance indicators.

The pharmacist's ability to manage their time, interact with other health professionals and provide the clinical service should also be reviewed. Aspects of these requirements can be explored through discussion with nurse unit managers, medical staff and pharmacy staff.

The pharmacist's commitment to continuing professional development and maintaining and updating clinical knowledge can be assessed by:

- attendance and contribution at relevant clinical meetings and conferences;
- participation in recognised continuing professional development programs;
- participation in education programs for pharmacists, pharmacy residents or pre-registration pharmacists and students;
- involvement in department-based or external research;
- knowledge of relevant literature (including attendance and participation in journal club meetings);
- involvement in external committees; and
- attainment of postgraduate qualifications.

A senior clinical pharmacist should regularly review the above for each clinical pharmacist and discuss and identify areas for ongoing improvement and development with the individual pharmacist.

5.2 Clinical Pharmacist Involvement in Education and Training

Clinical pharmacists should demonstrate a commitment to continuous professional development and improving their own clinical education (Section 5.1.5). Clinical pharmacists should also play an active role in the education and training of undergraduate pharmacists, pre-registration pharmacists, practising pharmacists, postgraduate clinical pharmacists, health professionals and students, pharmacy technicians, and the public. Education should involve both clinical pharmacist skills and knowledge relevant to the area of practice, and tailored to the level of the learner. Wherever possible, clinical pharmacists should have formal training in clinical supervision to maximise the learning experience.

5.2.1 Undergraduate Pharmacists

Clinical pharmacists should be involved in the training of undergraduates in conjunction with the academic institution responsible for delivery of the undergraduate program. This training should involve modelling of clinical skills, and may include a level of teaching of therapeutics, although this will often be delivered by the university. Areas of training should incorporate all aspects of these standards of practice. Clinical pharmacists should also be involved in assessing the student's performance and providing ongoing feedback, as well as providing formal feedback to the university regarding the student's performance in clinical areas. Training programs should be developed in conjunction with the university, taking into consideration the required aims and objectives of clinical placements, as well as the previous experiences of the student.

5.2.2 Pre-registration Pharmacists

Pre-registration pharmacists should have a large component of experiential clinical teaching built into their training program. This is best provided by clinical pharmacists modelling their clinical skills and assisting the pre-registration pharmacist to assimilate knowledge gained from university, with the practice realities necessary for treating patients. Clinical pharmacists should provide support and training throughout the pre-registration process although the focus and intensity of training can be modified as the student's knowledge and skills improve.

5.2.3 Practising Pharmacists

Clinical pharmacists should be involved in the ongoing education of pharmacists within their workplace. This can include training in knowledge and skills in a particular specialty area to enable continuity of service provision when specialist pharmacists are absent, or the ongoing training and education of pharmacists with less experience working in generalist settings. Education and training can also involve the clinical pharmacist presenting at continuing education sessions, presenting clinical cases, supervising clinical rounds, and coordinating other educational activities, e.g. journal club meetings.

5.2.4 Postgraduate Clinical Pharmacists

Many postgraduate clinical pharmacy programs incorporate a component of clinical experiential training as well as didactic teaching. Pharmacists with postgraduate qualifications, and/or substantial expertise and experience as a clinical pharmacist, should be involved as preceptors for pharmacists on clinical experiential placements. Preceptors should be teaching postgraduate students at a significantly higher standard than undergraduates and demonstrating the skills required to provide clinical services at a level more advanced than that expected of a pharmacist without postgraduate qualifications. Education at this level is also more likely to be aimed at an area of specialty practice.

5.2.5 Health Professionals

Clinical pharmacists are often called upon to provide education and training to other health professionals and students. This should be seen as an important aspect of the clinical pharmacist's role and can be instrumental in improving the profile of clinical pharmacists by reaffirming their roles in patient care, and the education of other professionals in aspects of QUM.

5.2.6 Consumer education for QUM

Clinical pharmacists will often be requested to provide medicine education to the public. This may involve educating patients on their medicines, or addressing groups of patients with particular diagnoses or clinical situations. Clinical pharmacists should be involved in the design and planning of patient education sessions, such as cardiac rehabilitation, disease management and other public health education programs e.g. smoking cessation.

6. RESEARCH

Research activities include involvement in the conception and design of the research activity, analysis and interpretation of data and presentation and publication of findings. Pharmacist involvement in clinical drug trials and quality assurance audits is not considered in the scope of research activities for the purposes of this section.

6.1 Core Component of Practice

Involvement in research should be a core activity of clinical pharmacy practice. This may not be possible in all situations or practices. However, pharmacists should attempt to contribute to the pursuit of evidence-based practice. It is important that involvement in research does not automatically infer that the pharmacist is required to perform all the research activities such as data collection and analysis. Wherever possible, pharmacists' involvement in research should be focused on their area of expertise. Specific areas should include therapeutics, health service and quality improvement. The nature and extent of involvement will depend on the practice setting and the specific skills and experience of the pharmacist. It is paramount that pharmacists identify a strategic focus for their involvement in research and develop the necessary skills to have a meaningful role.

There are some advanced practice settings where it may be possible for a pharmacy department to develop a formal research group with a strategic focus. Where possible, formal research links should be explored with academic institutions. It is also within the scope of most pharmacy departments to convene a research forum to facilitate identification of research opportunities and the development of the various skills required. Even within small departments it is possible for clinical pharmacists to develop an interest in this area. It is essential that opportunities for contribution are sought and that practical and meaningful involvement occurs.

6.2 Issues for Consideration

Successful contribution of clinical pharmacists to research requires the following:

- Core activity—research is supported and acknowledged as a core activity.
- Expertise—the focus involves an area of specific clinical pharmacist expertise.
- Collaboration—with other health professionals and academia.
- Relevance—to current practice.
- Strategic focus—the research is aligned with local practice experience and expertise.
- Credibility—the researchers are credible.
- Resources—appropriate resources are available and supported.

Pharmacists involved in research activities should adhere to the principles and procedures outlined by key authoritative bodies.^{9,17-19}

Pharmacists planning or undertaking research activities must ensure the objectives are achievable, relevant and original. The activity must also be worthy of the required resources, data used are accurate, reliable and verifiable and that the methodology is appropriate. It is important that those undertaking research activities do so within their capabilities and experience and have the necessary resources to participate and take responsibility for the proper conduct of the research.

The expertise and resources of other health professionals should be utilised whenever possible. Collaboration with other pharmacists interested in the same field may be of assistance. Involvement with schools of pharmacy at undergraduate and postgraduate level may result in the sharing of expertise and resources for collaborative research projects. Clinical pharmacists should endeavour to promulgate the results of research in professional journals and meetings.

All patient information must be treated in strict confidence. Identifiable data of any subject must not be revealed to anyone not directly involved in the research project or the clinical care of that subject.²⁰ Exceptions to this are when patients have provided written consent for their records to be subject to source document verification.

Wherever possible, clinical research findings should be presented and published. Consideration should be given to the dissemination of results in multidisciplinary forums and journals. In addition, health service research, such as activities relating to pharmacy practice should be presented and published for wider readership.

6.3 Opportunities for Involvement

Pharmacists are in a unique position to be able to identify clinical situations where there is lack of evidence for a specific practice, application of therapy or support for a therapeutic intervention. Consequently, pharmacists should collaborate with colleagues and other health professionals in the identification, conception and design of research activities.

There are a range of ways that pharmacists can contribute to research. The extent and nature can range from primary investigatorship on prospective clinical trials to assistance in literature reviews as well as practical local support for research programs such as patient recruitment. Pharmacists can also be directly involved through the analysis and interpretation of data as well as determining the practical implications, the significance of the findings and options for incorporation into practice.

6.4 Resources

Research is a core activity of pharmacy practice and clinical pharmacists must be supported to enable contribution to these activities in their area of expertise. The level of research contribution and resources available will depend on the institution and pharmacy services. However, clinical pharmacists must be supported to dedicate a proportion of their clinical time to these activities. In addition, a proportion of pharmacy departmental resources must be allocated.

Funding to support research can be obtained from direct operational sources or through submission to various professional organisations. Individual pharmacists must be supported by their department and colleagues in applying for external funding. Consideration

must be given to using non-clinical members of staff in some research activities such as data collection. Potential contributors include pharmacy technicians, undergraduate students, vocational research students and trainees or interns. Collaboration with other colleagues can result in the sharing of the workload involved, e.g. nursing, health information and medical staff, especially those completing postgraduate studies, who are often keen to contribute.

7. RESOURCES

Adequate resources are required for the provision of quality clinical pharmacy services (Sections 3, 4, 5, 6). The provision of quality clinical pharmacy services is a priority in the allocation of resources and must be a key aim of pharmacy managers.²⁷ It is important that the quality of patient care provided by the pharmacy service is consistent throughout each day of the week.

The priority clinical pharmacist activities of accurate medication history, assessment of current medication management and provision of medicines information to patients must be provided to ensure consistency of patient care at all times (Table 2). The staffing of the pharmacy department must accommodate the hours in which the majority of patient admissions and discharges occur, including on the weekends. Where resources are limited, minimum weekend services must include provision of medicines information to patients by pharmacists for outpatients and for patients prior to discharge, and accurate medication history for new acute admissions. The resource allocation to achieve this will depend on the nature of the institution and acuity of the patient population (Section 8).

Non-clinical activities must be delegated to pharmacy technicians and other support staff. Resources must be available to ensure that the time spent by clinical pharmacists on medicine distribution activities is minimal.

The role of pharmacy technicians in the provision of clinical pharmacy services is evolving. Their primary role should involve performing activities that do not require clinical judgement but enable clinical pharmacists to be devoted to the provision of clinical services. In determining the suitability of technicians to provide these support roles consideration must be given to:

- training, education and competency;
- level of direct supervision by a pharmacist; and
- practicality of devolving the specific duty or activity.

Technicians undertaking clinical pharmacy support roles must undergo a documented education and training program that details the specific responsibilities of the technician and activities that cannot be performed. Recommendations regarding the activities of pharmacy technicians are summarised in Table 3 and are detailed for each of the patient-directed clinical pharmacy activities (Appendices A-J). Technician involvement should be limited to those roles that are specified under each activity that do not require clinical judgement.²⁷ Roles not specified should be interpreted as not suitable.

The resources recommended for efficient provision of clinical pharmacy services (no order of priority) include:

- staffing structure which enables clinical pharmacy activities to be undertaken in a timely manner;
- timely access to patient-specific data;
- adequate resources for staff education, training and research;

Table 3. Tasks for pharmacy technicians working in support roles under the supervision of a clinical pharmacist

Clinical activity	Pharmacy technician tasks
Accurate medication history	-detect new patient admissions -communicate medicines supply information with health professionals, e.g. medical and nursing staff -assist in managing the storage and retrieval of patient's own medicines
Assessment of current medication management	-ensure all necessary medicine is supplied
Adverse drug reaction management	-processing of adverse drug reaction reports
Clinical review	-access laboratory data -record laboratory data -screen laboratory data for abnormal results by comparison with defined reference range
Therapeutic drug monitoring	-access drug levels -record drug levels -screen drug levels for abnormal results for pharmacists by comparison with defined reference range
Attendance at ward rounds and meetings	-nil tasks for pharmacy technicians
Provision of medicines information to health professionals	-retrieve medicines information for pharmacist from known sources
Provision of medicines information to patients	-gather consumer medicine information (CMI) leaflets -distribute CMI leaflets to patients prior to counselling by pharmacist
Information for ongoing care	-identify patients requiring communication with community healthcare providers -assist in the preparation of information for transfer to community healthcare providers -communicate medicine supply information via telephone with community pharmacist and nurse -communicate via facsimile/letter with community pharmacist, general practitioner and nurse with a final check by a pharmacist

- timely access to up-to-date medicine information and medical literature;
- access to appropriate information technology;
- appropriate work space; and
- support for attendance at and participation in conferences and involvement in continuing education activities.

8. STAFFING STRUCTURE AND LEVELS

The primary consideration in establishing and maintaining a staffing structure must be patient-focused provision of quality care. The staffing structure required to deliver clinical pharmacy services will be determined by the size and type of institution, patient casemix and local resources. Depending on the number of clinical pharmacists there may need to be dedicated positions for clinical pharmacy management, education and training. Additional resources are required to allow dedicated time for research and involvement in other clinical pharmacy services to support the National Medicines Policy (Section 3.2).

Adequate technicians and support staff must be available to perform non-clinical functions such as medicine acquisition and distribution, manufacturing and data entry. Technicians can also directly support clinical pharmacists as previously described (Appendices A-J).

General guidance regarding clinical pharmacist staffing levels for particular areas is provided in Table 4. These ratios are based on:

- provision of a comprehensive pharmacy service;
- minimal dispensing or medicine distribution activities performed by the clinical pharmacist;
- a component of clinical supervision, e.g. undergraduate and postgraduate pharmacy students; and
- eight-hour working day.

These ratios should be adjusted according to the level and extent of the clinical services necessary at the hospital, and other factors that are considered relevant. These ratios do not include any allocation for activities such as compliance to Pharmaceutical Benefits Scheme dispensing.

Table 4. Recommendation for bed type:pharmacist ratios

Category	Beds:pharmacist	Type of bed
1	90	Hospice, long-term psychiatry, nursing home
2	50	Day surgery, obstetric, plastic surgery, rehabilitation
3	40	Surgical including cardiothoracic, gastroenterology, gynaecology, neurosurgery, orthopaedics, vascular
4	30	Medical including acute psychiatry, burns, cardiovascular, dermatology, endocrinology, gastroenterology, paediatric,* infectious disease, neurology, ophthalmology, palliative care, respiratory, vascular
5	20	Specialist units including HIV, neonatal, nephrology, oncology,† transplant
6	15	Critical care units

*For specialty refer to type of bed, e.g. paediatric orthopaedics use orthopaedics.

†Additional recommendations have been previously made¹⁰

9. QUALITY

Although this section replaces the 'Guidelines for quality assurance of clinical pharmacy services',² it remains a valid source of information and should be used with these standards. The fundamental components of clinical pharmacy services are detailed in Section 3, with details of the various activities performed outlined in Sections 4, 5, 6. This section is formulated to enable consideration of generic approaches to ensure the quality provision of services described in these sections. Specific measures of the quality of a clinical pharmacy service are embedded within Sections 3, 4, 5, 6, and aspects of resourcing and documenting these services in Sections 7, 8, 10.

9.1 Primary Goals

The primary goals of a clinical pharmacy quality assurance program should be to:

- ensure the provision of an appropriate clinical service to patients (and others involved in their care);

- monitor and evaluate the clinical pharmacy services and standards of practice;
- identify and minimise risks associated with practices;
- ensure patient medicine needs are addressed;
- identify areas for improvement, including staff development programs;
- provide a mechanism through which action is taken to make and maintain these improvements; and
- motivate clinical pharmacists by involving them in the assessment and evaluation of these services.

9.2 Key Components

The components of developing a quality program include:

- Establishment of a quality program. The aims and practices of clinical pharmacists should be in accordance with the overall pharmacy department and the larger framework of the institution.^{29,30} Where existing institutional procedures and requirements are inadequate, establishment of clinical pharmacy quality practices may provide impetus or even serve as a model for other areas.
- Development and documentation of clear objectives. There should be clearly defined and documented policies and procedures for each of the services provided by clinical pharmacists. These should be in an easy reference format to allow everyday use.
- Development of clear and effective strategies and supporting plans to achieve objectives. The strategies should be explained, detailed and understood. If strategies have not already been developed, it will be more useful to involve all the staff in quality program planning.
- Encouragement of effective employee participation. Participation by appropriate staff (and stakeholders) in the development and implementation of quality plans is likely to lead to the plan being better received and adopted by the participants.

9.3 Methods

Standards and criteria established should reflect the range of activities for clinical pharmacists that have been defined in Sections 3, 4, 5, 6. Details of measures of performance are outlined in Sections 7, 8, 10 and specific reference made to Tables 1, 4, 5, 6 in addition to Appendix K.

Table 5. Suggested performance indicators for clinical pharmacy services

Clinical activity	Performance indicator
Accurate medication history	Percentage of patients interviewed by a pharmacist by the end of the following working day after admission
Assessment of current medication management	Number of assessments of current medication managements per total patient bed days
Clinical review	Number of clinical reviews per number of total patient bed days
Provision of medicines information to patients	Percentage of patients receiving discharge medicines who also receive medicines information.

10. DOCUMENTATION

This section relates to the documentation of patient-specific clinical pharmacist activities (Section 3.1) and consequently does not incorporate documentation associated with clinical pharmacy services to support the National Medicines Policy.

Documentation of the various aspects of clinical services should only be considered in situations where the information is useful and the time required in documentation does not detract from the provision of the clinical pharmacy service. It is paramount that the provision of a quality clinical service is the prime focus and that documentation is a supportive component. Documentation can be broadly considered as relating to the patient medical record, pharmacy patient profiles, Medication Action Plan and workload documentation.

The method of documentation should be determined by the pharmacist recording the information and influenced by those accessing the information. The time taken for both recording and accessing information documented should be reduced through developments in technology.

In documenting components associated with the provision of clinical pharmacy services, pharmacists need to be aware and comply with the provisions of the legislation including the relevant Health Records Acts and the Information Privacy Acts.

10.1 Patient Medical Record

Pharmacists frequently contribute to patient management, and where relevant these contributions should be documented in the patient's medical record. Written documentation is intended to form a permanent record or to supplement verbal communication and consequently should not replace the latter. Consideration should be given to documenting in the patient medical record details of specific activities or issues such as:

- information obtained from an accurate medication history including an assessment of patient concordance with the prescribed medication regimen;
 - identification of serious clinical problems with discussion of the pharmacist's assessment;
 - details of patient education and provision of concordance aids;
 - response to patient-specific questions from other staff, e.g. recommended doses;
 - provision of drug information and specific therapeutic information, e.g. potential drug interactions;
 - recommendations for therapeutic drug monitoring and evaluation of therapeutic drug monitoring data;
 - adverse drug reaction assessment and management recommendations; and
 - serious concerns about medicine therapy that cannot be verbally communicated to a medical officer (or which have not been addressed by medical staff, or which would potentially imply negligence by the pharmacist if not documented).
- When making an entry in the medical record clearly identify name, discipline, date and time, e.g. pharmacy entry or pharmacy note; and follow a logical sequence, e.g. SOAP method—subjective relevant patient details; objective clinical findings; assessment of the situation or clinical problem; and proposed management plan:
- limit comments to 'recommendations' to allow scope for discussion;
 - document relevant discussion of the issue with medical or nursing staff;
 - use only well-recognised abbreviations;
 - document the Medication Action Plan and strategy for clinical review and monitoring; and
 - sign the entry, print name and designation alongside the signature and provide contact details.

Table 6. Guidelines for the documentation of clinical activities

Clinical activity	Activity description	Data collection
Accurate medication history	An interview with the patient/carer, reviewing documentation such as previous medicine orders (administration records, discharge prescriptions), referral letters, admission notes and patient medicine lists.	Per patient: Only one accurate medication history episode would occur per patient during an admission. An interview with the patient/carer at different times would be regarded as the same episode.
Assessment of current medication management	Review of all medicine orders (administration records, outpatient and/or discharge prescriptions) to ensure safe and appropriate dosage administration, and to optimise medicine therapy and patient outcomes.	Per episode: Each assessment of current medication management constitutes an individual episode, e.g. review of a medication administration record twice during the day is considered two episodes and review of a medication administration record and discharge prescription is also regarded as two episodes. Dispensing individual items from a chart without a full review is not an episode.
Adverse drug reaction management	Prevention, detection, assessment, management and documentation of adverse drug reactions (ADRs).	Per episode: The activities undertaken after the occurrence of an ADR, e.g. documenting, identifying the causative drug(s) and recommending amendments to the medicine order. Excludes activities such as: determining patient allergies (medication history interview) and detecting medicine orders to which the patient is allergic or hypersensitive (assessment of current medication management).
Clinical review	Assessment of the patient and other parameters for the purpose of evaluating the response to medicine therapy and management. May include interpretation of biochemical and other investigative tests. May also include evaluation of patient signs and/or symptoms from discussions with the patient or through revision of clinical progress notes.	Per patient day: An episode is regarded in units of individual patient bed days. An episode may comprise a combination of investigational test and symptom reviews conducted throughout the day for an individual patient, e.g. checking full blood examination in the morning and then reviewing cardiovascular parameters (heart rate, blood pressure) later in the day would be regarded as a single episode.
Therapeutic drug monitoring	Interpretation, monitoring and communication of measured drug concentrations in body fluids to optimise drug efficacy and minimise toxicity.	Per drug per day: An episode relates to each occasion where levels of a drug are assessed with appropriate prescribing recommendations being made during a patient bed day, e.g. monitoring multiple vancomycin levels and reviewing gentamicin levels on a given day would be regarded as two episodes.
Participation in multidisciplinary rounds and meetings	Attendance and participation at multidisciplinary ward rounds or meetings.	Per episode: Each attendance and participation at a multidisciplinary ward round or meeting constitutes an episode.
Provision of medicines information to health professionals	Provision of medicines information to health professionals relating to a patient's therapy for the purpose of influencing the prescribing, administration, monitoring and use of medicines. The information or advice may be initiated by the pharmacist or may be in response to a request from a healthcare provider either in a written or verbal form. It does not include information provided directly by the drug information service although may include occasions where interpretation of provided information is required by the clinical pharmacist.	Per episode: Each occasion where medicines information relating to the therapy of a patient is provided by the clinical pharmacist constitutes an episode. Non patient-specific or general medicines information not included. Uncomplicated chart annotation not included.
Provision of medicines information to patients	Providing comprehensive information and advice to patients/carers to encourage safe and appropriate medicine use. May include provision of product information or concordance aids. May occur at any time during an admission including on discharge or to ambulatory patients associated with outpatient clinics.	Per episode: Medication counselling that occurs at various stages through an admission is deemed to be one episode of comprehensive counselling. There can only be one comprehensive counselling per patient episode of care.
Information for ongoing care	Communication with health professionals (community pharmacists, general practitioners, hospital pharmacists from different institutions, other healthcare providers) to facilitate seamless transition between healthcare providers.	Per episode: Each time contact is made with a healthcare provider to discuss patient issues constitutes an episode.
Other patient management	Clinical activities that are not readily classified using other definitions or where it is difficult to distinguish between several activities performed simultaneously. May also be used where an activity involves an aspect of patient management which does not directly relate to medicine therapy.	Per episode: An episode relates to each occasion where a clinical activity is performed that cannot be classified using alternative activity definitions. This code is not to be used to classify pharmacist interventions or 'actions by a pharmacist that directly results in a change in patient management or therapy'.

10.2 Medication Action Plan

Consideration should be given to documenting the fundamental components of the Medication Action Plan (Section 4.1). It is recommended that the workplace adopt a standard format for the documentation of Medication Action Plans. The Medication Action Plan should be available to other healthcare providers and the patient/carer when possible. In some circumstances the Medication Action Plan could be reviewed and updated over a number of episodes of care (chronic disease management clinics) and in others focused on a single episode such as a specific hospitalisation and subsequent discharge.

Decisions regarding the need for documenting Medication Action Plans will depend on the institution, the clinical service, the degree of continuity of pharmacists providing the service and the ability to obtain information in a timely manner from other sources. Emphasis must be placed on documenting key clinical data and not the replication of information readily available elsewhere. Specific information that may be appropriate to document for a Medication Action Plan include:

- history of presenting complaint and reason for current admission;
- assessment of the patient's clinical problems;
- plan for the management of the patient's clinical problems and therapeutic goals;
- past and current medical and surgical problems;
- medicines at time of admission and past medication history;
- details of drug sensitivity reactions and adverse drug reactions, including dates and descriptions of reactions and any re-exposure to the drug;
- relevant laboratory parameters;
- actual or potential medicine-related problems and management;
- pharmacist plans for patient care (e.g. outcome monitoring, discharge planning);
- patient medication education planned and performed (e.g. warfarin, assessment of inhaler technique);
- clinical progress during the patient's admission;
- changes to the patient's medication regimen;
- an assessment of concordance and plans for the provision of concordance aids; and
- specific pharmacist interventions (Section 10.4.1).

This list is only a guide to the types of information that could be documented for a Medication Action Plan and in no way infers that documentation of these should occur for all patients.

10.3 Pharmacy Patient Profiles

For the intent of these standards a pharmacy patient profile is an ongoing documentation of patient details and care that encompasses a number of different episodes of care maintained within pharmacy.

Decisions regarding the need for pharmacy-specific patient profiles to be maintained depends on the institution, the clinical service, the degree of continuity of the pharmacists providing the service and the ability to obtain data in a timely manner from other sources. Documentation should be limited to those factors that are essential for consideration in therapy planning that are not readily available elsewhere. The medical record must be considered the definitive documentation of a patient's care and must always be the key reference point.

Emphasis should be placed on documenting key clinical decision points such as those fundamental to a Medication Action Plan (Section 10.1) rather than routine replication of clinical notes available in the medical record.

There should be very few instances where a structured pharmacy patient profile needs to be maintained in addition to the dispensing record. The format, content and application of patient profiles depend on the scope and nature of individual pharmacy practice settings and the degree of access to other information in the medical record.

10.4 Clinical Workload

Workload documentation, in particular of clinical interventions, can provide evidence of the impact of clinical pharmacy services on patient care. Workload data is also valuable in performance appraisal and as a means of reporting clinical pharmacy activities to drug and therapeutics committees and other hospital forums.

Local factors will determine the need for clinical workload documentation and in some circumstances periodic documentation may be more appropriate than continued recording. Strategies, such as incorporating advances in technology, should be implemented to ensure that workload documentation by clinical pharmacists does not take up a large component of their time and distract from provision of clinical services.

10.4.1 Clinical Pharmacy Interventions

In these standards an intervention is defined as any action by a pharmacist that directly results in a change in patient management or therapy. In many instances pharmacist interventions are examples of 'near-miss' incidents. It is therefore recommended that reporting of interventions be linked to the institution's processes for incident monitoring to identify potential areas for performance improvement throughout the hospital. This should be the prime priority in deciding on the method of documentation of interventions.

Pharmacy departments should have a formalised policy on the documentation of interventions. Wherever possible, classification of interventions should be compatible with other national standards such as Australian Standards for Risk Management.²⁹ A recommended classification system is one that includes description of the consequence (impact) and likelihood of occurrence that enables a risk assessment to be assigned (Appendix L).

Where possible a risk assessment should be assigned and consideration given to formal reporting to selected institutional quality forums and hospital incident monitoring systems, especially those interventions classified as of high and extreme risk. Additional reasons for recording interventions include:

- Teaching and training of pharmacy staff regarding their own performance and identification of actual and potential problems.
 - Provision of information to hospital management regarding performance of the pharmacy department.
- When documenting pharmacist interventions the data to be recorded to enable review should include:
- medicines involved;
 - brief description of the intervention;
 - patient identifier; and
 - date, pharmacist and medical/surgical unit.

10.4.2 Clinical Activities

Activities that potentially improve the quality of patient care or result in favourable clinical and/or economic outcomes, but which do not necessarily fall into the traditional categories of interventions may also be documented. Definitions and methods of quantifying patient-specific clinical pharmacist activities are detailed in Table 6.³⁰⁻³³

Consideration should be given to the documentation of the delivery of the various fundamental requirements of the Australian Pharmaceutical Advisory Council guiding principles to achieve continuity in medication management.⁷

Attempts should also be made where possible to integrate with hospital-wide systems for classification of provided services.

11. CONCLUSION

The practice of clinical pharmacy will evolve with the changing needs of contemporary health care. Pharmacists must contribute to achieving the highest possible standards of patient care, giving primacy to the interests of patients. Pharmacists must function in multidisciplinary healthcare, contributing to patient care through their unique training and expertise in therapeutics. By working to ensure that the use of medicines are safe and cost-effective, pharmacists serve the interests of patients and the wider community.

It is essential that clinical pharmacy practice continues to develop through the involvement of experienced practitioners in the education and training of other pharmacists. Furthermore, clinical pharmacists play an important role in providing educational services for medical staff and other healthcare providers. By supporting research in clinical pharmacy and therapeutics, pharmacists contribute to the overall evidence to facilitate QUM.

Comprehensive and accountable clinical pharmacy services are an essential component of contemporary healthcare practice.

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Appendix A. Accurate medication history

An accurate medication history will assist in patient care and should include an interview with the patient/carer. Pharmacists may contribute to patient care through obtaining accurate medication histories from patients/carers and other sources or by verifying histories obtained by other health professionals.

Although a patient/carer interview should be the primary source of data, a combination of information sources can be used to obtain and validate the medication history. If the patient is not responsible for medication administration or if a reliable medication history cannot be obtained from the patient/carer, then alternative sources of patient information must be accessed. These information sources include:

- medication dispensing history and/or administration records;
- other health professionals; and
- patient's own medicines or list of medicines.

An accurate medication history should not only be a source of medicine information but also relevant medical history, clinical problems and therapeutic goals and can be used to form the basis of an ongoing Medication Action Plan.

Goals

To obtain data on medicine use that may assist in the overall care of the patient. The information gathered can be used to identify clinical problems, develop goals for therapy and identify monitoring parameters. Specific aspects could include:

- comparison of the medication history with the drug administration record and investigation of discrepancies;
 - verifying medication histories taken by other staff and providing additional information where appropriate;
 - documenting allergies and adverse reactions;
 - screening for drug interactions;
 - assessing patient medication concordance;
 - assessing the rationale for drugs prescribed;
 - assessing the patient's understanding of their medicines;
 - assessing for evidence of drug abuse;
 - appraising medicine administration techniques;
 - examining need for medicine and concordance aids;
 - documenting patient-initiated medication administration;
 - assessing patient acceptance of treatment; and
 - identifying other therapies (e.g. complementary and alternative medicines) that the patient may be using.
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Procedures

Obtaining an accurate medication history involves:

- review of sources of patient information;
- patient/carer medication history interview;
- organisation of patient data; and
- assessment of the patient's medication management.

Review of sources of patient information

Prior to conducting an interview, examination of patient-specific data is necessary. This will allow patients to be prioritised for interview and identify issues on which to focus during the interview. The following information should be sought and reviewed:

- the patient (ability to communicate, cognition, alertness, mental acuity, age, frailty, psychological state, social circumstances);
- responsibility for obtaining, administering and managing medicines;
- location of patient's own medicines and/or medicines list;
- patient's storage and organisation of their medicines;
- previous medicines and prescriptions (community pharmacy prescriptions, discharge and outpatient prescriptions);
- current medication charts and administration records;
- current admission details as contained in the patient's medical record (history of presenting complaint and reason for current admission, assessment of the patient's clinical problems, plan for the management of the patient's clinical problems and therapeutic goals including drug and non-drug therapy, past and current medical and surgical problems);
- past and current medication history and drug sensitivities as documented by other health professionals and relevant laboratory parameters;
- referral letter from local doctor;
- community pharmacist details; and
- transfer information from institution (e.g. hospital, nursing home, hostel).

Patient/carer medication history interview

Interviewing the patient/carer to obtain a medication history is a key clinical activity that should be performed by clinical pharmacists.

Medication history interviews provide opportunities for pharmacists to:

- establish rapport with the patient/carer and to explain their role in the patient's care;
- commence preliminary education regarding medicines and changes to the medicines; and
- use the information obtained to establish a Medication Action Plan.

If medication histories cannot be obtained for all patients, selection of those patients where maximum benefit is likely to be obtained must occur (Section 3.1.1). Factors including privacy and confidentiality must be considered. If the patient is not involved in the management of their medicines, the interview should be conducted with the relevant person(s) after obtaining consent from the patient.

continued

Appendix A. Accurate medication history (continued)

Procedures

The nature of the interview will depend on the patient. Pharmacists must determine the specific goals of the interview and tailor the questions and discussion to obtain the necessary data. Questions must be relevant as exhaustive interviews may be counter-productive. The interview should be conducted in a location that allows privacy and minimises the risk of interruption and distraction. After determining the ability of the patient to communicate, choosing an appropriate location and adopting a suitable position to enable the interview to take place comfortably and effectively conduct the interview:

- establish the identity of the patient;
- introduce yourself;
- explain the purpose of the interview (other health professionals may have already performed a medication history, so it may be necessary to explain the reason for a pharmacist-obtained medication history);
- respect the patient's right to decline an interview;
- determine the individual responsible for administration and management of medicines;
- establish rapport with the patient/carer;
- employ an appropriate interview manner, e.g. avoid appearing rushed, be polite, attentive, maintain eye contact, avoid interrupting the patient, be non-judgemental, communicate clearly and effectively;
- identify and attempt to overcome any communication barriers; and
- employ appropriate history-taking techniques, e.g. begin the medication history interview with open-ended questions to encourage the patient to explain and elaborate and move to close-ended questions to systematically minimise omissions.

The following information should be obtained where relevant:

- location of patient's own medicines, medicines lists or other concordance aids;
- prescription medicines use;
- non-prescription medicine use (e.g. over-the-counter), allergies, adverse drug reactions and description of the reaction;
- social drug use (e.g. alcohol, tobacco);
- illicit drug use;
- weight and height, if relevant;
- pregnancy status in women of childbearing age;
- immunisation status; and
- community pharmacists and general practitioners visited.

Assess the patient's understanding and attitude to their therapy and seek specific information on the following:

- patient's perception of the purpose and effectiveness of the medicines;
- dose and dosage schedule used;
- duration of the therapies used;
- perceived effectiveness of the medicines;
- recent changes to the medicine regimen;
- reason(s) for discontinuation or alteration of any medicines;
- storage of the medicines;
- any problems with the medicines;
- perceived adverse effects of the medicines;
- concordance; and
- medicine supply requirements on discharge.

At the conclusion of the interview:

- summarise the important information for the patient;
- describe expected plan for their medication management;
- ask the patient if they have any questions concerning their medicines;
- encourage the patient to provide further information, which may be recalled after the interview; and
- explain when the next opportunity for discussion with a pharmacist will arise.

Organisation of patient data

Data obtained should be accurately documented and readily available to other pharmacists likely to be involved in the care of the patient. Documentation in the patient's medical history can enhance accessibility of this data by other health professionals (Sections 10.1, 10.2).

Preliminary assessment of the patient's current medicines

Following assessment of the patient's medication history, it is important to apply the information to identify and resolve any medicine-related problems. The medication history should be compared with the medication administration record at the time of admission and the therapeutic plan for the patient with any discrepancies investigated. If appropriate, the prescribing doctor should be contacted. Patients should be educated about alterations to their medicines where necessary. Strategies should be developed to overcome problems such as adverse effects, interactions, and concordance, if identified.

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in:

- detecting new patient admissions where this involves logistical issues such as checking bed-lists;
- communicating medicines supply information with internal health professionals including medical and nursing staff; and
- assisting in managing the storage and retrieval of patient's own medicine. Pharmacists should inspect the medicines and consider the data obtained from the assessment of current medication management and clinical review prior to medicines being returned to patient.

Roles not suitable for pharmacy technicians include:

- determining suitability of patient for interview;
 - communicating with external health professionals (general practitioner, community pharmacist, nursing home/hostel staff);
 - comparing medication history with medication chart;
 - performing medication history review;
 - interviewing patient/carer to obtain medication history;
 - interviewing patient/carer to determine allergies; and
 - investigating medicine-related problems.
-

Appendix B. Assessment of current medication management

Assessment of current medication management is a review of all medicine orders (administration records, outpatient prescriptions and/or discharge prescriptions) to ensure safe and appropriate dosage administration, and to optimise medicine therapy and patient outcomes. It is a fundamental responsibility of pharmacists to ensure the appropriateness of medicine orders.

The review of medicine orders follows an accurate medication history and may serve as an early step in other clinical pharmacy activities including clinical review, therapeutic drug monitoring, assessment and management of suspected adverse drug reactions and patient education. However, an assessment of current medication management should not be performed in isolation but rather complement other clinical activities, such as an accurate medication history.

Goals

To optimise the patient's medicines by ensuring that the patient receives the most appropriate medicine for their medical condition/disease state, the most appropriate dose and dosage form, that the timing of dosage and the duration of therapy is appropriate and that medicine-related problems are minimised.

Procedures

The patient's medical record should be reviewed in conjunction with the medication administration record and medication history obtained. Recent consultations, pathology results and investigations, treatment plans and daily progress should be taken into account when determining the appropriateness of current medicine orders and when planning patient care.

All current and recent medicine orders should be reviewed. These may include routine medicine orders, variable dose drugs, intravenous therapy, single dose drugs, anaesthetic and operative records, epidural medicine or other analgesics (i.e. all records of medicines, fluids or procedures affecting the patient, such as diet/feeding orders).

Components of the assessment of current medication management include:

- ensuring that the medicine order is appropriate with respect to: patient's previous medicines, patient-specific considerations, e.g. disease state, pregnancy, medicine dosage and dosage schedule, especially with respect to age, renal function, liver function, and route, dosage form and method of administration;
- detecting medicine orders to which the patient may be sensitive. Discuss with the prescriber the need for such medicine, and recommend an alternative, if appropriate. If the prescriber wishes to continue treatment with the suspected drug, details of the discussions with the prescribers should be fully documented in the patient's medical record;
- checking the complete medication profile for duplications or contraindications;
- detecting and managing actual or potential medicine interactions;
- ensuring that administration times are appropriate, e.g. with respect to food, other medicines and procedures;
- reviewing infusion solution in regards to concentrations, rate and clinical targets, e.g. blood sugar levels, blood pressure;
- checking the medication administration record to ensure that all doses ordered have been administered;
- ensuring that the medicine administration order clearly indicates the date and time at which medicine administration is to commence;
- ensuring that the duration of administration of medicine is appropriate. Specific consideration should be given to drugs commonly used in short courses, e.g. antibiotics, analgesics;
- ensuring that the order is cancelled in all sections of the medication administration record when medicine therapy is intended to cease;
- following up any non-formulary medicine orders and recommending a formulary equivalent if required;
- ensuring appropriate therapy monitoring is implemented;
- reviewing medicines for cost effectiveness;
- endorsing or annotating the medicine orders comprehensively with information such as generic names, current brand names, allergies and adverse drug reactions, times of administration including with respect to food, and dilution/flow rates for intravenous infusions;
- ensuring that the medicine order is comprehensive and unambiguous, that appropriate terminology is used and that medicine names are not abbreviated. The chart should be annotated to provide clarification as required;
- checking that the medicine order is written in accordance with legal and local prescribing requirements and restrictions;
- ensuring that all necessary medicine is ordered, e.g. current medicine, premedication, prophylactic treatment;
- ensuring that all necessary medicine is available.

Consultation regarding suggested and necessary changes must be undertaken with the relevant health professional and the patient as soon as practical. Consultation and interventions should be documented in the patient's history and pharmacy records where appropriate (Sections 10.1, 10.2, 10.3). Follow up after an assessment of current medication management should also include ensuring all required medicine is available for the patient in a timely manner.

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in ensuring all necessary medicines are supplied.

Roles not suitable for pharmacy technicians include:

- checking the medicine order is written in accordance with legal and local requirements, as clinical pharmacists should be educating medical staff regarding prescription writing and medicine selection;
 - annotating medication chart;
 - ensuring the medicine order is appropriate with respect to: patient's previous medicine, patient-specific considerations, drug, dosage, form and method of administration; and
 - ensuring all necessary medicines are prescribed.
-

Appendix C. Clinical review

Clinical review is the assessment of the patient and other parameters for the purpose of evaluating the response to medicine therapy and detecting and managing potential or actual clinical problems. It may include interpretation of biochemical and other investigative tests. It may also include evaluation of patient signs and/or symptoms from discussions with the patient or through review of clinical progress notes. Clinical review should be performed routinely and is essential in assisting the understanding of a patient's clinical progress and treatment strategies employed by the healthcare team. Clinical review also serves as a method of monitoring outcomes of therapy.

Goals

The process of clinical review must commence in conjunction with an accurate medication history with the evaluation of preliminary patient signs and symptoms, laboratory investigations, medical diagnoses, clinical problems and therapeutic goals. Subsequently, clinical review must be performed as a routine activity throughout the patient hospital stay in conjunction with the assessment of current medication management. It is the collation of data gathered from these three combined clinical activities (accurate medication history, assessment of current medication management, clinical review) that serve to enable the pharmacist to identify and prioritise patient-specific clinical problems, formulate a management plan and develop and monitor outcome goals. These same clinical activities also serve as a platform to enable appropriate patient-specific decision to prescribe a medicine as well as better preparing the pharmacist for greater participation and contribution to multidisciplinary rounds and meetings. In addition, ongoing clinical review is essential to enable pharmacists to continually re-evaluate and modify therapeutic goals with changing patient conditions and responses to therapy.

Procedures

The review and interpretation of patient-specific data should be undertaken routinely. The data collected should be clinically relevant. Data that is not routinely available/retrievable should be documented in the pharmacy patient profile, as appropriate. The information obtained must be interpreted and evaluated with reference to:

- clinical features and pathophysiology of conditions treated;
- indication for an investigation, and its sensitivity and specificity;
- timeframe of drug-related effects;
- patient's medication history; and
- planned outcome(s) of treatment.

Information relating to a patient's signs, symptoms and progress may be obtained from:

- an accurate medication history;
- review of the patient's clinical progress notes;
- discussion with other members of the healthcare team;
- discussion with and review of the patient;
- patient's bedside clinical data; and
- laboratory investigations.

Examples of clinical monitoring data may include:

- routine observations, e.g. pulse rate, temperature, blood pressure, blood glucose level;
- patient weight;
- fluid balance;
- urine output;
- biochemistry results, e.g. serum electrolytes, creatinine, liver function tests;
- haematology results;
- microbiology results;
- radiological investigations; and
- pain scores.

Although clinical review must be undertaken as a routine activity for all patients, extensive monitoring is impractical due to significant limitations on time. The breadth and depth of data reviewed must therefore be prioritised according to patient severity and acuity. In addition, criteria need to be established to identify those target diseases and patient groups or patients prescribed drugs with a high risk of measurable adverse effects or medicine interactions that require extensive monitoring.

For pharmacists to undertake effective clinical reviews and have an impact on patient outcome, a solid understanding of clinical laboratory and bedside monitoring data is essential. This includes an appreciation of normal and abnormal physiology, relationship of monitoring parameters to medicine induced effects and the ability to interpret and properly apply these results to patient management. Such knowledge is also of value in enabling the pharmacist to intervene and recommend additional investigations that might otherwise be omitted.

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in:

- accessing and recording patient-specific laboratory data; and
- screening laboratory data for abnormal results for the pharmacist by comparison of the result with a defined reference range or other parameter to assist the pharmacist's clinical review of the patient.

Roles not suitable for pharmacy technicians include:

- interpretation of patient-specific laboratory data; and
 - interpretation of patient-specific clinical data.
-

Appendix D. Decision to prescribe a medicine

The decision to prescribe a medicine and its selection, is usually carried out by medical staff. Pharmacists can provide guidance and recommendations in the form of information and expertise, and are often in a position to influence prescribing.

Goals

The goals of input into medicine selection are to:

- optimise the quality of patient care and clinical outcomes;
 - promote the quality use of medicines;
 - ensure medicine selection follows local guidelines, formulary and availability limitations where applicable; and
 - promote the cost-effective use of medicine.
-

Procedures

The most effective method of contributing to medicine selection is by being present at times of decision-making, such as on ward rounds. Pharmacists must be well prepared, and have a current knowledge of the patient's history and of the latest evidence regarding disease state management. When contributing to decisions on medicine selection, both patient and medicine specific factors must be considered.

Patient-specific factors that require consideration include:

- medical history;
- current clinical status;
- therapeutic goals of treatment;
- pathophysiological characteristics, e.g. renal function, age;
- past and current medicine use and outcomes of these therapies;
- actual or potential medicine-related problems and clinical problems and their management;
- history of allergy or adverse reactions;
- patient acceptability, likelihood of achieving good adherence and cooperation, convenience for the patient;
- special considerations, e.g. dysphagia, naso-enteric tube feeding;
- socioeconomic and demographic considerations; and
- genetic predisposition.

Medicines information to be considered includes the latest evidence regarding:

- efficacy of the medicine in the management of a particular disease or symptom;
- comparative efficacy and safety of therapeutic alternatives;
- likelihood of adverse effects, comparison with alternative treatments, and ability to minimise adverse effects;
- cost of the medicine therapy (to the patient, hospital and community);
- cost/benefit considerations, costs of therapeutic alternatives;
- pharmacokinetic and pharmacodynamic properties of the drug;
- route and method of administration of the drug;
- dosage form, comparative efficacy and adverse effects of different dose forms, site of action required, dose required, kinetics of different dose forms;
- availability, i.e. government restrictions, marketing approval, hospital formulary limitations, methods of obtaining further supply outside of the hospital;
- methods of monitoring for therapeutic and adverse effects;
- interactions with concurrent medicine therapy and with recent medicine therapy, diet, laboratory tests, environmental factors (e.g. smoking, alcohol consumption, motor vehicle driving).

Local guidelines for patient management should also be considered when making recommendations on the choice of medicines. Clinical pharmacists must have a mechanism for keeping abreast of new developments in therapeutics.

Role of pharmacy technicians

There are no specific support roles that a pharmacy technician can perform to assist the clinical pharmacist in this activity.

Appendix E. Therapeutic drug monitoring

Therapeutic drug monitoring (TDM) is the interpretation, monitoring and communication of measured drug concentrations in body fluids to optimise medicine efficacy and minimise toxicity. TDM is the application of the disciplines of pharmacology, pharmacokinetics, pathology and clinical medicine with the aims of optimising medicine efficacy and minimising toxicity.

Goals

TDM may be used to optimise therapy for drugs where there is a known relationship between measured concentration in body fluids and pharmacological effect. There are a number of specific indications for monitoring the concentrations of drugs in body fluids, including: suspected toxicity due to a drug and/or metabolite; subtherapeutic response to medicine therapy; assessment of potential drug interactions; assessment of therapy where the patient is clinically unstable; assessment of therapy following initiation or change to regimen; previous adverse drug reactions or toxicity; and evaluation of patient adherence.

Procedures

It is necessary to identify the desired therapeutic outcome. The target concentration and empiric dosing of a drug may depend on the desired clinical outcome, e.g. prophylaxis with phenytoin after head injury, digoxin to manage atrial fibrillation. The therapeutic range is used to describe the range of drug concentrations most commonly associated with optimal effect and an acceptable incidence of toxicity. It serves as a guide to therapy and must always be used in conjunction with an assessment of the clinical response. Additional review of the patient and the clinical setting should consider an assessment of:

- physical signs and clinical symptoms;
- therapeutic appropriateness of the medicine regimen and alternative regimens;
- therapeutic duplication in the medicine regimen;
- appropriateness of the route and method of administration;
- patient concordance with the prescribed medicine regimen;
- potential and actual drug interactions;
- results of clinical and laboratory investigations, the benefit of TDM and the impact on patient (e.g. numerous painful blood pricks); and
- ability to obtain TDM samples and to analyse them in a timely fashion.

TDM is indicated for patients treated with drugs with the following characteristics:

- narrow therapeutic index (nomograms or pharmacokinetic calculations should be used if applicable, and should be supported by follow-up monitoring of drug concentration and clinical parameters);
- significant adverse effects;
- large degree of patient variability in drug handling; and
- associated with clinically significant interactions.

In some circumstances TDM may be indicated due to the potential for altered drug disposition, or the nature of the specific drug therapy. Patients for whom TDM may be indicated are those who have an altered clinical status and potential changes in drug handling. Particular patient groups may include: those with renal or hepatic impairment; patients undergoing dialysis and haemofiltration; patients with uncompensated cardiac dysfunction; obstetric patients; elderly patients; paediatric patients, especially neonates; obese/undernourished patients/diminished muscle mass; burns patients, cystic fibrosis patients; and specific polymorphisms.

Accurate sampling details are necessary in order to relate the measured drug concentration to therapeutic effect. Data which must be recorded accurately include time of sampling, time of last dose and duration of current regimen.

When interpreting results, the following factors should be considered:

- drug/dose/formulation/schedule;
- method of administration;
- indication for treatment;
- indication for measurement of drug concentrations;
- duration of current regimen;
- time of last dose;
- time of sampling;
- prior drug monitoring and other relevant laboratory results;
- concordance;
- clinical status of the patient and recent progress (particularly relating to clinical signs of medicine effect or toxicity);
- renal and hepatic function, cardiac status, age, weight, etc;
- relevant pharmacokinetic and pharmacodynamic properties of the drug;
- concurrent medicines;
- other environmental factors such as smoking;
- possibility of spurious results; and
- local laboratory parameters.

The results of TDM must be communicated in a timely manner. Recommended action and future monitoring requirements must be indicated. Recommendations should be documented in the patient medical record and Medication Action Plan, where appropriate.

Pharmacokinetic calculations and simulated computer profiles can be used as a guide to assist in assessing patient response. However, the assumptions and limitations of such programs should be considered when interpreting TDM data.

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in:

- accessing and recording drug levels or TDM data;
- data entry for pharmacokinetic programs and printing of pharmacokinetic reports for review by a pharmacist; and
- screening drug levels or TDM data for abnormal results for the pharmacist by comparison of the result with a defined reference range or other parameter to assist the pharmacist's clinical review of the patient.

Roles not suitable for pharmacy technicians include interpretation of drug levels.

Appendix F. Participation in multidisciplinary ward rounds and meetings

Attendance and participation at multidisciplinary ward rounds/meetings enables pharmacists to contribute to patient care through the provision of medicine and patient information and promotion of rational medicine therapy. As a member of the healthcare team, it is important that pharmacists attend ward rounds and meetings whenever possible. The pharmacist's presence on ward rounds enables prescribing to be influenced at the time of decision making. There is a compelling body of literature that supports the active participation of pharmacists in medical rounds as a means of reducing the frequency and duration of medication errors.^{36,37} To effectively participate in ward rounds, pharmacists should have well developed clinical, communication and interpersonal skills.

Goals

To gain an improved understanding of the patient's history, clinical details, progress, planned investigations and current therapeutic goals of care; provide information on pharmacology, pharmacokinetics and other aspects of the patients' therapy; optimise medicine treatment by influencing medicine therapy selection, implementation and monitoring; communicate additional information about the patient which may be relevant to their medicine therapy; and improve discharge planning or other follow-up.

Procedures

Prior to participating in a ward round, it is essential that pharmacists are well prepared. If possible, an accurate medication history and assessment of current medication management of all patients should be completed prior to the ward round. This allows pharmacists to gain knowledge of the patient, their drugs and disease states and allows them to consider aspects of the patient's medicine therapy which are likely to be discussed.

The preparation of accurate and comprehensive patient profiles may be of assistance when preparing for a ward round. Attendance at relevant ward rounds and clinical meetings should be routine. If this is not possible, priority should be given to those rounds in which the pharmacist can have the most impact and gather the most relevant information. Appropriate communication skills must be used when discussing medicine-related problems with other health professionals on the ward round, and at all times when discussing problems in the presence of the patient and family.

The ward round provides an opportunity for a pharmacist to:

- be fully informed about patient-specific issues;
- contribute information regarding the patient's medicine therapy;
- make suggestions for the selection and monitoring of medicine therapy;
- have greater access to clinical decision makers;
- recognise potential medication errors;
- prevent medication errors occurring at the time of prescribing/clinical decision making;
- immediately review all medicine orders and correct deficiencies;
- reduce the frequency and duration of medication errors;
- communicate and assimilate additional information about the patient which may be relevant to their medicine therapy, e.g. comorbidities, handicaps, social circumstances;
- detect adverse drug reactions and interactions; and
- participate in discharge planning.

At the completion of the ward round or meeting, the pharmacist should follow up outstanding issues, including:

- responding to any inquiries generated;
 - communicating changes in medicine therapy to other relevant personnel;
 - completing necessary documentation, e.g. in patient profiles or in the medical record where appropriate;
 - considering the impact of changes to the care plan, and making necessary alterations, e.g. to monitoring requirements; and
 - discussing alterations to therapy with the patient where appropriate.
-

Role of pharmacy technicians

Pharmacy technicians in clinical pharmacy support roles cannot assist the clinical pharmacist in attending multidisciplinary unit meetings or ward rounds as attendance requires not only the gathering of data but also the contribution of clinical expertise.

Appendix G. Provision of medicines information to health professionals

Provision of medicines information relating to a patient's therapy by clinical pharmacists to health professionals is for the purpose of influencing the prescribing, administration, monitoring and use of medicines. The information or advice may be initiated by the pharmacist or may be in response to a request from a healthcare provider either in a written or verbal form. It does not include information provided directly by the specialist drug information service although may include occasions where interpretation of provided information is required by the clinical pharmacist.

It is a fundamental responsibility of clinical pharmacists to provide information on drug-related matters. Clinical pharmacists may also be involved in the preparation of specific drug-related resources, such as protocols and patient information leaflets.

The clinical pharmacist should utilise the expertise and resources of a drug information pharmacist when appropriate. The interaction with the drug information pharmacist should be focused on clinical collaboration where possible. Clinical pharmacists may also be utilised as a resource for providing medicine information. The 'SHPA policy guidelines for Australian drug information services' should be consulted in conjunction with this document.³⁸

Goals

To contribute to patient care, optimise medicine therapy and be a valuable member of the healthcare team. Information and advice may be provided verbally or in written form to persons involved in the prescribing, administration, monitoring and use of medicines. It should be in a form appropriate for the particular situation and personnel involved.

To provide accurate and relevant medicine information, clinical pharmacists require critical literature evaluation skills, an awareness and understanding of the available medicines information resources and their limitations as well as competence in interpersonal communication techniques.

Where appropriate, clinical pharmacists should initiate the provision of medicines information to health professionals. This may include information about the use, administration, adverse effects and monitoring of drugs. The need for the provision of medicines information to health professionals may arise from findings of drug therapy monitoring or clinical review. In particular the provision of information may be helpful in relation to drugs:

- that are relatively new, not marketed, or about which there may be little information available;
 - that are associated with specific requirements which, if not followed, may adversely affect patient care; and
 - of which individual healthcare providers have limited experience.
-

Procedures

It is important to obtain all relevant patient information, including comprehensive details of the circumstances surrounding the inquiry. These may include, for example, the diagnosis (including current and past medical and surgical problems), the goals of treatment, test results or other relevant parameters such as age and weight, and the routes of administration which are appropriate for use. This information is essential to provide clarification of the inquiry, and to facilitate a specific response.

The highest priority should be assigned to those inquiries associated with immediate patient care requirements.

It is important to determine why an inquiry was made in the first place and how the information provided is to be used. Sometimes, the questions asked may not be the most relevant or may refer to peripheral issues, rather than the primary problem.

The request may be dealt with at the time of the inquiry if the pharmacist is confident that the information is accurate and sufficient. If the inquiry requires research, the clinical pharmacist should systematically retrieve information using the resources and expertise available (including drug information pharmacists where appropriate). If further consultation is required, discuss patient-specific details with a drug information pharmacist or other specialists in the field.

Using the information retrieved, formulate a reply which meets the specific needs of the inquirer. Communicate the response in a written or verbal form as required. Document the inquiry and response in the patient's medical record, where appropriate, in a recommended format.

Where appropriate, follow up previously communicated responses to determine if the response supplied contributed to patient care, or if further information is required and advise the inquirer if further relevant information becomes available.

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in:

- retrieving medicine information for the pharmacist from known sources under the direction of a pharmacist; and
- routine filing and databases maintenance without application of clinical judgement.

Roles not suitable for pharmacy technicians include:

- receiving medicine information queries;
 - searching for medicine information without direct supervision of a pharmacist;
 - interpreting medicine information; and
 - discussing medicine information with patients, nurses or medical staff.
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Appendix H. Provision of medicines information to patients

The provision of information and education to patients/carers to encourage the safe and appropriate use of medicines. It may include provision of consumer medicine information (CMI) or concordance aids and may occur at any time during admission. Pharmacists have a responsibility to provide sufficient information to enable patients/carers to achieve informed and judicious use of their medicines. The 'SHPA standards of practice for the provision of consumer medicines information by pharmacists in hospitals' should also be consulted.³⁹

Goals

To provide information and education to encourage the safe and appropriate use of medicines, thereby enhancing therapeutic outcomes.

Procedures

Information and education on medicines should be provided to all patients. If constraints preclude face-to-face education of all patients, professional judgement must be used to establish which patients will receive the greatest benefit including:

- referred patients;
- patients with chronic disease states, e.g. cardiac, diabetic, hepatic, renal;
- patients taking drugs with a narrow therapeutic index, e.g. warfarin, digoxin;
- patients taking drugs with a high incidence of serious adverse reactions;
- patients taking drugs with special administration requirements, e.g. inhalers;
- patients on multiple medicines or complex medicine regimens;
- patients whose established medicines have been altered;
- patients identified as having previous problems in managing their own medicine;
- elderly and paediatric patient populations; and
- patients from non-English speaking backgrounds.

Based on patient-specific considerations, it may be necessary to schedule medication education at different times, such as: during an ambulatory clinic visit; on admission, beginning with the medication history interview; throughout an inpatient stay (e.g. during daily assessment of current medication management); and immediately prior to discharge or at discharge.

Patient understanding of their medicines and retention of this information will be optimised if education occurs on an ongoing basis during their admission and at the time of discharge. Pharmacists should play an active role in identifying patients in whom self administration of medicines may be unsafe and liaise with colleagues regarding strategies to assist patients in obtaining, administering and managing their medicines. Where possible, ensure privacy and minimise the risk of interruptions and ensure that education occurs at the most appropriate time. The mode(s) of presentation will depend on the patient's needs, the person(s) receiving education and the timing of education sessions (e.g. during hospital stay, time of discharge). Education may incorporate the use of various techniques including one-to-one discussions, group teaching, use of information resources such as CMIs and audiovisual and educational displays.

Pharmacists should plan for medication education by reviewing other information sources, e.g. administration records, and ensure that education occurs with the individual responsible for administration and management of medicines. It is important that the key medicine-related issues are communicated. The pharmacist must consider privacy and confidentiality issues as well as the patient's personal wishes at all times. The primary steps in education include: establishing the identity of the patient/carer; introducing yourself; adopting a suitable physical position to enable counselling to take place comfortably and effectively; organising medicines in a logical sequence (a medicine list should be provided as a concordance aid); and utilising other counselling aids when appropriate.

Using effective communication methods, counsel the patient/carer on the relevant aspects of their medicine regimen. During the inpatient stay, education should be provided for all newly commenced medicines; greater detail should be reserved for medicines likely to continue following discharge. Assess the patient's ability to understand the information to be imparted, ask them to describe how they are going to take the medicine. Engage an interpreter if necessary. Consider modified counselling strategies for patients with cognitive or perceptual problems, or for those on medicines that may impair the ability to recall information.

Information, which should be discussed during an education session includes:

- generic and brand names of the drug, physical description and strength;
- intended purpose and expected action of treatment;
- information on how and when to take the medicine;
- any special directions or precautions about taking the drug;
- common adverse effects that may be encountered, ways in which to minimise them and action that is required if they occur;
- details of medicines ceased and its relationship to new medicine;
- details of new medicines or medicines with changed dose or dose forms;
- any techniques for self-monitoring of therapy;
- appropriate storage requirements;
- relevant drug-drug, drug-food, drug-alcohol and drug-test/procedure interactions;
- number of days treatment that is supplied and the duration of treatment that will be required;
- mechanisms for obtaining further supplies of medicines;
- action to be taken in the event of a missed dose;
- CMI as appropriate; and
- written medicines list as required.

At the end of the session summarise the vital information emphasising changes in the medication regimen; assess patient's understanding; ensure patient has all the relevant information; supply medicine aids as necessary; ask the patient if there are any questions or if there is any information they did not understand; and encourage them to contact the pharmacist if required (provide contact details). Based on the assessment of the patient's understanding, determine whether follow-up is required: further education sessions including home visits; referral to other healthcare workers; and communication of relevant strategies or perceived problems to the necessary healthcare workers.

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in gathering CMI leaflets and distributing CMI leaflets to patients prior to counselling by a pharmacist.

Roles not suitable for pharmacy technicians include:

- distribution of CMI leaflets to patients with counselling;
 - conducting patient counselling on any medicines;
 - conducting patient counselling on disease state management;
 - identification of patients requiring medication counselling; and
 - identification of patients requiring concordance aids.
-

Appendix I. Information for ongoing care

Communication and liaison with health professionals (community pharmacists, general practitioners, pharmacists at other hospitals or other healthcare providers) facilitates the seamless care of the patient's transition between healthcare providers. To enable seamless care to be delivered, lines of communication between hospitals and community-based health professionals must be well developed, particularly at the time of discharge. Liaison with hospital and community centres of care is an important role of the clinical pharmacist.

Communication and interaction with a hospital-based community liaison pharmacist should occur where this resource is available. The 'SHPA standards of practice for community liaison pharmacy practice' should also be consulted.¹²

Goals

The goals are to ensure:

- appropriate monitoring of dosages/medicines especially new medicines;
 - continuity of supply, especially where drugs are difficult to access;
 - continuity of medication concordance aids, e.g. filling of dose administration containers;
 - communication of special problems, such as suspected concordance problems, difficulty with childproof closures; and
 - minimal disruption for patients.
-

Procedures

The methods and extent of communication will vary depending on needs of individual patients, and the available time and resources, but may include:

- telephoning the community pharmacist and/or institution at the time of the patient's admission to determine/confirm current medicines;
- telephoning the community pharmacist and/or institution prior to discharge to confirm new/continuing medicines;
- discussing the issue of continued supply of medicines with the community pharmacist and/or institution;
- completing the discharge letter, providing details of medicines supplied on discharge, as well as a hospital contact name and telephone number. This letter could either be given to the patient, or faxed or posted to the community pharmacist and general practitioner; and
- arranging to visit the patient at home.

The patient's confidentiality and personal wishes must be respected. Patients may be confused after discharge despite comprehensive counselling by pharmacists. Patients should be encouraged to contact their hospital pharmacist at any time, even after discharge. The name and contact number of the hospital pharmacist may be made available to the patient/carer.

Although all patients may benefit from information for ongoing care services, certain target groups may be selected for highest priority.

High priority patient groups include:

- the elderly;
- patients with psychiatric illnesses;
- patients with epilepsy;
- patients on complex medicine combinations; and
- patients with difficult to obtain medicines, e.g. combination of the Pharmaceutical Benefits Scheme and the Special Access Scheme.

Visiting the patient in the home as a part of follow-up after inpatient care that may include further medication management review, or as a facet of ambulatory care management, can contribute to patient care. Specific potential benefits include:

- improving the provision of information and follow-up of patients;
 - enhancing patient concordance;
 - reducing medicine stockpiling;
 - reducing hospital costs by reducing re-admission rates due to adverse drug reactions and non-concordance;
 - providing ongoing counselling for patients and improving patient knowledge about medicines;
 - ensuring continuity of treatment;
 - decreasing medicine interactions by minimising inappropriate therapy; and
 - improving communication and interaction with general practitioners and other health professionals.
-

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians in clinical pharmacy support roles can assist the clinical pharmacist in:

- identifying patients requiring communication with community practitioners if this does not involve clinical information;
- preparing information for transfer to community practitioners after a final check by the pharmacist;
- communicating medicines supply information via telephone with community pharmacist and nurse; and
- communicating via facsimile/letter with community pharmacist, general practitioner and nurse with a final check by a pharmacist.

Roles not suitable for pharmacy technicians include communication by telephone with general practitioners.

Appendix J. Adverse drug reaction (ADR) management

ADR management is the prevention, detection, assessment, management and documentation of ADRs. The World Health Organization defines an ADR as 'any response to a drug which is noxious and unintended, and which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of disease, or for the modification of physiological function'³⁵

Goals

The detection, assessment and correlation, management, documentation and prevention of ADRs. Emphasis should be on the prevention of ADRs and on the prevention of re-exposure in patients who have already experienced an ADR.

Procedures

In the detection and prevention of ADRs, pharmacists should:

- Identify and monitor susceptible patients, such as those with multiple disease processes; on a large number of drugs; geriatric or paediatric patients; those treated with medicines known to have a high incidence of adverse effects; those treated with medicines known to be associated with serious adverse effects; those treated with drugs with a low therapeutic index or potential for multiple interactions; patients with abnormal investigation results.
- Detect ADRs through routine drug therapy monitoring bearing in mind that orders for single doses of antihistamines, adrenaline, corticosteroids and other medicine may indicate that an adverse reaction has occurred.
- Encourage nursing and medical staff, as well as patients, to report ADRs.
- Identify patients who have had previous ADRs.

When an ADR is suspected, the assessment may include collection of data such as:

- Patient details: age, gender, race, organ function, height, weight; diagnosis and other relevant comorbidities prior to reaction; previous exposure to suspected drug(s) or related drug(s).
- Medicine details: non-prescription drugs, alternative treatments, recently ceased medicines; name, dose, route of administration, manufacturer, batch; date and time commenced; date and time discontinued (if applicable); indication.
- Comprehensive adverse reaction details: description of the reaction; time of onset and duration of reaction; complications and sequelae; treatment and outcome of treatment; relevant investigation results or autopsy report.

In assessing the likelihood that a suspected ADR was caused by a particular drug, a review of the relevant literature should be undertaken and where appropriate include consultation with other expert health professionals.

Causality of a suspected medicine with an adverse reaction may be:

Certain: a clear temporal association is established between medicine administration and the reaction; and/or the results of investigations confirm that there is a relationship between the administration of the medicine and the reaction; and/or the reaction recurs upon re-exposure to the drug; and/or the reaction is commonly known to occur with suspected drug.

Probable: the reaction is known to occur with the suspected drug, and there is a possible temporal association between the reaction and medicine administration; and/or the reaction resolves or improves upon withdrawal of the suspected medicine and other medicine therapy remains unchanged; and/or an uncommon clinical event occurs in the absence of other potentially causative factors.

Possible: an alternative explanation for the reaction exists; and/or more than one medicine is suspected; and/or recovery follows withdrawal of more than one drug; and/or the temporal association between the reaction and administration of the medicine is unclear.

Doubtful: another cause is more likely to have accounted for the clinical event, e.g. underlying disease.

The likelihood of the suspected drug(s) having caused the reaction, and the clinical significance of the reaction are taken into account when assessing whether to continue with the suspected drug(s). In many cases a reasonable alternative treatment will be available. Pharmacists should make recommendations on treatment options for the reaction and/or recommend alternative treatments.

Important issues to consider in the management of ADRs include:

- condition of the patient;
- requirement for therapy;
- risks and benefits associated with continuing therapy with a medicine suspected to have caused an adverse reaction, including factors such as causality and the seriousness of the reaction;
- relative efficacy and safety of other therapeutic options; and
- prophylactic use of other medicines to prevent future adverse reactions.

Appropriate documentation should be completed in the event of a suspected ADR. The pharmacist should ensure:

- documentation in the medical record, including any electronic prescribing or dispensing system and if appropriate the use of relevant alert notices/stickers attached to medication administration records and medical history is initiated;
- medical staff (including the original prescriber) are notified of ADRs;
- patients/carers receive an appropriate record of the ADR when potential for re-occurrence is deemed significant;
- ADRs are reported to the Adverse Drug Reactions Advisory Committee or other appropriate regulatory authority, and/or to the manufacturer in the case of trial or non-marketed drugs; and
- in-house documentation of ADRs is completed.

The likelihood of ADRs may be minimised by:

- ensuring documentation of ADRs on all medicine orders, including noting when there are no known ADRs;
 - monitoring patients at risk;
 - judicious use of medicines that have a high incidence of adverse effects, or are known to cause serious adverse effects;
 - documentation of ADRs to avoid re-exposure; and
 - provision of information, or 'alert cards' to patients who have experienced serious reactions.
-

Role of pharmacy technicians

Suitably trained and supervised pharmacy technicians can assist the clinical pharmacist in performing data processing of ADR reports where this is a technical task not involving interpretation.

Roles not suitable for pharmacy technicians include:

- identification of patients who have had a previous ADR as this is encompassed in medication history interview, is of limited value and requires medicine knowledge and clinical interpretation;
 - ensuring previous ADRs are documented (requires clinical and professional interpretation and judgement); and
 - checking ADR history as part of the dispensing process as this must be performed by a pharmacist.
-

Appendix K. Clinical pharmacy training checklist

Topic	Tick
Guidelines for the practice of clinical pharmacy	
SHPA standards of practice for clinical pharmacy	
Summary of clinical pharmacist duties and responsibilities	
Providing services to the ward	
Other guidelines, e.g. APAC guidelines to achieve the continuum use of medicines	
Clinical pharmacist activities	
Interpretation of patient-specific data	
-layout of the patient medical record	
-patient medical record review	
-medical abbreviations	
Formulation of Medication Action Plan	
-patient management plans/patient profiles	
-documenting in patient medical records	
Accurate medication history	
-guideline for medication interviews, e.g. Getting Smarter video	
Assessment of current medication management	
-decision to prescribe a medicine	
-prevention, assessment and management of medicine interactions	
-medicine orders, e.g. medicine chart, intravenous therapy chart	
-medicine prescribing policies, protocols, guidelines	
-annotating medication charts	
-medicine supply	
Adverse drug reaction management (forms, local policy, procedures)	
Clinical review	
-accessing, recording and screening of laboratory data	
-clinical and therapeutic information, e.g. resource folders	
Therapeutic drug monitoring	
-accessing, recording and screening of therapeutic drug monitoring data	
-drug dosing and monitoring guidelines	
Ward rounds and meeting participation	
Provision of medicines information to health professionals	
Provision of medicines information to patients	
-guideline for medication counselling, e.g. Getting Smarter	
-provision of consumer medicine information	
-concordance aids, e.g. dosing charts, medicines lists, Dosett	
-interpreter services	
Information for ongoing care	
-transfer of Medication Action Plans, patient profiles, medicines lists	
-fax letter to pharmacists/general practitioners	
Prioritisation of clinical activities	
Pharmacy technician clinical pharmacist support roles	
Assessment	
-competency assessment	
-mentor allocation	
-performance review and continuing professional development	

Orientated by:

Date completed:

Appendix L. Classification of pharmacy interventions

Definition: Any action by a pharmacist that results in a change in patient medication management or therapy.

Type of intervention

1. Therapeutic or prescribing recommendation not related to an error.
2. Therapeutic or prescribing recommendation related to an error.
3. Technical deficiency, cost or formulary requirement.
4. Other.

Consequence or impact²⁹

Level	Descriptor	Description: assume intervention not made, probable scenario (not worse case)
1	Insignificant	No harm or injuries, low financial loss.
2	Minor	Minor injuries, minor treatment required, no increased length of stay or re-admission, minor financial loss.
3	Moderate	Major temporary injury, increased length of stay or re-admission, cancellation or delay in planned treatment/procedure. Potential for financial loss.
4	Major	Major permanent injury, increased length of stay or re-admission, morbidity at discharge, potential for significant financial loss.
5	Catastrophic	Death, large financial loss and/or threat to goodwill/good name.

Likelihood of occurrence²⁹

Level	Descriptor	Description: likelihood of (1) impact occurring without intervention and (2) scenario occurring in the future
A	Almost certain	Is expected to occur in most circumstances
B	Likely	Will probably occur in most circumstances
C	Possible	Might occur at some time
D	Unlikely	Could occur at some time
E	Rare	May occur only in exceptional circumstances

Risk (consequence x likelihood)²⁹

Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
A (almost certain)	H	H	E	E	E
B (likely)	M	H	H	E	E
C (possible)	L	M	H	E	E
D (unlikely)	L	L	M	H	E
E (rare)	L	L	M	H	H

E = extreme risk; H = high risk; M = moderate risk; L = low risk

Adopted by Federal Council: August 2004