

SHPA Standards of Practice in Emergency Medicine

Pharmacy Practice

SHPA Committee of Specialty Practice in Emergency Medicine

These are standards of professional practice and not standards prepared or endorsed by Standards Australia.

They are not legally binding.

INTRODUCTION

These standards describe the activities consistent with good practice for the provision of clinical pharmacy services in the specialty area of emergency medicine (EM). They must be read in conjunction with the current SHPA Standards of Practice in Clinical Pharmacy.¹

EM pharmacy practice encompasses clinical care for patients in the Emergency Department (ED), but may also include pre-hospital care, toxicology and disaster planning. An ED is defined as a unit managing acute and urgent aspects of illness and injury presenting from the community. Associated with many EDs are short-stay units whose specific names vary and include among others, 'Emergency Medical Units', 'Medical Admission Planning Units' and 'Short-Stay Observation Units'. Generally, patients in such units are admitted for up to 24 or 48 hours. The pharmacist responsible for the overall EM service is referred to as the EM pharmacist.

As patients may spend many hours in the ED awaiting allocation to a ward, the EM pharmacist can facilitate early medication assessment. The majority of patients presenting to the ED are not admitted to hospital; these patients would not receive any clinical pharmacist assessment. Therefore, the purpose of providing a clinical service to the ED is to provide early pharmaceutical care to patients being admitted to the hospital and care to those who are discharged directly from the ED.

OBJECTIVES

The objective of an EM pharmacy practice is to optimise patient outcomes by working to achieve the best possible quality use of medicines. The EM pharmacist has a role in maintaining the continuum of care from the community to the hospital environment, and for patients discharged directly from the ED back to community services.

A significant proportion of pharmacist interventions relate to medications taken prior to or initiated on admission. Medication reconciliation and review is possibly the most important part of the EM service. The documentation of medications taken prior to presentation to the ED should be completed as early as possible, enabling rational therapeutic decisions to be made in the ED and after transfer or discharge. The EM pharmacist should also identify drug-related problems occurring at home which may have contributed to the ED presentation.

Part of the admission process must include an assessment of a patient's ability to manage their medication regimen after discharge. For patients admitted to hospital, the EM pharmacist should initiate the discharge planning process by communicating drug-related problems to relevant ward staff and providing a handover to ward pharmacists.

EM pharmacists should also detect and document adverse drug reactions (ADRs), contribute to medical rounds, document and handover information to community health professionals, provide drug information to patients and health professionals, liaise between the ED and the pharmacy department to ensure timely supply of medications, and facilitate transfer to other services such as hospital-in-the-home programs and respite care.¹ EM pharmacists may also participate in drug preparation and/or documentation in resuscitation situations.

Non-patient specific roles for the EM pharmacist include:

- identification of medication use problems within the ED and initiation of interventions to address them;
- experiential teaching of pharmacy students and junior pharmacists on rotation;
- participation in medical and nursing staff continuing education programs;
- participation in ED projects and research involving drug usage;
- review of policies and procedures involving medication use in ED, and pre-hospital and disaster care (if appropriate); and
- liaison between emergency, pharmacy and other inpatient departments on medication-related issues. The benefits of the practice or service include:
 - pharmacists are seen as a part of the multidisciplinary ED team;
 - increased awareness of therapeutic issues among ED staff;
 - increased liaison between pharmacy and ED to ensure improved communication; and
 - timely supply and review of specialised medicines.

EXTENT AND OPERATION

Key stakeholders in an EM pharmacy service are patients, nurses, medical and allied health staff, medical admission teams, ward pharmacy and dispensary staff. The Director of Pharmacy is responsible for the EM pharmacist. However, some systems may allow for the Director of ED to employ a pharmacist.

The service must provide care to patients to be admitted to hospital. Ideally, patients to be discharged directly from the ED would also be seen.

EDs function 24 hours per day seven days per week, therefore 24-hour coverage is desirable. Hours of service should at least include those provided by clinical pharmacists to other wards. Consideration should be given to extending hours of service provision to weekday evenings and weekends. This will depend upon staffing, remuneration and the hospital's resources. There should be an on-call service for advice and supply of medications as part of the overall pharmacy service.

EM pharmacists must target patients most likely to require their expertise as many more patients present to EDs than will be able to be seen by a pharmacist. Various models exist including: acting on referrals from ED staff,

SHPA Committee of Specialty Practice in Emergency Medicine. **Susan A Welch** (Chairman), **Simone E Taylor**, **Linda V Graudins**
Address for correspondence: Susan Welch, Pharmacy Department, St Vincent's Hospital, Sydney NSW 2010, Australia
 E-mail: swelch@stvincents.com.au

admitting units or patient self referral, focusing on medication-related presentations, elderly patients going home from ED, or patients to be admitted to hospital.

The range of services will depend on the number of pharmacists available and the specific requirements of the ED. A prioritisation system must be established to ensure the following services are provided to those most likely to benefit:

- daily chart review;
- patient medication education;
- liaison with ward staff regarding admitted patients; and
- medication history taking and documentation on admission.

Other services may include:

- review of drug guidelines/protocols including antidotes, antivenoms, disaster kits and the use of any medicines specific to the EM environment, to ensure availability of medications and currency compared with best current practice;
- staff in-service education;
- storage of patient's own medication;
- medication incident/error monitoring;
- adverse drug event documentation and reporting;
- therapeutic drug monitoring;
- evaluation of high-cost drug use in ED;
- management of overdoses/envenomations/poisonings; and
- supply of written consumer drug information for 'take away/after hours' packs.

The following additional services are dependent on time and staffing levels:

- drug-related admissions database;
- drug use evaluation;
- participation in research projects;
- disaster team membership;
- arrest team membership; and
- management of clinical trial drugs.

A registered pharmacist should deliver the majority of the service. Adequate support staff should be made available to ensure that the EM pharmacist performs minimal non-clinical activities.

POLICIES AND PROCEDURES

The procedures outlined in the SHPA Standards of Practice in Clinical Pharmacy are applicable to EM pharmacy practice.¹ EM pharmacists must also work within relevant ED and pharmacy policies specific to their institution.

RESOURCES

Adequate office and storage space must be available either in the ED or the pharmacy department for patient notes and references. A library of reference material should be collated and maintained. EM pharmacists should have direct access to e-mail and the Internet.

REFERENCES

Access to standard clinical pharmacy texts such as *Australian Medicines Handbook*, *Therapeutic Guidelines* series (in particular Antibiotic, Psychotropic and Cardiovascular) and a compendium of available medicines such as *MIMS* or *APPGuide* in either electronic or hardcopy format is essential.

Other texts that may be useful, including EM-specific texts, may be found in Table 1. Many of the EM journals provide table of contents and e-mail alerts free of charge (Table 2). For relevant web sites refer to Table 3. Toxicology information can be accessed from the Poisons Information Line—telephone number: 131 126. Refer to Table 4 for useful toxicology web sites.

Table 1. Useful texts relating to emergency medicine

Specific texts

Australian Medicines Handbook. Drug choice companion: emergency and primary care. Richmond: Hyde Park Press; 2004. ISBN 0-9578521-6-9.

Cameron P, Jelinek G, Kelly AM, Murray L, Brown A, Heyworth J. Textbook of adult emergency medicine. 2nd ed. Sydney: Churchill Livingstone; 2004. ISBN 0-443-07289-2.

Discretionary texts (one or more would be available in most EDs)

Tintinalli JE, Kelen GD, Stapczynski JS, editors. Emergency medicine: a comprehensive study guide. 6th ed. Sydney: McGraw Hill; 2004. ISBN 0-07-138875-3.

Marx JA, editor. Rosen's emergency medicine: concepts and clinical practice. 5th ed. St Louis: Mosby; 2002. ISBN 0-323-01185-3.

These texts or local equivalents may also be useful

Brown A. Emergency medicine: diagnosis and management. 2nd ed. Port Melbourne: Butterworth-Heinemann; 2004. ISBN 0-75068-956-0.

Padley A. Westmead pocket anaesthetic manual. Sydney: McGraw Hill; 2004. ISBN 0-07-470861-9.

Brent J, Wallace K, Burkhardt K, Phillips S, Donovan J, editors. Critical care toxicology. Philadelphia: Elsevier Mosby; 2005. ISBN 0-8151-4387-7.

Goldfrank L, Flomenbaum N, Lewin N, Howland M, Hoffman R, Nelson L. Goldfrank's toxicologic emergencies. 7th ed. Sydney: McGraw Hill; 2002. ISBN 0-07136-001-8.

White J. CSL antivenom handbook. Parkville: CSL Limited; 2001. ISBN 0-646-26814-7.

The Australian Immunisation Handbook. Available from <www1.health.gov.au/immhandbook>.

Women's and Children's Health. Paediatric Pharmacopoeia. 13th ed. Parkville: The Royal Children's Hospital; 2002.

Royal Pharmaceutical Society of Great Britain. British national formulary for children. London: BMJ Publishing Group Ltd; 2005.

Table 2. Useful journals specific to emergency medicine

Journal	Publisher
Annals of Emergency Medicine	Harcourt Health
Emergency Medicine Australasia	Blackwell Publishing
Journal of Accident and Emergency Medicine	BMJ Journals
Journal of Academic Emergency Medicine	Hanley & Belfus Inc (affiliate of Elsevier)
Emergency Medicine Clinics of North America	Elsevier
Journal of Toxicology and Clinical Toxicology	Taylor and Francis
American Journal of Emergency Medicine	Elsevier
Resuscitation	Elsevier Science Ireland
Emergency Medical Journal	BMJ Journals

Table 3. Useful emergency and trauma web sites

Description	Web address
American College of Emergency Physicians	acep.org
NICS Emergency Care Community of Practice	nicsl.com.au
Australian Resuscitation Council	resus.org.au
American Board of Emergency Medicine	abem.org
24-hour online Emergency Department textbook	emedicine.com
Journal of Emergency Primary Health Care	jephc.com
Australasian College of Emergency Medicine	acem.org.au
Society for Academic Emergency Medicine	saem.org
NETS-NSW Newborn & Paediatric Emergency Transport Service	nets.org.au
Liverpool Hospital Emergency Department Trauma Home Page	swsahs.nsw.gov.au/livtrauma

Table 4. Toxicology web sites

Description	Web address
Australian venomous creatures	www.avru.unimelb.edu.au/avruweb/creatable.html
Clinical toxinology-bites and stings	www.wch.sa.gov.au/services/az/divisions/paedm/toxinology/index.html
New Zealand poisons database	www.toxinz.com/
Toxnet-NLM toxicology data network	www.toxnet.nlm.nih.gov
Clinical toxinology resources	www.toxinology.com
Overdose and poisoning information	www.micromedex.hcn.net.au Poisindex (clinical data access programs or poisons information centres)
NSW snakebite and spiderbite guidelines	ciap.health.nsw.gov.au/snakebite.html

STAFFING STRUCTURE AND LEVELS

One clinical pharmacist should be responsible for the coordination of all aspects of the service. The provision of some aspects may be delegated to other pharmacists and support staff. Ideally, the one pharmacist would have a broad range of expertise and additional pharmacist(s) may be junior or pre-registrant level. These junior pharmacists and/or pre-registrants should work under the supervision and guidance of the senior pharmacist.

Consideration should be given to extending the hours of service to weekday evenings and weekends. This may involve the junior pharmacist working without direct supervision. In such cases the junior pharmacist must have adequate support—this may involve the senior EM pharmacist being available on-call, or the junior pharmacist being able to contact the on-call pharmacist or other senior staff within the pharmacy department for advice. The junior position may be rotational.

Pharmacy technicians should be available to provide dispensing and non-clinical secretarial support to EM pharmacists. Some clinical support duties may be undertaken at the discretion of the department, under supervision of the EM pharmacist.¹

Due to the complexity and undifferentiated nature of many ED patients, an EM pharmacist may spend many hours with one patient during a single shift. It is not uncommon for the EM pharmacist to concurrently undertake both an admission and discharge process for an ED patient. This can be a protracted process when liaison with multiple community carers is required to determine an accurate medication history, medication-related problems need to be solved, discharge medication aids and community handover organised. In contrast, the EM pharmacist may also be called upon to screen or trouble-shoot discrete problems often identified by others. In such situations patients can be seen for a short period of time, but to a more limited extent.

To maintain a comprehensive patient-focused service for effective full-time pharmacist input a suggested presentation and bed ratio is outlined in Table 5. It is recognised that very few hospitals in Australia would currently be staffed to this level.

Table 5. Recommendation for ED bed:pharmacist ratio

Bed description	Ratio of beds/presentations per 1 EFT pharmacist
Standard ED cubicles	60 presentations per day*
Short stay unit (up to 48 hours, including chest pain observation units) ¹	20 beds

*After screening not all will require a full clinical service
EFT = equivalent full-time

It is preferable that the EM pharmacist be based in the ED so that other ED staff are not relied upon to identify drug-related problems to trigger a referral. At an absolute minimum, the EM pharmacist should be available via pager to accept referrals from ED staff.

TRAINING AND EDUCATION

The EM pharmacist must have a broad range of clinical knowledge supported by several years of clinical experience, particularly on general medical and surgical wards and ideally experience in specialty areas such as psychiatry, infectious diseases, cardiology, critical care, toxicology and pain management. Postgraduate qualifications in clinical pharmacy are desirable.

EM pharmacists must have strong communication and time management skills, the ability to work as part of a multidisciplinary team and experience in drug information retrieval. It is desirable that the senior EM pharmacist has experience in conducting drug use evaluations and clinical research and report writing. Didactic and experiential teaching skills would be valuable or these skills could be developed in a hospital clinical teaching program.

Mechanisms for staff accreditation and validation to practice in EM would be according to a checklist adapted from the SHPA Standards of Practice in Clinical Pharmacy.¹

The EM pharmacist must possess up-to-date clinical knowledge on a broad range of topics seen in the ED and be capable of exercising independent responsible clinical judgement. The EM pharmacist must maintain a minimum of 20 hours of continuing education per year within the field of emergency medicine. It is recommended that EM pharmacists undertake the Advanced Cardiac Life Support certification offered by many hospitals and nurse training organisations to acquire the background to and appreciation of the proceedings of an arrest. They

may develop the confidence to participate in resuscitation situations in the ED, e.g. drugs used, appreciation of which drugs are needed immediately and those that are less urgent and may assist in dose preparation.

Toxicology expertise may be obtained via programs such as the University of Newcastle toxicology diploma, courses organised by the Australasian College of Emergency Medicine or by gaining practical experience from working in poisons information centres.

Pharmacists commencing practice in EM should undertake relevant orientation and training. Periodically SHPA may hold seminars in EM. A list of Australian EM publications and conference presentations can be found on the SHPA web site.²

Regular attendance at specialist conferences and educational meetings must be undertaken to maintain and update specialist knowledge. Relevant conferences include those organised by SHPA, Australasian College of Emergency Medicine, National Institutes of Clinical Studies—Emergency Care Community of Practice and American College of Emergency Physicians.

Liaison with special interest groups and the SHPA Committee of Specialty Practice in Emergency Medicine is recommended. EM pharmacists are encouraged to become members of the EM Committee of Specialty Practice and the National Institutes of Clinical Studies—Emergency Care Community of Practice e-mail groups.

QUALITY

A quality assurance program for the provision of an EM pharmacy service must be developed and maintained. This should include review of medication incidents and ADRs reported as part of a multidisciplinary ED group, so that quality activities can target areas in need of improvement. The program should also include a number of quality indicators. A range of suggested quality indicators are outlined below. These indicators have not been formally validated and benchmarks are yet to be developed. This would be an area for future research.

Accurate Medication History on Presentation

Of all the patients being admitted to hospital via ED, the number (%) of patients having had a full medication history documented during their ED stay.

Provision of Medicines Information

Of all the patients who receive discharge medications from ED, dispensed by the pharmacy department, the number (%) who received written and/or verbal education from an EM pharmacist.

Maintaining the Continuum of Care

Of all the patients admitted to hospital via ED, the number (%) with a medication action plan prepared by the EM pharmacist and forwarded to the ward pharmacist.¹

Documentation of Adverse Drug Reactions

The number of reports of ADRs occurring in the ED or causing presentation to ED that are comprehensively reported. This should include documentation in the medical record, submission of ADR form to ADRAAC and notification of the patient and/or local doctor or submission to the hospital's ADR subcommittee according to each hospital's policy.

Documentation of Adverse Event Monitoring

The number of medication incident reports (and % of total ED medication incidents reports) that are reviewed by the EM pharmacist and management advice provided.

Maintenance of Up-To-Date Guidelines, Protocols and Policies

Number (%) of drug-related guidelines, protocols and policies with EM pharmacist input at each update (benchmark should be 100%).

DOCUMENTATION

Documentation can be broadly divided into the patient medical record, pharmacy profiles and medication action plans and workload documentation. The requirements outlined in the SHPA Standards of Practice in Clinical Pharmacy are directly applicable to EM practice.¹

With respect to workload documentation, consideration should be given to documentation of details such as number of patients seen and specific services provided on the institution's electronic ED database. Documentation of traditional 'intervention' statistics may not be a good measure of the impact of an EM pharmacy service. It should be noted that, particularly in ED, the goal of the clinical pharmacy service is for proactive practice. A pharmacist seeing a patient early in their presentation or accepting a referral for advice may ensure an appropriate therapeutic decision is made from the outset, preventing the need for later intervention by a pharmacist or other clinician.

References

1. The Society of Hospital Pharmacists of Australia. Committee of Specialty Practice in Clinical Pharmacy. SHPA Standards of Practice in Clinical Pharmacy. *J Pharm Pract Res* 2005; 35: 122-46.
2. SHPA Committee of Specialty Practice in Emergency Medicine. Australian ED pharmacist presentations. April 2005. Available from <www.shpa.org.au/pdf/publications/ed_pub_apr05.pdf>.

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