Pharmacy Board of Australia

GUIDELINES ON COMPOUNDING OF MEDICINES

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Contents

These guidelines have been developed by the Pharmacy Board of Australia (the Board) under section 39 of the Health Practitioner Regulation National Law, as in force in each state and territory (the National Law). They detail the Board's guidance to registered pharmacists in relation to the compounding (extemporaneous preparation) of medicines, not set out in legislation or a registration standard. The Board may publish additional information about the compounding of medicines.

Who needs to use these guidelines?

These guidelines were developed to provide guidance to registered pharmacists or those seeking to become registered pharmacists. They apply to pharmacists holding the following types of registration:

a) general
b) provisional, or
c) limited.

These guidelines do not apply to students. However, students should become familiar with them before undertaking supervised practice placements.

Introduction

The intent of these guidelines is to provide guidance to pharmacists in relation to the compounding of medicines to ensure product quality, safety and efficacy. They should be used in combination with the Board's *Guidelines for dispensing of medicines* which apply to the dispensing and supply of all medicines, including compounded medicines.

These guidelines provide guidance and clarification on specific issues regarding compounding of medicines. They aim to minimise the associated risks for patients, pharmacists and other pharmacy staff, and improve patient outcomes and patient safety.

These guidelines are not the sole or primary source of information for pharmacists regarding compounding. They do not aim to restate or summarise already published and widely accepted information such as the compounding information contained in the *Australian Pharmaceutical Formulary and Handbook*, the practice standards on compounding published by the profession, and the requirements outlined in relevant legislation.

Pharmacists should refer to the 'Definitions' section of these guidelines for definitions of terminology used in these guidelines.

Relevant legislation and practice standards

Pharmacists are expected to be aware of and comply with the practice standards and guidelines on compounding as listed below, including any other standards or guidelines referred to in those documents.

Pharmacists must meet their obligations outlined in relevant state, territory and Commonwealth legislation as they relate to the preparation, labelling, maintenance of records, storage, dispensing, supply and advertising of compounded medicines.

Pharmacists are reminded that the medicines they compound are not exempted from meeting the quality standards set out in the *Therapeutic Goods Act 1989* (Cth). The Board's *Background on the regulation of compounding by pharmacists* information sheet contains information on the requirements of other authorities under their specific legislation, which relate to compounding.

These guidelines must be read in conjunction with:

- state, territory and Commonwealth legislation relevant to the practice of pharmacy and pharmacy supply of medicines
- codes and guidelines published by jurisdictional pharmacy premises regulatory authorities about pharmacy premises
- the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*
- the following practice standards and guidelines:
  - the Pharmaceutical Society of Australia *Professional Practice Standards - Standard 10: Compounding* (also known as *Extemporaneous dispensing*)
  - the Pharmaceutical Society of Australia *Professional Practice Standards - Standard 11: Compounding sterile preparations*
  - The Society of Hospital Pharmacists of Australia *SHPA Standards of Practice for the Safe Handling of Cytotoxic Drugs in Pharmacy Departments*
  - The Society of Hospital Pharmacists of Australia *SHPA Standards of Practice for the Transportation of Cytotoxic Drugs from Pharmacy Departments*
  - The Society of Hospital Pharmacists of Australia *SHPA Guidelines for Medicines Prepared in Australian Hospital Pharmacy Departments*
  - The Society of Hospital Pharmacists of Australia *SHPA Standards of Practice for the Provision of Oral Chemotherapy for the Treatment of Cancer*
- occupational, health and safety standards, and
- Australian standards for clean rooms.

The pharmacy practice standards and guidelines listed above can be accessed on the websites of the relevant professional bodies:

- Pharmaceutical Society of Australia (PSA) (www.psa.org.au)
- The Society of Hospital Pharmacists of Australia (The SHPA) (www.shpa.org.au)

Note:

1. The circumstances under which pharmacists may compound and supply extemporaneously prepared medicines in and from different types of premises can be accessed on the Therapeutic Goods Administration (TGA) website at www.tga.gov.au. (Note: this does not apply in Western Australia and Queensland).
2. As part of the agreement by the Council of Australian Governments to provide for the National Law, ownership of pharmacies, registration/licensing and regulation of premises, inspections and related matters do not form part of the National Law. Each jurisdiction has separate requirements which may be specified in legislation and guidelines for these purposes. These may specify requirements for pharmacy premises, including requirements for compounding that takes place in pharmacy premises.

What happens if I do not comply with these guidelines?

Pharmacists must comply with all legislation relevant to the practice of pharmacy in the jurisdiction where the practice occurs. Failure to practise in accordance with these requirements may give rise to action by one or more responsible authorities. These matters may then be referred to the Board for appropriate action under the National Law or law of a co-regulatory jurisdiction.

Non-compliance with these guidelines and the practice standards and guidelines relevant to compounding may also be notified directly to the Board for appropriate action under the National Law or law of a co-regulatory jurisdiction. Non-compliance may be reported by an individual lodging a notification form, or through other means such as notification of outcomes of audits carried out by a state/territory pharmacy premises regulatory authority or responsible body.

Under section 41 of the National Law, these guidelines can be used in disciplinary proceedings under the National Law or law of a co-regulatory jurisdiction as evidence of what constitutes appropriate professional conduct or practice for pharmacists. When considering notifications (complaints) against pharmacists, the Board will give consideration to whether a breach of these guidelines has taken place. The Board will also have regard to the legislation and practice standards and guidelines relevant to pharmacy practice.

Further information for pharmacists regarding the possible outcomes of notifications is available on the website of the Australian Health Practitioner Regulation Agency (AHPRA) (www.ahpra.gov.au).

Guidelines

This guidance applies to both simple and complex compounding, unless otherwise stated. A definition for each of these terms is provided in the 'Definitions' section of these guidelines.

Pharmacists are permitted to compound (extemporaneously prepare) medicines for human and animal patients. Compounded medicines should be provided if the medicine is safe and appropriate for the patient.

1. Instruction to compound a medicine

Compounding for individual human patients must be in accordance with the provisions of the therapeutic goods legislation. This may be in response to:

- a prescription, or
- a request for a compounded non-prescription medicine such as unscheduled, Schedule 2 or Schedule 3 medicines (where permitted by legislation).

Compounding veterinary pharmaceutical products containing scheduled or unscheduled medicines for individual animal patients may be carried out by a pharmacist, provided that instructions have been received from a veterinary practitioner as outlined in the *Agricultural and Veterinary Chemicals Code* (AgVet Code).

The quantity of compounded medicine to be supplied should be a single unit of issue for the treatment of a particular patient. For prescribed medicines, if the quantity is not specified by the prescriber, this must be confirmed with the prescriber.

(For further information:

- www.tga.gov.au/industry/artg.htm
- www.apvma.gov.au
- Pharmacy Board of Australia *Background on the regulation of compounding by pharmacists* published at www.pharmacyboard.gov.au/Codes-Guidelines).

2. Appropriate circumstances for compounding medicines

A compounded medicine should be prepared only in circumstances where:

- an appropriate commercial product is unavailable
- a commercial product is unsuitable (e.g. if a patient experienced an allergy to an excipient in the commercial product), or
- when undertaking research sanctioned by a recognised human research ethics committee.

The compounding of a medicine (whether prescribed or not) that would be a close formulation to an available and suitable commercial product, and would not be likely to produce a different therapeutic outcome to the commercial product, should not take place. In the case that such a medicine has been prescribed, the pharmacist should notify the prescriber that this medicine cannot be compounded under these circumstances.

In preparing a compounded medicine, a corresponding formulation in a reputable reference should be used by the pharmacist when available (refer to *Reference texts and other sources of information relevant to compounding* in these guidelines for examples of reputable references).

Compounding should only be carried out by pharmacists and other staff involved in compounding medicines if education and training in the types of compounding they undertake has been completed, and they have demonstrated competence in the relevant compounding techniques. Additionally, compounding must be done in appropriate facilities and working environments and using appropriate equipment. Further guidance on these issues is included in these guidelines.

3. Competence to undertake 'simple compounding'

Pharmacists entering the profession are expected to have had the appropriate education and training to compound medicines and are deemed competent to undertake 'simple compounding'.

Simple compounding may routinely involve compounding products:

- from formulations published in reputable references such as the *Australian Pharmaceutical Formulary and Handbook*, excluding the preparation of sterile products from these formulations which is considered complex compounding, or
- using other formulations for which information confirming quality, stability, safety, efficacy and rationality is available.

Simple compounding requires the use of current clinical and pharmaceutical knowledge and appropriate compounding techniques. It must be carried out in accordance with the relevant professional practice standards and guidelines outlined in these guidelines and all legislation relevant to the practice of pharmacy.

4. Competence to undertake 'complex compounding'

Subsequent to entering the profession, some pharmacists may extend their scope of practice to compound medicines of a more complex nature ('complex compounding') which requires or involves specific competencies, equipment, processes and/or facilities to manage the higher risks associated with the preparation and dispensing of these medicines. Examples of complex compounded products are sterile preparations, preparations containing ingredients posing an occupational health and safety hazard such as cytotoxics or hormones, micro-dose single unit dosage forms containing less than 25mg (or up to 25 per cent by weight or volume) of active ingredient, and sustained release or other modified-release preparations.

4.1 Professional practice profile for pharmacists undertaking complex compounding

On behalf of the profession, the Board has developed the *Professional practice profile for pharmacists undertaking complex compounding* (practice profile). The practice profile articulates the competencies required for complex compounding. Pharmacists should review the practice profile to understand the performance expected when undertaking complex compounding. The practice profile can be individualised by identifying those competencies relevant to a pharmacist's specific role, position or services provided.

To deliver courses on complex compounding, training program providers may use the practice profile and the professional practice standards and guidelines on compounding to develop programs for delivery to pharmacists seeking to extend their scope of practice to include complex compounding. Training programs may include those developed and delivered at workplaces.

4.2 Demonstrating competence to undertake complex compounding

The Board's *Continuing professional development registration standard* (the CPD registration standard) requires pharmacists to undertake CPD activities that are relevant to their scope of practice. When pharmacists extend their scope of practice to include complex compounding they must be able to demonstrate that they have met the requirements of the CPD registration standard by maintaining

evidence of the CPD activities they have done to achieve competence to undertake complex compounding.

The education/CPD activities and training must address the competencies outlined in the practice profile or individualised practice profile. Pharmacists should seek information from potential education/CPD providers to demonstrate how available programs address these required competencies. If a pharmacist is unable to achieve competence to undertake a specific task/activity (e.g. the required training is currently unavailable), this task/activity should not be carried out by the pharmacist until competence is able to be achieved.

Demonstrating competence to undertake complex compounding, to ensure safety of the public who access their services, themselves and the staff working under their supervision, involves:

a) conducting a self assessment against the practice profile to identify the competencies relevant to the areas of complex compounding being carried out
b) identifying CPD needs relevant to these identified competencies and documenting these in the form of a CPD plan
c) undertaking CPD activities (including a training program) that address identified continuing professional development needs, and
d) gaining experience until competence is achieved, in premises that are adequately designed, equipped, maintained and approved by relevant authorities, for example, a compounding pharmacy or a hospital pharmacy department.

Engagement of an expert or mentor to assist with this process is encouraged.

The maintenance of competence of pharmacists and other staff who prepare compounded medicines may be assessed and demonstrated by regular workplace validation, for example, validation of aseptic or non-aseptic techniques (also refer to Guideline 7 *Supervision of appropriately trained staff* and the practice standards and guidelines on compounding).

5. Veterinary medicines

Pharmacists who intend to compound simple and complex veterinary medicines are expected to have been educated in the compounding of products for the treatment of animals and to have done sufficient training.

Suitable resources on the compounding of animal medicines should be available to pharmacists involved in compounding animal medicines. Given the complex differences between and within animal species, collaboration with a veterinary surgeon may also be required to assure the pharmacist that the compounded medicine is safe and appropriate for a particular animal patient.

Pharmacists are also referred to the Board's *Background on the regulation of compounding by pharmacists* information sheet, and the following sections of these guidelines, for other guidance relating to the compounding of veterinary medicines:

- Guideline 1 *Instruction to compound a medicine*
- Guideline 8 *Facilities, working environments and equipment*

Independent legal advice should also be sought by pharmacists involved in the compounding of veterinary medicines, to provide assurance that they are operating within the parameters of the *Agricultural and Veterinary Chemicals Code* (AgVet Code) and any other relevant state, territory and Commonwealth legislation. This legal advice may help to inform pharmacists of the relevance of the provisions of the AgVet Code to their individual activities, and of the records to be kept in order to be able to demonstrate that any compounding and supply of veterinary medicines is authorised by an appropriate instruction from a veterinary surgeon.

6. Formulation considerations

When compounding medicines, pharmacists must ensure that there is good clinical and pharmaceutical evidence to support the quality, stability (including appropriate expiry periods), safety, efficacy and rationality of any extemporaneous formulation. This may involve collaboration with the prescriber, so an agreement on the suitability of the product for the intended patient is able to be achieved.

At all times the pharmacist must be satisfied that the dispensing and supply of a compounded medicine is consistent with the safety of the patient (refer to Guideline 2 *Dispensing precaution – safety of prescriptions* of the Board's *Guidelines for dispensing of medicines*). This includes off-licence use of medicines which are to be compounded into a product. Consideration should also be given to whether a compounded medicine is appropriate for use, for example a sports supplement (refer to the section *Drugs in sport* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*).

Evidence to support a decision to compound a medicine must be obtained from reputable references (refer to the reference texts for compounding pharmacists listed in these guidelines), international pharmacopoeial standards, or peer reviewed journals, and must not be based on testimonials and impressions. For guidance on assigning an appropriate expiry date to a compounded medicine, pharmacists should refer to the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*.

If requested to compound a medicine for a patient that has been previously compounded by another pharmacist and/or at another pharmacy, the pharmacist must take reasonable steps to ensure themselves that the requested product has been compounded consistently with previous supplies. This is particularly important for high-risk medicines such as those with a narrow therapeutic index, or for modified-release preparations.

6.1 Formulations for which precedents do not exist

A pharmacist is required to use sound judgement based on current clinical and pharmaceutical knowledge and risk assessment, before deciding whether to prepare a formulation for which there is no precedent in a reputable reference. If a medicine is compounded under these circumstances, the evidence supporting the decision should be documented. The pharmacist must also ensure that the patient has been advised that the compounding has taken place under these circumstances.

Particular care should be exercised by pharmacists who are requested to compound medicines for which there are no precedents in the reputable references, and for which there is inadequate published safety, efficacy, pharmacokinetic and clinical data on the intended formulation. Examples of such products could include (but are not limited to):

- preparations containing hormones
- substances not approved in Australia for therapeutic use
- preparations compounded for topical use that contain drugs for which only oral use is well established
- modified release medicine in the absence of good pharmacokinetic and clinical data on the precise formulation intended for use, or
- parenteral medicines containing combinations of ingredients where there is no compatibility data.

The compounding of such products must be justified through the pharmacist obtaining additional data and/or evidence. If deciding to compound such products, a pharmacist should document:

- evidence of appropriateness of the intended formulation which is accessible for all future compounding of this formulation, which includes:
  - evidence of the efficacy, pharmacokinetic and clinical data, and the basis for the assigned expiry date of the intended formulation
  - the process to maintain the safety of the pharmacy staff where the compounding is taking place
- any other steps in relation to ensuring that the dispensing and supply of the compounded medicine is consistent with the safety of the individual patient.

In the absence of such documented evidence, pharmacists must not compound such products.

6.2 Compounding of sterile injectable medicines

This section of the guidelines (6.2) came into effect on 1 February 2018.

Compounding of sterile injectable medicines poses significant risks to the public if the requirements of relevant legislation, guidelines and practice standards are not strictly adhered to throughout the compounding and supply process.

In providing guidance on the compounding of sterile injectable medicines the Board acknowledges that at any time, relevant authorities may amend existing requirements or introduce new requirements regarding such compounding. The Board will periodically review this guidance to ensure alignment with the broader regulatory framework for compounding of medicines.

The sterile injectable medicines to which this guidance applies are:

- injections
- infusions
- concentrates for injections or infusions
- powders for reconstitution for injections or infusions, and
- gels for injections.

For the purpose of this guidance, 'sterile injectable medicines' is not restricted to scheduled medicines. It includes unscheduled medicines that contain substances such as vitamins, minerals and herbal compounds.

Compliance with legislation, guidelines and practice standards

When compounding sterile injectable medicines (as described above), pharmacists must adhere to all relevant legislation, guidelines and practice standards as outlined in the section *Relevant legislation and practice standards* in these guidelines.

Additionally, pharmacists must adhere to the principles and procedures outlined in one of the following guides/standard, whichever is the most appropriate and relevant to their compounding practice:

- the PIC/S Guide to Good Practices for the Preparation of Medicinal Products in Healthcare Establishments (PE 010), or
- the PIC/S Guide to Good Manufacturing Practice for Medicinal Products (PE 009), or
- the *USP–NF* ⟨*797*⟩ *Pharmaceutical Compounding – Sterile Preparations*.

In choosing the most appropriate and relevant guide or standard listed above, consideration must be given to all relevant factors including the practice setting, the types of medicines compounded, the risks identified during the risk assessment process for compounded products outlined in these guidelines and the risks to the patient and other individuals handling or exposed to the compounded medicines.

In accordance with the relevant provisions in the National Law, the Board may investigate a notification received about a pharmacist including alleged non-compliance with relevant legislation, guidelines and practice standards and the applicable guide/standard listed above.

Self assessment and audit

In accordance with good pharmaceutical practice, to ensure compliance with practice standards pharmacists are expected to audit their practice against the standards. This should include conducting a self assessment/audit of compounding practice against the relevant practice standards and guidelines, and legislation.

A third party assessor with expertise may be contracted to assist with auditing of compliance. An authorised entity (state, territory or Commonwealth) may also conduct independent audits of compliance with legislation, guidelines and practice standards. Deficiencies and non-compliance identified during audit must be remedied.

Evidence of ongoing compliance that assures the provision of safe and quality compounded sterile injectable medicines to the public should be maintained.

Pharmacists must make available to any person authorised to the extent of their lawful jurisdiction, evidence that the compounding of sterile injectable medicines has been carried out in accordance with all legal requirements, guidelines and practice standards and the applicable guide/standard listed above.

Beyond use dates of compounded sterile injectable medicines

The term 'beyond use date' (BUD) is applied to compounded sterile injectable medicines in this guideline. This is different to the term 'in-use expiry' which is often referred to for other types of compounded medicines and which takes into account the period of time during which a medicine is administered to the patient.

BUD is defined in the *USP–NF ⟨797⟩ Pharmaceutical Compounding – Sterile Preparations* as the date or time after which a compounded sterile preparation shall not be stored or transported. The BUD is determined from the date or time the preparation is compounded, and should take into account the intended commencement time of administration of a medicine to the patient, taking into consideration individual patient circumstances such as proximity to the pharmacy.

To address the risks associated with compounded sterile injectable medicines, the Board recommends that pharmacists determine and assign a BUD of no more than 24 hours (when stored under optimal storage conditions for the particular product) from the time of compounding the medicine. This is because the assigning of a longer BUD may result in:

- increased likelihood of microbial growth in the compounded medicine
- greater chemical instability of the compounded medicine which may result in reduced therapeutic activity, or greater toxicity caused by degradation products, and
- increased likelihood of dose administration errors associated with the compounded medicine, for example an infusion bag that was compounded before a dose change, being incorrectly administered to a patient.

Compounded medicines that are to be administered more than 24 hours after compounding

A BUD of longer than 24 hours may be assigned to a compounded sterile injectable medicine provided it is assigned in accordance with the guidance in the *USP–NF ⟨797⟩ Pharmaceutical Compounding – Sterile Preparations*.

To assign a BUD longer than 24 hours, a pharmacist must:

- assess the contamination risk level of the medicine in accordance with *USP–NF ⟨797⟩ Pharmaceutical Compounding – Sterile Preparations*, and
- assign a time period for the beyond use date that corresponds to the storage conditions of the medicine (controlled room temperature, cold temperature or in solid frozen state) applicable to the contamination risk level assigned to the medicine in accordance with *USP-NF ⟨797⟩ Pharmaceutical Compounding – Sterile Preparations*.

Pharmacists must also document the evidence that the compounded medicine will remain physically, chemically and microbiologically stable when stored under the specified storage conditions during its assigned BUD, and during the administration of the medicine to the patient. This evidence may include:

- in the case of physical and chemical stability, stability data for a particular formulation in a particular container, which may include data from a reputable reference, and

- in the case of microbiological stability, evidence of environmental quality and control, including evidence:
  - of the quality of the components incorporated into the medicine, including container –closure integrity
  - that the processes followed were appropriate for the medicine being compounded
  - of the competence of the personnel performing the compounding, and
  - that the environmental conditions under which the compounding is performed are appropriate.

In assigning a BUD of longer than 24 hours, if the compounding pharmacist chooses to follow guidance provided in a standard other than the *USP–NF* ⟨*797*⟩ *Pharmaceutical Compounding – Sterile Preparations*, the onus is on the compounding pharmacist to document evidence that an equivalent or superior outcome has been achieved (i.e. that the compounded medicine will remain physically, chemically and microbiologically stable when stored under the specified storage conditions during the assigned BUD, and during the administration of the medicine to the patient).

A pharmacist must provide advice about the compounded sterile injectable medicine, including the in-use expiry during which administration of the medicine to a particular patient should be completed, when supplying it to the patient and/or the person administering the medicine (refer to Guideline 15 *Counselling and information for patients*).

Professional indemnity insurance arrangements

The compounding pharmacist must confirm with their professional indemnity insurance provider, that their policy indemnifies their practice.

6.3 Manipulation of products in accordance with manufacturer's instructions

Pharmacists may be required to manipulate a commercially available product in order to produce a medicine in a 'ready to administer' form. If this is in accordance with the manufacturer's instructions, for the purposes of these guidelines this is not considered compounding. Examples of this may include reconstitution of oral antibiotic mixtures and aseptic transfer in accordance with the manufacturer's instructions.

Where a manufacturer's instructions are not followed, for example a different diluent is used, this is considered compounding and the guidance contained in these guidelines applies.

6.4 Modification of commercially available products

A decision to alter a commercially manufactured medicine not in accordance with the manufacturer's instructions must only be made:

- where details including the stability and formulation of the modified product are available, and
- following communication with the prescriber if prescribed, and the patient or agent.

Patient safety should not be compromised as a result of the modification, particularly in the interests of cost.

The modification must be recorded in the patient medication record and endorsed on the prescription and duplicate (if prescribed). Unless part of the licence indication, manufacturers of commercially manufactured medicines are unlikely to support modifications to these medicines, and are not responsible for the quality, safety and/or efficacy of the resultant product.

6.5 Risk assessment process for compounded products

Pharmacists who compound products must have appropriate risk management processes in place to manage risks associated with the compounded product and the workplace (for maintenance of facilities, quality assurance of products including microbial testing, occupational health and safety adherence, professional indemnity insurance arrangements etc.). The risk assessment and management processes must align with practice standards and guidelines, and the standards set by relevant regulatory bodies at the Commonwealth and state and territory level.

Pharmacists are referred to the *Risk assessment process for the preparation of extemporaneous preparations* outlined in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*. In the case of complex compounding, pharmacists are advised to document this process.

6.6 Batch preparation

A pharmacist may be required to compound multiple units of issue of a particular product (i.e. a batch) for individual named patients, for example in the following circumstances:

- a pharmacy is located near a prescriber who regularly prescribes a particular medicine, and the pharmacist has received multiple prescriptions for that medicine
- the pharmacist is requested to supply multiple units of issue of a particular medicine for use in a doctor's surgery, where the pharmacist has received

an order for a named patient for each unit of issue requested, and

- the pharmacist is requested to supply multiple units of issue of a medicine for a hospital inpatient for use over a weekend, where the pharmacist has received an order or prescription for the quantity to be supplied.

A pharmacist may also be required to compound a batch of a particular medicine where a veterinary surgeon has issued instructions for the compounding of that medicine for the purpose of treating a particular animal or a group of animals.

Before compounding a batch, the pharmacist must consider the risks associated with batch preparation, such as a compounding error or contamination having the potential to affect a larger number of patients. For such reasons, the Board does not encourage batch preparation.

A pharmacist must conduct a risk assessment and ensure that they have sufficient evidence that appropriate processes are in place and have been followed to effectively manage any additional risk associated with batch preparation (also refer to Guideline 12 *Documentation*).

7. Supervision of appropriately trained staff

To assist with the compounding of medicines, pharmacists may engage suitably trained and experienced individuals including students, interns, dispensary assistants or dispensary technicians working under their direct supervision.

It is the pharmacist's responsibility to ensure that staff involved have the appropriate training and experience for the specific compounding activities being carried out. In relation to support received by dispensary assistants or dispensary technicians, this should be in accordance with the guidance in Guideline 12 *Dispensary assistants/dispensary technicians and hospital pharmacy technicians* of the Board's *Guidelines for dispensing of medicines*.

Where a suitably trained and experienced individual assists with the physical compounding of a medicine, it remains the pharmacist's responsibility to:

- conduct a risk assessment for the product being compounded, and ensure that all risks are appropriately managed
- ensure all weighing and measuring is conducted appropriately
- ensure all packaging and labelling of the compounded product is appropriate
- ensure that the product has been compounded in accordance with pharmacopoeial formulations when available, and in a manner which ensures quality and efficacy of the product
- ensure that the compounding procedure has been documented appropriately
- approve the supply of the medicine to the consumer, whether a prescription medicine or over the counter medicine, and
- counsel the patient and ensure that the patient is provided relevant information about the compounded product.

8. Facilities, working environments and equipment

Pharmacists and persons responsible for the operation of premises including proprietors, must ensure that all compounding including that done by non-pharmacist staff, takes place in premises that are adequately designed, equipped, maintained and resourced. Where required under relevant state and territory legislation, premises must be accredited or approved and/or registered by the relevant jurisdictional authority, and operate in accordance with any legislation or guidelines published by those authorities.

Facility, working environment and equipment specifications detailed in the relevant practice standards and guidelines listed in these guidelines must be met for the type of compounding carried out. The guidance provided in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook* should also be followed.

Pharmacists should conduct a risk assessment to determine whether specific and separate facilities and equipment are required for compounding particular medicines, for example veterinary products or hazardous substances.

8.1 Additional requirements relating to facilities, working environments and equipment applicable to complex compounding

In relation to complex compounding, pharmacists are expected to refer to and comply with any occupational health and safety standards, state/territory legislation and the practice standards and guidelines listed in these guidelines regarding specific facilities, working environments, equipment and safety precautions for:

- the preparation of sterile and cytotoxic products to ensure products of an acceptable standard are produced, and
- the handling of hormones, cytotoxics and other hazardous material to ensure protection of pharmacy staff, patients and the public.

The use of closed-system drug transfer devices is recommended to reduce the risk of occupational exposure when compounding hazardous materials.

For additional guidance on facilities and equipment in relation to complex compounding, pharmacists should refer to the information published in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*.

9. Managing risks that may lead to injury

Routine precautions should be taken while compounding in order to reduce the risk of injury, for example needlestick injury while preparing sterile products and to minimise the risk of contamination. Sufficient training of pharmacy staff involved and use of appropriate equipment will help to minimise the associated risks.

Any penetration to the compounder's skin must be appropriately managed in order to reduce the risk of contamination:

- of the product being compounded, which places the patient at risk, and
- of the local environment, which places other staff at risk.

Any requirements specified in occupational health and safety standards and the professional practice standards and guidelines listed in these guidelines, must be complied with. This may include a requirement for the routine health monitoring of staff involved in compounding medicines containing cytotoxic or other hazardous chemicals.

10. Raw materials

For guidance on the standards for ingredients used for compounding, pharmacists should refer to the information published in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*. Before a substance not approved for human use can be used in a compounded medicine for a human patient, the necessary evidence must be obtained to demonstrate that this substance complies with the requirements of pharmacopoeial standards.

11. Quality standards

Pharmacists are referred to the quality assurance information published in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*.

Compounded medicines are not exempted from meeting the quality standards set out in the *Therapeutic Goods Act 1989* (Cth). The required specifications for compounded medicines include relevant standards of the British Pharmacopoeia, European Pharmacopoeia or United States Pharmacopeia, including relevant standards on microbiological quality of non-sterile pharmaceutical preparations. It is the pharmacist's responsibility to ensure that compounded medicines comply with the relevant standards.

12. Documentation

Pharmacists should document the preparation of compounded products in accordance with state, territory and Commonwealth legislation, practice standards and guidelines, and the information published in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*.

When pharmacists are incorporating raw ingredients which are Schedule 8 medicines, all obligations including maintenance of records outlined in state and territory legislation must be complied with. For any other raw materials that are subject to abuse or diversion, pharmacists should maintain appropriate records to account for their use.

Policies and procedures should be in place to:

- support the quality assurance of compounding activities within the pharmacy, and
- enable the recall of compounded products including raw materials if required, for example to action a recall issued by the TGA.

Appropriate documentation is an essential component of each of these activities for every compounded product. Pharmacists are referred to the quality assurance information published in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*.

13. Reporting of adverse events

As is the case with any medicine, the use of compounded medicines may result in the occurrence of adverse events. While it may be difficult to determine whether a particular medicine has caused an adverse event in an individual case, all reports can help to accumulate evidence of the possible role of an ingredient or product in causing an adverse event.

Pharmacists should report all suspected adverse reactions to compounded medicines:

- to the TGA for suspected adverse reactions occurring in humans, and

- to the veterinary surgeon who issued instructions for the compounded medicine for suspected adverse reactions occurring in animals.

This reporting of adverse events is assisted by maintaining appropriate documentation. Information about adverse reporting in humans, including how to lodge a report, is available at www.tga.gov.au/safety/problem.htm#medicine.

14. Packaging and labelling requirements

Pharmacists must package and label compounded medicines in accordance with the requirements outlined in relevant state and territory legislation and guidelines including the *Poisons Standard*, the guidance in Guideline 7 *Labelling of dispensed medicines* of the Board's *Guidelines for dispensing of medicines*, the practice standards and guidelines, and the information published in the section *Extemporaneous dispensing* in the current edition of the *Australian Pharmaceutical Formulary and Handbook*.

(Note: the Poisons Standard is the legal title of the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)).

If compounding batches of medicines, these are to be labelled according to the requirements of Therapeutic Goods Order No. 69 General requirements for labels for medicines.

15. Counselling and information for patients

Pharmacists should ensure that every patient or their agent are offered counselling and relevant consumer medicine information on each occasion a compounded medicine is supplied (refer to Guideline 8 *Counselling patients about prescribed medicines* of the Board's *Guidelines for dispensing of medicines*). This should be achieved by face-to-face contact whenever possible.

When this is not possible, for example because of indirect supply of the compounded medicine to the patient, pharmacists should ensure they comply with Guideline 4 *Internet, mail-order dispensing and other indirect supply of medicines* of the *Guidelines for dispensing of medicines*.

Written consumer medicines information leaflets are not usually available for compounded medicines. However, alternative written information should be provided by the pharmacist to assist in the communication of the following counselling points to facilitate the safe and effective use of the compounded product:

- an explanation of why a compounded product is being supplied, and how this differs to a commercially-available medicine which requires the manufacturer to meet the requirements of the TGA for addition of medicines to the Australian Register of Therapeutic Goods
- instructions on the correct use of the product
- the appropriate storage requirements and expiry date of the product
- the side-effect profile of the product, any contraindications and any other specific counselling points which would normally be contained in a written consumer medicines information leaflet, and
- how to report adverse events.

Pharmacists should ensure that they address any queries or concerns that a patient or their agent has about their compounded medicine.

16. The patient's right to choose where to access all types of compounded medicines

Patients have the right to choose where to access their medication.

Pharmacists must comply with the *Code of conduct for pharmacists*, which applies to the supply of commercially prepared and compounded medicines. The code states:

Providing good care includes:

e) recognising and respecting the rights of patients or clients to make their own decisions.

Pharmacists must not enter into arrangements for exclusive supply of prescriptions for compounded medications from a health practitioner/prescriber or other third party. With the patient's or client's consent, pharmacists may offer to retain prescriptions for subsequent dispensing.

17. Advertising

Advertising of products and/or services to the public by compounding pharmacists must be done in accordance with the *Therapeutic Goods Act 1989* (Cth), the AgVet Code, the *Poisons Standard*, any state and territory requirements, and the Board's *Guidelines for advertising of regulated health services*. Any products and/or services advertised must be limited to those for which an exemption is provided under therapeutic goods legislation and the AgVet Code.

Compounded medicines are subject to the advertising provision of the *Therapeutic Goods Act 1989* (Cth), the

Therapeutic Goods Regulations 1990 and the *Therapeutic Goods Advertising Code*. Compounded medicines that are Schedule 3 (but not listed in Appendix H of the *Poisons Standard*), Schedule 4 and Schedule 8 cannot be advertised to the public.

In the case of advertising the availability of a specific formulae or product, for a medicine that can be advertised (generally, medicines that are unscheduled, Schedule 2 or Schedule 3 and included in Appendix H of the *Poisons Standard*), pharmacists are expected to provide evidence of its efficacy in the advertisement (refer to section 3.3 *Substantiation of claims* in the Board's *Guidelines for advertising of regulated health services*). Advertisements for compounded medicines that can be advertised also require pre-approval by the Secretary of the Department of Health if they are to be placed in certain types of media, including (but not limited to) billboards, newspaper, magazines, and television (for further information about which types of media require pre-approval, see www.tga.gov.au).

18. Reference texts and other sources of information relevant to compounding

All pharmacists are required to have ready access to the current edition of the *Australian Pharmaceutical Formulary and Handbook* (refer to the *Guidelines on practice-specific issues* – Guideline 1 *(List of reference texts for pharmacists)*. Additionally, compounding pharmacists must have available appropriate reference texts relevant to their area of compounding. These should be in the form of a published document (hard copy) or via electronic means, such as a computer. Examples may include the following:

- *Martindale: The Complete Drug Reference*
- *Trissel's Stability of Compounded Formulation*s - Trissel LA
- International Journal of Pharmaceutical Compounding (www.ijpc.com)
- *Australian Don't Rush to Crush Handbook* - The Society of Hospital Pharmacists of Australia
- *Handbook on Injectable Drugs* - American Society of Health - System Pharmacists
- *Pharmaceutical Calculations* - Howard C. Ansel and Mitchell J. Stoklosa
- *The Art, Science and Technology of Pharmaceutical Compounding* - Loyd Allen
- *Australian Injectable Drugs Handbook* - The Society of Hospital Pharmacists of Australia
- *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems* - Loyd Allen
- *Remington: The Science and Practice of Pharmacy*, edited by David B. Troy, Paul Beringer
- *Guide to Good Manufacturing Practice for Medicinal Products* (can be accessed from the TGA website)
- *Guidelines for the Safe Prescribing, Dispensing and Administration of Cancer Chemotherapy* (can be accessed from the Clinical Oncological Society of Australia website)

(Note: pharmacists can access relevant state, territory and Commonwealth legislation at www.comlaw.gov.au).

Definitions

Adverse event (for the purpose of these guidelines, based on the definitions provided by the Therapeutic Goods Administration and the World Health Organisation), is any untoward medical occurrence in a patient administered a medicine, but which does not necessarily have a causal relationship with that medicine. It is thought to relate to the medical management of a patient, in contrast to the complications of disease. Medical management includes all aspects of care, including diagnosis, treatment, failure to diagnose or treat, and the systems and equipment used to deliver care. Adverse events may be preventable or non-preventable. An *adverse effect* (or side effect) is one type of adverse event, which specifically relates to the treatment of a patient.

Approved and/or registered premises means a pharmacy premises established and operating under relevant state and territory legislation.

Batch means a quantity of a product that is uniform in composition, method of manufacture and probability of chemical or microbial contamination, and is made in one cycle of manufacture and, in the case of a product that is sterilised or freeze dried, sterilised or freeze dried in one cycle.

Batch preparation is the creation of a batch of multiple units of issue of a product.

Compounding means for the purpose of these guidelines, the extemporaneous preparation and supply of a single 'unit of issue' of a therapeutic product intended for supply for a specific patient in response to an identified need. The practice of compounding is classified in these guidelines as either simple or complex compounding. Unless otherwise stated, the guidance provided in these guidelines applies to both simple and complex compounding. Compounding/ manufacturing may also be defined in state and territory legislation.

Simple compounding means the preparation and supply of a single 'unit of issue' of a therapeutic product intended for supply for a specific patient in response to an identified need. It routinely involves the compounding of products from formulations published in reputable

references such as the *Australian Pharmaceutical Formulary and Handbook* (excluding the preparation of sterile products from these formulations, which is considered complex compounding), or using other formulations for which information confirming quality, stability, safety, efficacy and rationality is available.

Complex compounding means the preparation and supply of a single 'unit of issue' of a therapeutic product that is intended for supply for a specific patient and that requires or involves special competencies, equipment, processes or facilities. Examples are sterile preparations and preparations containing ingredients that pose an occupational health and safety hazard (such as cytotoxics or hormones), micro-dose single-unit dosage forms containing less than 25mg (or up to 25 per cent by weight or volume) of active ingredient, and sustained-release or other modified-release preparations.

A **co-regulatory jurisdiction** means a participating jurisdiction in which the National Law declares that the jurisdiction is not participating in the health, performance and conduct process provided by Divisions 3 to 12 of Part 8. Queensland and New South Wales are co-regulatory jurisdictions.

Dispensing is the preparation, packaging, labelling, record keeping and transfer of a prescription drug to a patient, their agent, or another person who is responsible for the administration of the medicine to that patient (see Guideline 1 *The dispensing process* in the Board's *Guidelines for dispensing of medicines*).

A **public hospital pharmacy** (for the purposes of these guidelines) is a pharmacy which is part of a public hospital and provides services to that public hospital, or to multiple hospitals within the state or territory.

Scope of practice means the professional role and services that an individual health practitioner is educated and competent to perform.

Unit of issue means a quantity of a formulation to be supplied for the treatment of an individual patient.

Board references

Pharmacy Board of Australia *Guidelines for dispensing of medicines*, including:

- Guideline 4 *Internet, mail-order dispensing and other indirect supply of medicines*
- Guideline 7 *Labelling of dispensed medicines*
- Guideline 8 *Counselling patients about prescribed medicines*
- Guideline 12 *Dispensary assistant/dispensary technicians and hospital pharmacy technicians*

Pharmacy Board of Australia *Guidelines for proprietor pharmacists*

Pharmacy Board of Australia *Guidelines for advertising of regulated health services*

Pharmacy Board of Australia *Guidelines on practice-specific issues*

Pharmacy Board of Australia *Code of conduct for pharmacists*

Pharmacy Board of Australia *Registration standard: Continuing professional development*

AHPRA *Notifications in the National Scheme - A guide for practitioners*

Review

Date of issue: 1 March 2015 (the section *Compounding of sterile injectable medicines* was issued on 1 August 2017)

In effect from: 28 April 2015 (the section *Compounding of sterile injectable medicines* came into effect on 1 February 2018)

Date of review: March 2020

These guidelines will be reviewed at least every five years.

From 28 April 2015, these guidelines replace Guideline 5 *Extemporaneous dispensing (compounding)* from the Pharmacy Board of Australia *Guidelines for dispensing of medicines* published 12 August 2010.