

NATIONAL CUSTOM COMPOUNDING

QUALITY ASSURANCE PLAN



Version 4.0

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1. Introduction

1.1 Purpose of this document

National Custom Compounding's (NCC) Quality Assurance Plan has been developed to ensure a continuous improvement approach to safety, quality, and efficacy. It is designed to ensure the safety, quality and efficacy of the products produced as well as the safety of patients, pharmacists, and other staff. This is achieved through structured yearly clinical audit programs including regular reviews of:

- Compounding procedures and batch preparation
- Risk assessment process for compounded products
- Safety and compliance of equipment and facilities
- Raw materials
- Packaging and labelling
- Staff performance
- Staff training and accreditation
- Management of risks that may lead to injury.

This Quality Assurance document outlines NCC's Quality framework and has been developed with reference to the *Australian Pharmaceutical Formulary and Handbook*, *PSA Professional Practice Standards 2017* and the Pharmacy Board of Australia's *Guidelines for dispensing of medicines and FAQ for pharmacists on the compounding of medicines* which applies to the dispensing and supply of all medicines, including compounded medicines.

This Quality Assurance Plan is also in line with PIC/S 010 (for Healthcare Establishments), USP 795, USP 797 and USP 800.

1.2 Responsible Personnel

The key personnel responsible for the implementation, updating and monitoring of the Quality Assurance Plan are:

1. **NCC Managing Director** - responsible for establishing and developing standards throughout NCC.
2. **NCC Sterile & Pharmacist Manager** - responsible for ensuring the performance of Pharmacists and clinical staff to these standards.
3. **NCC Lab Manager** - responsible for ensuring the performance of compounding technicians' staff to these standards.
4. **NCC Office Manager** - responsible for ensuring the performance of administrative staff to these standards.

The NCC Lab manager, NCC Office manager and NCC Sterile & Pharmacist Manager are responsible for ensuring that NCC facility, equipment and personnel meet all United States Pharmacopeia and PIC/s standards.

The NCC Sterile and Pharmacist Manager, has authority over the pharmacist-on-duty/pharmacist-in-charge and can stop the release of any compounded medication if quality is questioned.

“Ensuring our compounded medications are safe and effective to maximise patient outcomes” is at the core of what we do, and all our pharmacists and pharmacy staff work towards this aim.

Quality assurance not only embraces this goal, but also sets up the mechanics to ensure the goal is reached. Quality assurance becomes the ongoing activity incorporated into the daily routine to improve service.

1.3 Quality Assurance Objectives

The objectives of National Custom Compounding’s Quality Assurance are:

1. Establishing performance standards for all operational staff
2. Providing education to meet the set performance standards
3. Empowering operational staff, through education, to take responsibility for their own clinical and professional performance
4. Providing educational and technical support to Managers to enable them to develop the evaluation and assessment skills required for development of the professional practice within their teams
5. Evaluate the clinical performance of the service and the individual operational staff to ensure that the current clinical standards are met
6. Monitoring the standard of clinical performance to ensure that it meets service objectives, in line with contemporary best practice
7. Adjusting clinical standards of the service based on evidence provided through evidence-based practice
8. Providing a conduit for two-way communication to all levels of the organisation on clinical performance, based on evidence gathered through assessment, evaluation, and research.

2. Standards

2.1 Pharmacy Registration & AS/NZS 85000:2011

Gooding Drive Pharmacy, also known as National Custom Compounding (NCC) is a registered Section 90 Community Pharmacy and Compounding Pharmacy. The pharmacy is registered with Queensland Health and is a member of the Pharmacy Guild of Australia and Australian Society of Compounding Pharmacists.

All pharmacists have current registered with the Pharmacy Board of Australia through AHPRA.

The business operates in line with Quality Care Pharmacy Practice (QCPP) which is an AS/NZS 85000:2011 standard. The program is administered by the Pharmacy Guild of Australia and audited bi-annually by Ernest Young.

2.2 Professional Memberships

NCC is a member of the Pharmacy Guild of Australia (PGA), the Professional Compounding Chemists of Australia (PCCA), Australian Society of Compounding Pharmacists and is a member of the Alliance of Pharmacy Compounding internationally, which was previously known as IACP.

2.3 Standards and Certification

QCPP (AS/NZS 85000:2011) certification occurs every two years. QCPP includes guidance around facility and operation expectation for a compounding pharmacy, however due to the complex compounding of NCC, the business chooses to follow international best practice and guidelines. QCPP is a quality control system that covers compounding requirements and process.

NCC complies with the Standards and Guidelines of:

- Standards Australia [AS 1807:2021](#)
- Australian Standard [AS 85000:2017](#)
- PIC/S Guide for [Preparation of Medicine in Healthcare Establishments](#)
- United States Pharmacopeia (USP) Chapters [795, 797 and 800](#)
- Pharmacy Board of Australia [Codes, Guidelines and Policies](#)
- PSA (Pharmaceutical Society of Australia) Pharmacist Standards
- Queensland Health [Medicines and Poisons \(Medicines\) Regulation 2021 \(MPMR\)](#)

3. Personnel

3.1 Quality and Risk Committees

NCC has in place a Quality Management Committee, Risk Management Committee and Verification Management Committee. Each committee has two members with one member included across all three committees to provide cohesion across the committees.

I. Quality Management Committee

The Quality Management Committee is responsible for:

- Defining and establishing the quality management documentation and reporting system
- Individual personnel roles regarding quality management
- Staff training in Quality
- Quality communication
- Quality outcomes relating to previous Quality Management Committee activities
- Document recommendations and responses in relation to quality control
- Monitor quality by reviewing data collected by the Pharmacy
- Implement quality control measures that streamline any and all activities and performances
- Utilise recorded data trends, contrasts, and comparisons to determine quality control

II. Risk Management Committee

The Risk Management Committee is responsible for:

- Ensuring that risk is communicated between the Risk Management Committee and Pharmacy personnel.
- Ensuring that the risk management program forces personnel to assess risk on a continual basis.
- Staff training in risk management
- Risk communication
- Risk outcomes relating to previous Risk Management Committee activities
- Prevention of needle sticks
- Individual personnel roles in regard to risk management.
- Evaluate, examine, and critique risk in a systematic approach in regard to all categories of System P (or other comprehensive categorizing system that encompasses all facets of pharmacy performance).
- Employ risk management monitoring by reviewing data including current documentation, direct observation, and interviews with personnel
- Implement appropriate preventive and corrective measures upon identification of risk
- Set up control parameters to minimize risk to a level that the committee agrees is acceptable without sacrificing the quality, safety or integrity of the processes involved.

III. Verification Management Committee

The Risk Management Committee is responsible for:

- Implementing verification protocols to verify all quality controls and risk assessments.

- Employ verification protocols for all categories of System P (or other comprehensive categorizing system that encompasses all facets of pharmacy performance) and throughout all phases of preparation development.
- Staff training in Verification
- Verification communication
- Individual personnel roles in regard to verification
- Monitor verification by reviewing data including current documentation, direct observation and interviews with personnel
- Determining the most appropriate verification protocol by considering evidence and scientific data/literature
- Establishing statistical data or qualitative values to determine the accepted parameters for the verification protocol
- Ensure at least two individuals perform a particular verification independently of one another; verification cannot be completed by a single person
- Compare individual results, if both assessments match, then the process can be deemed verified
- Implement corrective and preventive measures, policies and procedures to further improve on verification, whenever possible.

3.2 Staff Qualifications

All pharmacists employed by Gooding Drive Pharmacy must be specifically trained in compounding by a recognised Pharmacy Council provider, registered under AHPRA and meet CPD (continuing professional development) obligations. These providers include Medisca Australia and PCCA Australia. All pharmacists also hold current First Aid and CPR accreditations.

3.3 Staff Training

All staff members who work inside the compounding laboratories must have undertaken Compounding Technician training provided by a recognised Pharmacy Council provider. All staff also complete one week of internal training as per our Standard Operating Procedures (SOP).

All staff members must participate in daily team huddles and monthly team meetings as well as complete 20 units of CPD training as required by QCPP each year.

NCC ensures all appropriate staff read and understand our SOP as well as any the new or modified SOPs prior to the implementation date.

Staff sign the employee SOP – Log – Form Acknowledgement prior to the implementation date to confirm they have read and understand the document.

A controlled copy of the SOP is kept in the electronic master folder and all updates to the SOP are also logged here.

All acknowledged and signed staff forms are kept centrally in the Payroll document management library.

3.4 Infection control

NCC staff are not permitted to compound if they have one of, but not limited to, the following infections or communicable diseases:



- Active respiratory infections
- Severe or unusual coughing
- Fever
- Significant rashes
- Conjunctivitis
- Significant sunburn

4. Quality Control

All significant procedures performed in NCC pharmacy are covered by our Standard Operating Procedures (SOP), a document subject to continual development and improvement. This ensures that all compounds made meet the highest quality standards.

4.1 Documentation

All CoA's (Certificates of Analysis) are electronically stored by NCC to enable future review of documentation.

NCC maintains both a master formula and lot-specific compounding history log of all compounds for all patients. Our master formula documents the name, strength, and dosage form of the compounded product, all ingredients and their quantities, a beyond-use date, equipment used, mixing instructions, packaging instructions and Quality Assurance checklist.

NCC SOPs are reviewed on a yearly basis.

4.2 Active Pharmaceutical Materials (API)

NCC adheres to a strict process for ordering, storage and use of its raw materials and components.

Raw materials approved for use in NCC are entered into the computer system as batches and a barcoded label is then attached to the API packaging. The materials and label are further certified (and signed) by a pharmacist. They are then moved into the compounding lab area for storage and future use.

NCC team performs daily monitoring and documentation of temperature and humidity of all raw material storage areas and final product storage areas. This data is logged electronically inside the NCC Building Management System (BMS) and externally verified by external NATA accredited Testing Companies.

4.3 API Suppliers

All raw materials are sourced from verified wholesalers and must come with a CoA (Certificate of Analysis) and MSDS. A Certificate of Analysis is a document issued by the supplying company that confirms the regulated product meets its product specification. A CoA contains the actual results obtained from testing performed by the manufacturer as part of quality control of an individual batch of a product. NCC has developed a criteria checklist to assess the quality of new suppliers.

This checklist includes the following:

1. Qualify the supplier's past performance by reviewing historical recalls
2. Copies of the supplier's external quality reports and any information on current recalls is requested
3. Review the supplier's applicable standard operating procedures based on the product or services provided, if possible
4. Review the supplier's standard operating procedures for quality assurance monitoring, if possible
5. Assess the supplier's personnel competency by reviewing personnel training requirements, certifications and records, standard operating procedures for personnel training, training material and competency assessment, if possible

6. Determine supplier size and longevity
7. Determine whether the service or product required by the Pharmacy is part of the core business of the supplier being assessed
8. Determine whether the supplier offers warranties and guarantees for the service or product required by the Pharmacy.

5. Compounding Process

5.1 Internal Process

After a compounding order is received, the order and prescription are reviewed by staff to ensure they meet prescribing requirements and that they have been submitted by a reliable prescribing physician and that the physician is qualified and suitable equipped to order the preparation.

We then check the prescription cannot be filled using a commercially available product.

Next we verify there are no drug-drug or drug-disease state interactions within the formula for a given patient.

The order and prescription is then assessed against the following criteria: Reason, rationale, and suitability of the prescription; safety and intended use, Dose appropriateness for patient overall; includes age and health conditions, Quantity ordered. Patient-related restrictions; allergies and chemical sensitivities, Legal limitations or regulatory restrictions and Additional clinical considerations as required by pharmacists-on-duty.

The order is then dispensed by a pharmacist or pharmacy assistant with technician experience.

After formulating, the original paperwork (prescription) is checked against the dispensing and formulation by a pharmacist.

The prescription is then moved into a specific compounding work area to be made up. Each compounding work area is sealed and separate from each other and the pharmacy's general area. *See 5.4 Compounding Facility below for further information.*

The software system used for making the product is integrated with a barcode scanner and connected to the analytical scales.

All raw materials are barcoded which ensures the correct components are put into each compound.

The connected scales then transmit a tare (which ensures scales start on 0.000) and transmit the final weight used in the compound (in 3 decimal points).

Our integrated software system provides traceability throughout the entire compounding process and enables staff to review previous and current formulations.

Once the compound is completed, the technician checks its visual appearance against the formula expectation and takes a photo which is stored electronically for future reference.

A sample may then be collected for required preparation testing and quality control.

The compound is then labelled and checked.

When the completed compound leaves the laboratories, it moves to the final checking stage. A pharmacist will then check the actual formula results as well as visually inspect the product.

After the compound passes this stage, the product is labelled and moved into separate storage areas for collection or postage.

The patient is contacted and informed that their prescription is ready for collection or postage is provided.

5.2 Compounding Record Review

Before a compound leaves NCC premises it undergoes the following quality control review process:

- The finished compounded preparation is compared against the original prescription
- Verify that correct ingredients and quantities were used
- Verify pharmaceutical calculations
- Verify that procedures were followed
- Review quality control testing results (strength and identity testing)
- Verify written medication information and auxiliary materials are included with prescription, as deemed appropriate
- Verify that preparation containers are appropriately labelled
- Ensure patient and/or caregiver has been provided an offer to counsel by a pharmacist upon preparation release.
- Monitor shipping and ensure patient has received the preparation, where applicable.
- Append associated shipping records to compounding record.
- All documentation is electronically scanned and saved into *scanstorrx* system for future references if required.

5.3 Verification

NCC Pharmacists rostered each day ensure that they have reviewed all the prescriptions that were dispensed during that day as per state/provincial or federal requirements.

The pharmacist initials the prescription label that is affixed to the preparation container, as per state requirements. The internal software system records each user that accesses patient and compounding information through an internal log system, maintained by RXONE.

5.4 Compounding Facility

NCC purpose-built 300m² facility has been specifically designed to avoid cross-contamination of all workspaces including the NCC office, NCC storage area, NCC non-sterile compounding areas and NCC sterile compounding areas. All the NCC working areas (which includes non-sterile and sterile processing areas) have several mechanical and physical separations to ensure that there is no transfer of API's or materials throughout the facility. Physical separations including, sealed rooms and Mechanical separations include HEPA filtration, HVAC systems and Isolator production units.

Each of the work areas have a designated function:

- **NCC Office** is the location in which orders are received, processed and patients are counselled
- **NCC Labs – Non-Sterile (Class D environment)**
 - One of the non-sterile work areas is physically separated (from the general non-sterile work area) and specifically used for *hazardous* compounding (which includes hormones)
 - The other non-sterile work area is classified as *General Lab* and is used for all other non-sterile compounding

Both areas contain ductless fume hoods which provide the appropriate work area for compounding technicians to prepare products within

- **NCC Labs – Sterile (Class C environment)**

- The Gowning area is starting location, where Sterile Compounding Technicians prepare for entry into the Sterile areas
- The Anteroom is next area, where all preparation occurs and activities in this room occur inside a HEPA filtered fume hood
- The Buffer room is the final room where products are sterilised and inside this room are Pharmaceutical Isolators, inside which the sterile processing occurs.

All the compounding spaces except the Sterile Buffer room contain HEPA (high efficiency particulate air) enclosures designed to take air away from, and protect, the user. The air is then filtered through a HEPA filter and recirculated back into the room. This is done for the health, safety and protection of team member working within the compounding work area. The HEPA filter is tested by a NATA testing service, every 12 months and replaced accordingly.

The Sterile Buffer room contains two Pharmaceutical Isolators which act as a physical and mechanical control to ensure a Class A environment is maintained. Inside this Class A environment, all sterile compounding and processing occurs. This includes sterilization methods such as filtration.

Staff are required to follow a strict protocol, outlined in NCC SOP, when entering and leaving each compounding area and when transferring materials/equipment/utensils between areas. These protocols include PPE (personal protective equipment and clothing), and personal hygiene procedures. These protocols and are in place to protect staff members as well as prevent cross-contamination and maintain appropriate conditions in each compounding work area.

Each compounding work area, including all counters and work surfaces, are cleaned, and disinfected at the beginning of each day as well as at the beginning and end of each preparation. Floors and doorknobs are cleaned and disinfected daily while sinks, carts, storage baskets and waste bins are cleaned and disinfected weekly. Ceilings, doors, walls, and storage shelves are cleaned and disinfected bi-monthly.

5.5 Compounding Equipment

All equipment used is maintained and calibrated according to AUS & NZ Standards and USP standards. The equipment is checked and documented in accordance with the NCC QMS and QCPP, annually. The HEPA filters are tested by a NATA testing service, every 12 months and replaced accordingly.

- All electronic laboratory equipment is serviced by the CSK Group.
- The HVAC system is serviced and maintained every 3 months by Imperial Air Group
- HEPA containment hoods are certified annually by Laftech.
- All technical equipment is cleaned and disinfected prior to, and after use, or to a pre-determined schedule recommended by the manufacturer.

5.6 Independent Third-Party Verification and Analysis

NCC voluntarily participates in independent laboratory testing of its compounds to test for potency and shelf stability under “normal” (room temperature) and “accelerated” conditions (increased relative humidity 70% and temperature 45 degrees Celsius). These tests are undertaken at time zero, one, three and six months.

Testing is conducted by RTH Scientific Services, Scientest and the National Institute of Complementary Medicine, Herbal Analysis Laboratory (HAL).

All annual certifications on the room environments and equipment are provided by NATA accredited companies including Laftech Australia and Opira Group.

6. Adverse Events

For the purposes of this document an adverse event includes:

Adverse Drug Reaction: Any unexpected, unintended, undesired, or excessive response to a drug that has a negative health outcome for the patient.

Adverse Incidents: Include, but are not limited to:

- Medication errors: wrong dose, wrong medication, wrong route of delivery, wrong frequency of administration, omission of ordered drug or labeling error
- Inaccurate or untimely deliveries
- Equipment malfunctions
- Patient complaints
- Catheter infections
- Patient non-compliance
- Patient injuries.

Medication Error: Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use.

6.1 Adverse event procedure

NCC staff are trained to follow the following procedure on discovering, or being made aware of, an adverse event:

- I. Ensure personnel report all suspected or actual adverse event to the Pharmacist-In-Charge immediately upon notification
- II. Instruct patient and/or caregiver to suspend taking the medication in question, if appropriate
- III. Instruct patient to seek appropriate medical evaluation or treatment, if appropriate
- IV. Report all suspected or actual adverse drug reactions to prescribing healthcare provider immediately
- V. Instruct patient to disclose the name of medication and adverse drug reaction to all healthcare providers involved in their care
- VI. Quarantine preparations affected by the causative issue until determination of safety is verified.
- VII. Recall preparations affected by the causative issue that have been dispensed to patients if medication-related issues are suspected.
- VIII. Classify medication errors according to the National Coordinating Council for Medication Error Reporting and Prevention categories (NCC MERP), if applicable
- IX. Review pharmacy records, the compounding record associated with the preparation, patient records, and other related records for possible causative issues, as appropriate
- X. Perform an investigation within 24 hours of a reported incident leading to hospitalisation or death or within 72 hours for another reported incident.



- XI. Ensure that Pharmacist-In-Charge completes an QCPP Incident Form and if required a TGA / Pharmacy Board incident submission in any case of an adverse event resulting in hospitalisation, disability, life-threatening complications, congenital abnormalities, or death.
- XII. Report adverse event to State Board of Pharmacy in accordance with State/Provincial Board of Pharmacy regulations.
- XIII. Consider voluntary reporting to relevant agencies, organisations and councils by Sterile & Pharmacist Manager or Pharmacist on Duty, or In-Charge.
- XIV. Document any immediate steps taken to remedy the event, as well as the outcome of the incident.
- XV. Document the adverse event in the patient-specific file and in a special file which contains all historical records of adverse events
- XVI. Ensure that Pharmacist-In-Charge supervises the completion of the adverse event report and associated documentation.
- XVII. Analyse and trend data to identify opportunities to prevent further incidents or to improve the quality of patient care.