

**Policy Applies to:** To all staff who administer medications at Mercy Hospital

**Related Standards:**

- **EQuIP Standard 1.5 Safety, Criterion 1.5.1** - Medications are managed to ensure safe and effective practices

**Rationale:** The Adverse Medication Reaction policy is an adjunct to both the Medicines Management and Patient Assessment policies and supports the identification and notification and treatment of adverse reaction to a medicine.

**Definitions:**

**Medication allergy** is often a common term used to depict any unexpected and unwanted event or affect that occurs when an individual is taking a specific medication or therapeutic agent. A better, overall term to describe these circumstances would be an adverse reaction to a medication.

Severity	Description	Example
Mild	No antidote or treatment is required; hospitalization is not prolonged.	Antihistamines (some): Drowsiness  Opioids: Constipation
Moderate	A change in treatment (eg, modified dosage, addition of a drug), but not necessarily discontinuation of the drug, is required; hospitalization may be prolonged, or specific treatment may be required.	Hormonal contraceptives: Venous thrombosis  NSAIDs: Hypertension and edema
Severe	An ADR is potentially life threatening and requires discontinuation of the drug and specific treatment of the ADR.	ACE inhibitors: Angioedema  Phenothiazines: Abnormal heart rhythm
Lethal	An ADR directly or indirectly contributes to a patient's death.	<u>Acetaminophen</u> <b>Rx</b> overdose: Liver failure  Anticoagulants: Hemorrhage

**Hypersensitivity and allergic reactions** to medication is an unpredictable immune-mediated response to an agent manifesting most frequently in various skin reactions, bronchoconstriction and oedema, Medications which more commonly are known to induce an allergic reaction; sulpha antibiotics, penicillin, acetylsalicylic acid, allopurinol,

anti-seizure medications, anti-arrhythmic. About 1 in 6 adverse drug reactions represents drug hypersensitivity, and are allergic or non-immune mediated reactions.

**Anaphylaxis** is a severe systemic allergic reaction and should be considered if skin signs co- exist with bronchospasm or hypotension. Muscle relaxants are the most common trigger of anaphylaxis during anaesthesia in Australasia. Antibiotics are also common triggers with anaphylaxis to chlorhexidine becoming an emerging concern. True allergy to medications however accounts for only 6-10% of all adverse medication effects.

**Side effects** of medication are usually non-immunologic effect of the agent and are predictable. An example of this type of reaction is gastrointestinal effects and ulceration from NSAIDs.

**Medication intolerance** is another type of reaction where a patient has a lower threshold to the normal pharmacological action of a medication, such as tinnitus after a single average dose of aspirin.

### Objectives

- To outline the management for the prevention and detection of an adverse reaction to a medication
- Ensure staff are aware of the appropriate interventions for an adverse reaction to a medication
- To enable staff to differentiate the types of adverse reactions to a medication.

### Implementation

- Prior to admission all patients are asked questions related to allergies or adverse reactions to medications, materials and or other substances. This is documented
- This is reconfirmed at the preadmission phone call
- All allergic reactions are notated on the patients medication chart (see Patient Admission Policy & Medication Management Policy)
- NZRC anaphylaxis flow charts on every emergency trolley
- NZRC certification for relevant staff
- CPR updates
- Anaphylaxis boxes in Theatre, McAuley, Manaaki and Coolock( documentation and relevant blood tubes)
- Policy updates.

## **Evaluation**

Via Incident Reports.

## **References**

### *External*

- Anaphylaxis flow diagram NZRC
- Anaphylaxis Management Guidelines ANZAAG-ANZCA Version 1.1 2017
- “Adverse Medication Reactions: Types and Treatment Options” Marc. A. Riedl, M.D., and Adrian M. Casillas, M.D. University of California, Los Angeles, David Geffen School of Medicine, Los Angeles, California
- Simons FE et al. World allergy Organisation Guidelines for the Assessment and Management of Anaphylaxis. WAO Journal 2011;4:13-37
- Pichler. WJ, Adam. J, Daubner. B, et al. Drug hypersensitivity reactions; pathomechanism and clinical symptoms. Medical Clinics of North America 2010; July Vol.94, Issue 4 , pages 645-664.

### *Internal*

- Medicines Management Policy
- Patient Assessment Policy
- Clinical Records Management Policy
- IV Manual 2016- Clinical Services Work Manual
- Cardiac Arrest / Patient Emergency Process, Clinical Services Work Manual
- Managing Chlorhexidine Allergy- Clinical Services Work Manual
- Anaphylaxis Box documentation

## PROCESS

### Prevention

Prevention of adverse reactions to medications (where known) begins prior to admission via patient assessment. Where an adverse reaction is noted it must be recorded as per the Clinical Records Management Policy.

### Detection

Clinical features of an adverse medication reaction - the signs and symptoms depend on the part of the immune system that is reacting.

The most common allergic reaction to a medication is a measles-like rash (without hives), which typically occurs after several days to two weeks of treatment. This is most likely caused by specific immune cells in the skin, which react to the medication. In most cases, only the skin is affected and the rash usually clears once the medication is discontinued. However, the reaction may be quite/more severe and include wheezing, facial swelling, angioedema (localized oedema of deeper skin layers) and abnormalities of coagulation and fibrinolysis).

The most severe reaction is anaphylaxis and occurs when a person's immune system produces the antibody IgE in response to a drug. On repeat exposure, the drug binds to IgE antibodies on mast cells, resulting in massive/significant release of histamine and other potent chemicals as mast cells degranulate. This triggers symptoms and signs of an anaphylactic reaction which include:

- Cutaneous - sense of warmth, flushing, hives, urticaria
- Respiratory - swelling of the throat/stridor/wheeze/ due to angio- neurotic oedema and laryngeal spasm leading to respiratory distress and or arrest
- Nausea or vomiting
- Cardiovascular Hypotension, rapid thready pulse, circulatory collapse
- Sense of impending doom.

These symptoms require emergency attention including an immediate injection of adrenaline. If the reaction is not immediately treated, anaphylaxis can result in death.

Most anaphylactic reaction occurs within one hour after the patient takes the medication. In 5-20% of cases, a recurrence of the anaphylactic reaction may occur up to several hours later. This is more common in patients who had a severe initial reaction. Elevated serum tryptase level is supportive of anaphylaxis. The peak level is usually 15-

120 minutes after onset of the reaction and declines slowly within 3-6 hours. The return to baseline level can generally be verified 24hrs after the reaction.

### Intervention

For complete flow diagram of anaphylaxis treatments please refer to Appendices 1 and 2. To be used in conjunction with the Australia and New Zealand Anaesthetic allergy group (ANZAAG) guidelines on Anaphylaxis management found in the Anaphylaxis box in Theatre, McAuley Ward, Coolock and Manaaki.

### Treatment

In the event of a patient having an adverse/allergic reaction to a medication the process followed will be dependent upon the severity of the patient response.

The most important and effective therapeutic measure in managing medication adverse reactions however is the discontinuation of the offending medication, if possible.

- If the reaction to the medication does not compromise the patient's haemodynamic status and the patient is not at immediate risk, stop the medication if able, stay with the patient, call for assistance, notify the patient's consultant and follow orders given.
- If the allergy leads to an anaphylactic response for the patient please refer to the anaphylaxis flow diagram – refer Appendices 1 and 2. Adrenaline can be administered intramuscularly and intravenously. If severe anaphylaxis IV adrenaline should be diluted (1:100,000) and infused at a controlled rate.
- In addition access the nearest Anaphylaxis box In these boxes are the:
  - Australia and New Zealand Anaesthetic allergy group (ANZAAG) guidelines on Anaphylaxis management
  - Request forms and 4 plain serum tubes for collection of tryptase specimens. *Serum tryptase specimens must be sent to the laboratory urgently for processing as tryptase levels are not stable in whole blood. Delayed processing may result in false negative results.*
  - Patient form letters
  - Patient information brochure
  - Testing referral forms
  - Chlorhexidine signage/Chlorhexidine work manual guideline (McAuley & Coolock)

- As is stated in the Mercy Hospital 'Cardiac arrest / Patient Emergency' Process it is the expectation of Mercy Hospital that staff trained in NZRC Advanced Resuscitation WILL commence CPR, defibrillate shockable rhythms and administer medications e.g. adrenaline, as indicated in the algorithms and as per their level of NZRC training.