

Suspected 1080 (Fluoroacetate) Ingestion from Contaminated Infant or other Formula

Guidance for general practitioners and urgent care medical specialists

17 March 2015

Infant & child feeding

Key points for parents

- Infants under one year of age should be breastfed, or fed with a properly prepared, commercial dairy or soy based infant formula.
- Mothers who have stopped breastfeeding recently may be able to restart breastfeeding again with help from their midwife, lactation consultant, general practitioner or Well Child nurse.
- Exclusively breastfed infants are **not** at risk of formula contamination.
- The Ministry of Health does **not** recommend that parents feed infants **under one year of age** pasteurised whole or homogenised cow's milk, or prepare home-made alternatives to infant formula.
- If your baby is on a special formula because of food allergy or special dietary requirements, do **not** change your formula without consulting with a dietitian, paediatrician or your general practitioner.
- You should follow Ministry for Primary Industries (MPI) advice on how to ensure formula is free from contamination or tampering. Their advice to consumers is that if any food product appears to have been tampered with – for example, seals broken or punctured – then it should not be consumed and it should be reported to the Police on 0800 723 665. This guidance may be downloaded from the following website: www.foodprotection.govt.nz/for-consumers/ways-to-check-for-tampering

Keeping your baby or child and yourself safe

- You may wish to provide the parents with the *Feeding your baby infant formula* information sheet compiled by the Ministry of Health and Ministry for Primary Industries.
- The ability for anybody to deliberately contaminate infant and other formula during manufacturing is very low. There is no evidence this has occurred.
- New Zealand formula is safe to consume at the time of manufacture and distribution – either for retail in New Zealand or export.
- The Ministry for Primary Industries (MPI) have put a new 1080 testing regime in place that gives the Government a high degree of confidence that the products covered by the threat do not contain traces of 1080.

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- To further protect the products, infant formula and other formula products are usually sold in tamper-evident packaging, which is designed to help you see if someone has opened or interfered with the packaging.
- Parents should follow Ministry for Primary Industries (MPI) advice on how to ensure formula is free from contamination or tampering. Their advice to consumers is that if any food product appears to have been tampered with – for example, seals broken or punctured – then it should not be consumed and it should be reported to the Ministry for Primary Industries on 0800 008 333 or info@nzfoodinfo.govt.nz. This guidance will be downloaded from the following website: www.foodprotection.govt.nz/for-consumers/ways-to-check-for-tampering

1080 (fluoroacetate)

- Fluoroacetate is a pesticide used on targeted pests in New Zealand.
- It is **highly toxic** to humans.
- Fluoroacetate is a white, tasteless and odourless fine powder that can look like icing sugar or fine salt. Diluted solutions may taste like vinegar.
- Fluoroacetate is readily absorbed and acts rapidly to disturb the citric acid (Krebs) cycle. The poison competitively inhibits enzyme activity and oxidative metabolism, leading to accumulation of citrate and lactate, resulting in a metabolic acidosis and electrolyte abnormalities (hypocalcaemia and hypo- or hyperkalaemia).
- Metabolically active tissues, such as cardiac, renal or neural tissue, are critically affected, leading to multi-organ failure, while biochemical imbalances lead to further morbidity.

Presentation of symptoms

- The poison acts rapidly. Depending on the dose ingested, symptoms usually occur **within 30 minutes of exposure and progress rapidly. Lower doses may take longer (up to three hours) to produce symptoms.**
- A full case definition is available to download from www.health.govt.nz/our-work/environmental-health/contamination-infant-and-other-formula-products/definition-fluoroacetate-1080-poisoning

Infants or children

- Symptoms of ingestion are that of an **unwell** infant or child, and are initially non-specific. Clinicians evaluating a sick child should follow normal assessment and management approaches.
- If the infant or child is **asymptomatic at presentation or four hours after last feed**, and you are confident the child will be adequately observed, it is reasonable to discharge the child home. Please provide the parents with information about recognition of illness. This information is available in the back section and back cover of the *Well Child Tamariki Ora – My Health Book* (Danger Signs – Baby and Child Sickness) and can be downloaded from the following website: <https://www.healthed.govt.nz/resource/well-child-tamariki-ora-my-health-book>

- If a child is mildly unwell, has been symptomatic for several hours but is NOT becoming progressively worse, it is extremely unlikely that this illness is due to fluoroacetate poisoning. Other diagnoses need to be considered, investigated and managed accordingly.
- The early and late signs of fluoroacetate poisoning are shown below.

Early signs	Irritable or inconsolable
	Rapid shallow breathing
	Abdominal pain
	Vomiting
Late signs	Collapse or unresponsiveness
	Seizures

- The child may also be flushed in the cheeks, sweaty, or appear pale and apprehensive, or have glazed eyes and not focusing on anything.

Adults

- Symptoms of ingestion are that of an **unwell** adult, and are initially non-specific. Clinicians evaluating an unwell adult should follow standard assessment and management clinical pathways.
- If the patient is **asymptomatic at presentation or four hours after consumption of the formula**, and you are confident the patient will be adequately observed, it is reasonable to discharge for 24-hour home observation. It is important the key home care carer/observer is fully briefed about warning symptoms and signs indicating 1080 poisoning and should have a low threshold for seeking ED review on suspicion.
- If an adult is mildly unwell, has been symptomatic for several hours but is **not** becoming progressively worse, it is extremely unlikely that this illness is due to fluoroacetate poisoning. Other diagnoses need to be considered in the differential diagnosis. The decision to pursue 1080 testing is subject to the judgement of the treating clinician.
- The early and late signs of fluoroacetate poisoning are shown below.

Early signs	Apprehension and agitation
	Rapid shallow breathing
	Abdominal pain
	Vomiting
Late signs	Confusion and decreasing level of consciousness
	Coma
	Seizures

- Adult patients may also be flushed in the cheeks, sweaty, appear pale, apprehensive, and may appear glazed or unresponsive.

Initial management of suspected fluoroacetate poisoning

- There is no antidote for fluoroacetate poisoning.
- If you are concerned that the patient is seriously unwell, call '111' Emergency Services immediately
- Management of suspected poisoning is supportive and requires hospital level care. Prompt referral and transfer is paramount as other potential causes of presentation need to be investigated.
- Do not induce vomiting. As fluoroacetate is readily absorbed into the body after ingestion, inducing vomiting will not help to decrease toxicity and in fact may cause more harm due to aspiration or choking.
- Benefits from activated charcoal are not proven and it is NOT recommended that this be used outside of a hospital setting due to risk of aspiration.
- Clinicians are reminded that section 74 of the Health Act 1956 requires medical practitioners to notify medical officers of health of cases of listed notifiable diseases, in particular acute gastroenteritis and poisoning arising from chemical contamination of the environment. A notification requirement is also mandated under section 143 of the Hazardous Substances and New Organisms Act 1996 requiring hospitals and medical practitioners to notify hazardous substances injuries to medical officers of health.
- Medical practitioners are asked to urgently notify their medical officer of health of possible, probable or confirmed cases of fluoroacetate (1080) poisoning by phone, fax, email or via the Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) included in best practice decision support (BPAC), My Practice and Profile for Windows patient management systems (<https://www.bestpractice.org.nz>).
- Medical officers of health are then asked to urgently inform the Ministry of Health of suspected or confirmed cases.

Infants or children

- If possible, please ask the family to keep the suspect infant formula in a safe place, away from further human or animal contact, so further testing can be done if needed.
- If parents bring the suspect formula with them, please handle it as little as possible, place in a clean cardboard box, store it securely and label it with the child's admission label. The police may request the formula for forensic examination.
- You may wish to provide the *Feeding your baby infant formula* information sheet compiled by the Ministry of Health and Ministry for Primary Industries. This will be available to download from the website: www.foodprotection.govt.nz/for-consumers
- Please ask the family to bring the child back to the emergency department for assessment if the child has any of the symptoms stated on the back cover of the Well Child Book. If transport issues are present or the child becomes more unwell, advise them that a '111' Emergency Services call should be made.

Adults

- If possible, please ask the individual or others to keep the suspect formula in a safe place, away from further human or animal contact, so further testing can be done if needed.
- If individuals bring the suspect formula with them, please handle it as little as possible, place in a clean cardboard box, store it securely and label it with the patient's admission label. The police may request the formula for forensic examination.



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