

Medicines/pharmaceuticals of animal origin

1. Purpose

This Guideline provides recommendations regarding best practice for avoidance of issues related to animal products, whether for patient safety or cultural reasons

2. Scope

This Guideline provides information for all clinical staff within Hospital and Health Services (HHS).

3. Guideline for the use of medicines/pharmaceuticals of animal origin

Guidance Statement

People who are allergic to certain substances, or who want to avoid certain animal products for religious or cultural reasons may need to know about the origin/source of drugs and excipients contained within their medicines. This document provides information to assist clinicians in dealing with these types of situations.

Background

A number of medicines (including tablets, injections, capsules, creams, mixtures and vaccines) contain animal products or are animal derived. For example, gelatin is a partially hydrolysed collagen which is usually bovine (beef) or porcine (pig) in origin. Gelatin is used in making capsule shells and is one of many types of stabilisers added to pharmaceutical products such as vaccines.¹ Heparin, an injectable anticoagulant, is prepared from a porcine source. Further examples of pharmaceutical products known to be of animal origin are listed.

Patients are much more likely to comply with treatment if they have been active partners in the decision making process and their views and preferences have been recognised. For this reason, healthcare professionals should take into consideration patients' religious beliefs and lifestyles when prescribing and administering medicines.³

Particular faiths have dietary restrictions that may forbid certain animal products (eg. pork) within their diet. A United Kingdom publication titled "Drugs of porcine origin and their clinical alternatives - An introductory guide"³ gives further information on drugs of porcine origin and is available at: http://archive.mcb.org.uk/wp-content/uploads/2015/12/Drugs-Derived-From-Pigs-and-their-Clinical-Alternatives_Booklet.pdf

The extent to which people adhere to their religious beliefs is a matter for the individual. However, informing patients about the origins (if animal derived and no suitable synthetic alternative exists) of their proposed medication will assist them in making informed decisions regarding their treatment.³ There may be provisions within various religious groups to provide some form of dispensation, depending on the nature of the need for treatment.

A Canadian question and answer document produced by the Calgary Health Region provides healthcare professionals with an introduction to the religious and cultural issues associated with drugs of animal origin and the need for informed choice in a multicultural society.⁴ This document, titled “Medications derived from animals and culturally diverse patients” is available at:

http://www.calgaryhealthregion.ca/programs/diversity/diversity_resources/faqs/muslim_useof_heparin.htm

The manufacturer’s Product Information (PI) gives details on the composition of the medicine (ie. listing the active and inactive constituents/ingredients) and provides some form of description on how the medicine is produced (eg. whether manufacture of the product included exposure to animal derived materials). Also, Consumer Medicine Information (CMI) leaflets are available for most prescription medicines which enable patients to check the medicine’s ingredients. However, these leaflets are produced in English only, so further assistance may be needed.

There appears to be no practical way of identifying whether the gelatin in products has come from beef or pork. This information is not stated in manufacturers’ PI or CMI leaflets but may be important for Jewish, Muslim and Hindu people who may want to avoid even traces of these particular animal products.⁵

If patients are concerned about whether the drug or excipients within their medicine are of animal origin, they could seek the information from their pharmacist or doctor who can check the medicine’s PI or CMI. Alternatively, patients can call the National Prescribing Services (NPS) Medicines Line (1300 888 763),⁵ or contact the Medical Information Department of the pharmaceutical company that makes the medicine.⁶

For further clarification, the patient could seek guidance from their religious organisation.

Note that the table of products is compiled from the best information available, but cannot be regarded as comprehensive.

Religious restrictions

Religion	Countries where widely practised (relevant to Queensland)	Restrictions
Buddhism	Tibet, Bhutan, India, Nepal, Sri Lanka, Burma, Thailand, Laos, Cambodia, Malaysia, Vietnam, China, Bangladesh, Korea, Japan, Singapore, parts of Russia.	<ul style="list-style-type: none"> values non-violence and encourages a vegetarian diet however, no fixed diet.
Hinduism	India, Nepal, Bangladesh, Indonesia, Pakistan, Sri Lanka, Philippines, Fiji, UK, Mauritius, Bhutan, South Africa, Burma, Singapore	<ul style="list-style-type: none"> majority are vegetarians – no meat or eggs those who are not, usually abstain from beef or pork.
Islam	Indonesia, India, Pakistan, Bangladesh, Egypt, Turkey, Iran, Nigeria, Ethiopia, Afghanistan, Sudan, Iraq, Malaysia, Tanzania, Somalia, Cote d'Ivoire, Congo, Philippines, Sierra Leone, Thailand, Eritrea, Lebanon	<ul style="list-style-type: none"> abstain from pork and pork products abstain from animal products not killed in the prescribed ritualistic way (halal) abstain from products containing alcohol please note: gelatin is contentious*
Jehovah's witness	Australia, USA, Mexico, Brazil and many other countries	<ul style="list-style-type: none"> abstain from blood products – eg. blood transfusions many Hospital and Health Services have policies on the procedure for refusal of blood products.
Judaism	USA, Israel, France, Canada, UK, Russia, Argentina, Ukraine, Brazil and South Africa	<ul style="list-style-type: none"> land animals must be mammals which chew their cud and have cloven hooves – pigs are prohibited birds of prey are prohibited fish must have fins and scales – non-fish seafood is prohibited eg. shellfish meat and milk (any dairy) cannot be mixed observers only consume kosher products – complex set of rules.
Seventh Day Adventist	Australia, USA, South America, some African countries	<ul style="list-style-type: none"> some abstain from meat a lacto-ovo vegetarian diet is recommended (no meat, no eggs).

Religion	Countries where widely practised (relevant to Queensland)	Restrictions
Sikh	India, Pakistan, Malaysia, Singapore, Fiji, New Zealand, USA and UK	<ul style="list-style-type: none"> • some are vegetarian (no meat or eggs) but milk products are fine • many abstain from pork or beef • abstain from meat killed in ritualistic way (eg. do not eat halal). • abstain from alcohol.

Porcine

Product name	Generic name	Therapeutic class	Comment
Clexane	Enoxaparin	Anticoagulant, Antithrombotics	
Creon	Pancrelipase	Digestive supplements and cholelitholytics	
Creon Micro Enteric coated granules	Pancrelipase	Digestive supplements and cholelitholytics	
Curosurf	Poractant alfa	Respiratory agent	
Ethical Nutrients Digestion plus		Herbal gastrointestinal preparations	
Fragmin	Dalteparin	Anticoagulant	
Heparin sodium injection	Heparin sodium	Anticoagulant	
Heparinised saline	Heparin sodium	Anticoagulant	
Heparinised saline injection	Heparin sodium	Anticoagulant	
Orgaran	Danaparoid	Haemostatic agent	From animal mucosa (Porcine)
Panzytrat 25000	Amylase, Lipase, Pancrelipase, Protease	Digestive supplement	
Prothrombinex-VF	Antithrombin III, human; Factor II; V, VII, IX, X Heparin, porcine	Haemostatic agent	
Rotarix	Human rotavirus live attenuated vaccine	Vaccine	Contains porcine circovirus type 1 (PCV-1)
RotaTeq	Rotavirus vaccine live oral pentavalent	Vaccine	
Zostavax	Zoster virus vaccine live	Vaccine	

Bovine

Product name	Generic name	Therapeutic class	Comment
Blackmores Immunodefence capsules		Immune supplement	
Calporo	Calporo	Herbal daily supplements	
Cartilag	Cartilag	Herbal analgesics and anti-inflammatories	
Ethical Nutrients Inner Health plus capsules	Lactobacillus acidophilus, Bovine colostrum	Digestive supplements	
Ethical nutrients inner health plus powder	Lactobacillus acidophilus, Bovine colostrum	Digestive supplements	
Gelofusine	Gelatin succinylated		
Haemaccel	Polygeline	Plasma volume expander	
Hypurin isophane (NPH) injection	Insulin, isophane	Insulin preparations	
Hypurin Neutral injection	Insulin, neutral	Insulin preparations	
Tisseel VH S/D Solution	Aprotinin - Factor XIII - Fibrinogen ,Calcium chloride dihydrate - Thrombin	Haemostatic agent	
Travelan	Bovine colostrum	Anti-diarrhoeal	
Varivax	Varicella zoster vaccine, live	Vaccines	Inactive components include hydrolysed gelatin and traces of bovine serum.
Vivaxim	Hepatitis A vaccine; Salmonella typhi vaccine	Vaccines	Bovine serum albumin <10 ng (Inactive component)
Zyderm Collagen implants	Collagen	Other dermatological preparations	
Zyplast Collagen implants	Collagen	Other dermatological preparations	

Bovine – Manufacture includes exposure to bovine materials “Bovine-Indirect”

Product name	Generic name	Therapeutic class	Comment
Adacel	Pertussis vaccine, Diphtheria toxoid, Tetanus toxoid, Poliomyelitis vaccine.	Vaccine	
Avaxim	Hepatitis A vaccine	Vaccine	
Boostrix	Diphtheria toxoid, Tetanus toxoid, Pertussis vaccine	Vaccine	
Boostrix – IPV suspension for injection	Diphtheria toxoid, Tetanus toxoid, Pertussis vaccine, Poliomyelitis vaccine	Vaccine	
Engerix-B Thiomersal free formulation suspension for injection	Hepatitis B vaccine	Vaccine	
Havrix 1440	Hepatitis A vaccine	Vaccine	
Havrix Junior	Hepatitis A vaccine	Vaccine	
Hiberix	Haemophilus B conjugate vaccine	Vaccine	
Merieux inactivated rabies vaccine	Rabies vaccine	Vaccines	
Prevenar	Pneumococcal vaccine	Vaccines	
Priorix	Measles, mumps & rubella vaccine	Vaccines	
Priorix-tetra	Varicella zoster vaccine, Rubella vaccine, Mumps vaccine, Measles vaccine		
Rabipur	Rabies vaccine	Vaccines	
Recombinate	Recombinant anti-haemophilic factor	Haemostatic agents	Derived from hamster ovary cells but has trace of bovine, mouse and hamster proteins
Varivax	Varicella zoster vaccine, live	Vaccines	Inactive components include hydrolysed gelatin and traces of bovine serum.
Fluarix	Influenza virus vaccine	Vaccine	
ADT Booster	Diphtheria toxoid	Vaccine	

Chinese Hamster Ovary (CHO) cells

Product name	Generic name	Therapeutic class	Comment
Advate	Octocog alfa	Haemostatic agent	
Aldurazyme	Laronidase	Enzyme replacement therapy	
Aranesp	Darbepoietin	Haemopoietic agent	
Avastin	Bevacizumab	Antineoplastic	
Avonex	Interferon beta-1a	Immunomodifier	
BeneFIX	Nonacog alfa	Haemostatic agent	
Cerezyme	Imiglucerase	Enzyme replacement therapy	
Elonva	Corifollitropin alfa	Pituitary hormones	
Enbrel	Etanercept	Immunomodifier	
Eporex	Epoetin-alfa	Haemopoietic agent	
Eylea	Aflibercept	Ophthalmic medication	
Fabrazyme	Agalsidase beta	Enzyme replacement therapy	
Gonal-f	Follitropin alfa	Pituitary hormone	
Granocyte	Lenograstim	Supportive therapy	
Herceptin	Trastuzumab	Antineoplastic agent	Produced by recombinant chinese hamster ovary (CHO) cell
Kogenate FS	Octocog alfa	Haemostatic agent	Trace amounts of mouse and hamster protein present
Luveris 75 IU	Lutropin alfa	Pituitary hormone	
Mabcampath	Alemtuzumab	Antineoplastic agent	
Mabthera	Rituximab	Antineoplastic agent	
Metalyse	Tenecteplase	Fibrinolytic agent	
Mircera	Methoxy polyethylene glycol-epoetin beta	Haemopoietic agent	Recombinant DNA technology in CHO cells
NeoRecormon	Epoetin beta	Haemopoietic agent	
Novocrit	Epoetin lambda	Haemopoietic agent	Purified from a CHO cell
NovoSeven RT	Eptacog alfa	Haemostatic agent	Baby hamster kidney cells
Orencia	Abatacept	Immunomodifier	Recombinant DNA technology in CHO cells
Ovidrel	Choriogonadotropin alfa	Pituitary hormone	
Prolia	Denosumab	Affects calcium and bone metabolism	
Puregon	Follitropin beta	Pituitary hormone	
Pulmozyme	Dornase alfa	Respiratory agent	
Rebif	Interferon beta-1a	Immunomodifier	
Recombinate	Recombinate antihemophilic factor	Haemostatic agent	
Thyrogen	Thyrotrophin alfa	Diagnostic agent	
Vectibix	Panitumumab	Antineoplastic agents	Recombinant DNA

Product name	Generic name	Therapeutic class	Comment
			technology in CHO cells
Xgeva	Denosumab	Antineoplastic agent	
Xolair	Omalizumab	Other respiratory agent	
Xyntha	Moroctocog alfa	Haemostatic agent	

Murine (mouse)

Product name	Generic name	Therapeutic class	Comment
Avastin	Bevacizumab	Antineoplastic agent	Humanised murine antibody
Erbix	Cetuximab	Antineoplastic agent	Produced in mammalian cell culture by mouse myeloma cells
Herceptin	Trastuzumab	Antineoplastic agent	Murine anti-p185 HER2 antibody
Mabthera	Rituximab	Antineoplastic agent	Genetically engineered chimeric murine/human monoclonal antibody
Remicade	Infliximab	Immunomodifier	Monoclonal antibody composed of human constant and murine variable regions
Reopro	Abciximab	Anticoagulant	
Saizen	Somatropin	Pituitary hormone	
Simponi prefilled syringe solution	Golimumab	Antirheumatoid agent	Murine hybridoma cell line with recombinant DNA technology
Simulect	Basiliximab	Immunomodifier	Murine/human chimeric monoclonal antibody
Synagis	Palivizumab	Immunomodifier	5% murine amino acid sequences

Eggs

Product name	Generic name	Therapeutic use	Comment
Agrippal	Influenza virus vaccine	Vaccine	vaccine may contain: egg, chicken
Fluarix	Influenza virus vaccine	Vaccine	prepared using whole virus cultivated in embryonated hen eggs
Fluvax	Influenza virus vaccine	Vaccine	prepared from virus grown in the allantoic cavity of embryonated eggs
Intanza	Influenza virus vaccine	Vaccine	Propagated in fertilised hens' eggs
Panvax H1N1 Vaccine	H1N1 pandemic influenza vaccine	Vaccine	propagated in the allantoic fluid of embryonated chicken eggs
Q-Vax skin test	Coxiella burnetii vaccine	Vaccine	
Rabipur	Rabies vaccine	Vaccine	Made from purified chick embryo cell
Vaxigrip	Influenza virus vaccine	Vaccine	prepared from virus grown in the allantoic cavity of embryonated eggs
Influvac	Influenza virus vaccine	Vaccine	prepared from virus grown in the allantoic cavity of embryonated eggs

Equine (Horse)

Product name	Generic name	Therapeutic class	Comment
ATGAM	Antithymocyte globulin	Immunomodifier	
Black snake antivenom	Black snake antivenom	Antivenom	
Brown snake antivenom	Brown snake antivenom	Antivenom	
Death adder antivenom	Death adder antivenom	Antivenom	
Polyvalent snake antivenom	Brown snake antivenom, Death adder antivenom, King brown snake antivenom, Taipan antivenom, Tiger snake antivenom	Antivenom	
Premarin tablets	Oestrogens, Conjugated	Gonadal hormone	
Premarin for injection	Oestrogens, Conjugated	Haemostatic agent	
Premia	Medroxyprogesterone acetate	Gonadal hormone	
Red back spider antivenom	Red back spider antivenom	Antivenom	
Sea snake antivenom	Sea snake antivenom	Antivenom	
Stonefish antivenom	Stonefish antivenom	Antivenom	
Taipan antivenom	Taipan antivenom	Antivenom	
Tiger snake antivenom	Tiger snake antivenom	Antivenom	

Others

Product name	Generic name	Therapeutic uses	Comment
Chondroitin (Numerous brands)	Chondroitin	Complementary osteoarthritis	From bovine or shark cartilage
Digibind	Digoxin binding antibody	Antidote	From sheep
Glucosamine	Glucosamine	Complementary osteoarthritis	From shell fish
Humira	Adalimumab	Immunomodifier	Mammalian cells (Not specified)
Mono-plus mononucleosis test		Diagnostic	Guinea pig, horse
Novoseven	Eptacog alfa	Haemostatic	Baby hamster kidney (BHK) cells

Other complementary agents and/or excipients that may be of animal origin

Product	Source
Bee pollen	Gathered by bees and collected from legs of bees
Chitin	From insects and crustaceans
Chymotrypsin Cochineal/Carmines/Carminic acid	Ox pancreas
Cochineal/carmine/carminic acid	Red pigment from crushed cochineal insects
Disodium inosinate	From meat extract
Gelatin	From cows or pigs. Used for many capsules
Glycerol	May be derived from animal fats
Lactose	From cows milk. Usually made synthetically (Common filler in tablets)
Lanolin	Fat extracted from sheep's wool
Oleic oil and oleostearin	From pressed tallow
Propolis	Bee glue
Shellac	Insect secretion
Stearic acid	Fat from cows, sheep, dogs or cats. Can be obtained from vegetable sources
Trypsin	Enzyme from pork pancreas

*some Muslims accept a ruling by the World Health Organisation⁷ that gelatin has been transformed to such an extent from its original source, that it is permissible. Others do not accept this and will object to the presence of gelatin in medicines.

Religious Organisations consulted:

- Buddhist Council of Queensland (President)
- Hindu Council of Australia Ltd (Chairman)
- Sikh Temple of Queensland (President)
- South Queensland Conference of the Seventh-Day Adventist Church (Pastor & General Secretary)
- Kosher Australia Pty Ltd (General Manager)
- Islamic Council of Queensland (past President) and Holland Park Mosque (Imam)

References:

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4. Review

This Guideline is due for review on: 01/04/2022

Date of Last Review: 01/04/2019

Supersedes: Medicines of Animal Origin: Version 2, 2013

5. Business Area Contact

Medication Services Queensland

6. Approval and implementation

Policy Custodian:

Assistant Director, Medication Services Queensland

Responsible Executive Team Member:

Executive Director, Chief Medical Officer, Healthcare Regulation Branch

Approving Officer:

Director, Medication Services Queensland

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7. Version control

Version	Date	Comments
2.0	1/11/2013	Supersedes original version published in 2007
2.1	1/04/2019	Fixed broken link to booklet on porcine medicines. Updated organisational details