



Government of **Western Australia**
Department of **Health**

Draft Guidelines for the management of public health risks associated with cloth materials in Western Australia

Public Health Act 2016

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This Guideline was prepared by:

Environmental Health Directorate
Public and Aboriginal Health Division
Department of Health of Western Australia
PO Box 8172
Perth Business Centre WA 6849

Tel: (08) 9388 4999

Email: publichealthact@health.wa.gov.au

Web: www.health.wa.gov.au

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This Guideline

This Guideline provides practical guidance on how to comply with the general public health duty under the *Public Health Act 2016*.

Disclaimer

This guideline is provided by the Western Australian Department of Health as a guide for the management of public health risks associated with cloth materials in Western Australia. The information and advice provided are made available in good faith and are derived from sources believed to be reliable and accurate at the time of release.

The general public health duty of the *Public Health Act 2016* requires that:

“All persons must take all reasonable and practicable steps to prevent or minimise any harm to public health that might foreseeably result from anything done or omitted to be done by the person”.

In essence, we all have a responsibility to protect other people from harm.



Glossary

Adequate supply of water	Water that is available at a volume, pressure and temperature that is adequate for the purposes for which the water is used
Charitable organisation	Any organisation that is a licensed under and complies with the <i>Charitable Collections Act 1946</i> to generate funds from the re-sale of used cloth materials in Western Australia
Cleaning	The removal of visible matter (organic or inorganic) from objects or surfaces. This can be achieved manually or mechanically using appropriate cleaning agents e.g. water with detergent, solvent or enzymatic product
Commercial business	Anyone in the business of the sale and or supply (e.g. collection, delivery, exchanging, leasing, hiring) of used cloth materials
Collection Container	A container that is typically large, of steel construction that collects used cloth material items
Commercial laundry	Any place where articles are laundered by commercial grade machinery by the owner or occupier of the premises for or on behalf of the public. A commercial laundry does not include a laundromat
Conventional laundering processes	Laundering and dry cleaning processes to clean and disinfect clothing and other articles
Disinfection	The reduction of disease causing micro-organisms, except bacterial spores, to an acceptable level where transmission is unlikely to occur
Dry cleaning	Clean of clothing, garments, upholstery and other fabrics using dry cleaning agents and specialist machines
Dry cleaning establishment	A premises where clothes or other articles are dry cleaned
Enteric viruses	Term used for a number of viruses which are found in the intestinal tract of humans and animals and are the most common cause of gastroenteritis
Filling material	Any material that is used or likely to be used for the filling of mattresses, pillows, bedding, upholstery, cushions or substances used in packaging material or in the manufacturing of underfelt
Flock	Small natural or synthetic fibre particles
Fomite transmission	Transmission of infectious diseases from person to person via any non-living object or substance
Laundromat	A public place where laundering is carried by members of the public using machines and equipment that are provided by the owners or occupiers of the premises
Premises	Any premises from which used cloth material items are sold or supplied to the public and may include a premises in or on which the private sale by a person takes place
Re-deposition	When dirt on fabric is removed and then accidentally re-applied to the same material
Supply	Collect, deliver, offer for sale, sell, exchange, lease or hire goods or provide services
Used cloth material item	Any cloth material item that has been previously owned or used but does not include any new or cleansed and disinfected item that a purchaser or hirer has worn or used briefly to ensure the item is suitable and/or fit for purpose
Vectors of disease	Includes fleas, flies, bedbugs, cockroaches, lice and any other insect prescribed by local government



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Aim

This Guideline is issued by the Chief Health Officer of the Department of Health of Western Australia in accordance with the *Public Health Act 2016*.

This Guideline provides practical advice to assist charitable organisations and commercial businesses involved in the sale and/or supply of used cloth materials to meet their obligations under the general public health duty specified in Part 3 of the *Public Health Act 2016*.

This Guideline aims to promote a high standard of hygiene, infection and infestation prevention and control in relation to used cloth materials that may potentially pose a public health nuisance and/or risk of fomite transmission of disease to end-users. Environmentally-friendly cleaning solutions, responsible use of water resources and appropriate disposal of extracted cleaning wastes are strongly encouraged as industry considerations. This Guideline serves to capture known public health risks as well as new and emerging issues to protect the public from adverse health outcomes.

This Guideline can be used by commercial businesses and charitable organisations to support the development of risk reduction strategies in accordance with the principles of risk management.

Complying with the general public health duty

The general public health duty specified in Part 3 of the *Public Health Act 2016* requires that a person must take all reasonable and practicable steps to prevent or minimise any harm to public health that might foreseeably result from anything done or omitted to be done by the person.

The purpose of the general public health duty is to:

- prevent public health incidents from occurring
- ensure individuals are responsible for public health activities and
- most importantly, not to cause harm to the health of other people including adverse impacts and effects on a person's physical or psychological wellbeing.

A person will not be taken to be in breach of the general public health duty if acting in a manner that complies with **generally acceptable practices** or in circumstances prescribed by a guideline or regulation.

This Guideline sets out generally acceptable practices related to the sale and/or supply of used cloth materials in Western Australia. When a business/organisation fails to comply with this Guideline, this may be grounds for local government authorised officers to issue an:

- improvement notice or
 - enforcement order
- in accordance with the general public health duty.

Powers of a local government authorised officer

An authorised officer is someone appointed by an enforcement agency (local government) to carry out inspections or follow up on complaints to ensure all businesses comply with the *Public Health Act 2016*. The *Public Health Act* empowers an authorised officer to:

- enter and inspect the premises
- make inquiries



- ask questions
- examine, inspect and test equipment
- take samples
- take photographs and videos
- require records to be produced
- examine and copy records
- seize items.

It is an offence to hinder or obstruct an authorised officer. Penalties apply.

Reuse of cloth materials

Charitable organisations can generate funds from the sale of used cloth material items to support their charitable cause and may supply used cloth material items to people in the community. A wide range of commercial businesses across various industries may also be involved in the sale, supply, cleaning and maintenance of used cloth materials. Commercial business involved in the sale and/or supply of used cloth materials may include but are not limited to:

- businesses involved in the hire of clothing and costume pieces e.g. suit or formal-wear hire outlets, costume hire outlets
- businesses involved in the supply of used cloth material items such as, personal protective equipment (bowling shoes, wetsuits, paintball clothing, helmets, coveralls etc.) and hospitality linens
- businesses that sell or supply goods and/or services which directly or indirectly involve the re-use of cloth material items e.g. thrift stores, camper van hire companies, event styling companies etc.
- businesses who are contracted or engaged in the provision of used cloth material cleaning services e.g. commercial laundries and dry cleaning establishments, pest management companies, specialist cleaning companies.

Clothing and textile consumption has increased dramatically in the last few decades. Advancements within the textile manufacturing and retail industry is characterised by mass productivity and consumer affordability resulting in overconsumption and premature disposal of unwanted cloth material items, increasing the amount of post-consumer textile waste generated.¹

Changes in consumer trends and patterns of consumption are counteracted by the creation of new, competitive markets for used cloth materials e.g. textile rental services and supply of high quality used cloth material items. Businesses/ organisations who engage in the sale and/or supply of used cloth materials provide goods and services at a reduced cost to consumers, extend the life-cycle of cloth material items and support consumers in making environmentally-sustainable purchases. The increasing accessibility and prevalence of thrift stores and textile collection infrastructure has also contributed to the growth in the consumer base for used clothing and textiles.²

Each business/ organisation will develop its own system for managing used cloth materials. As such, each system will vary depending on the size, logistics, activities performed and location of the business/organisation.

The typical process from collection to re-use of cloth materials is illustrated below in figure 1.

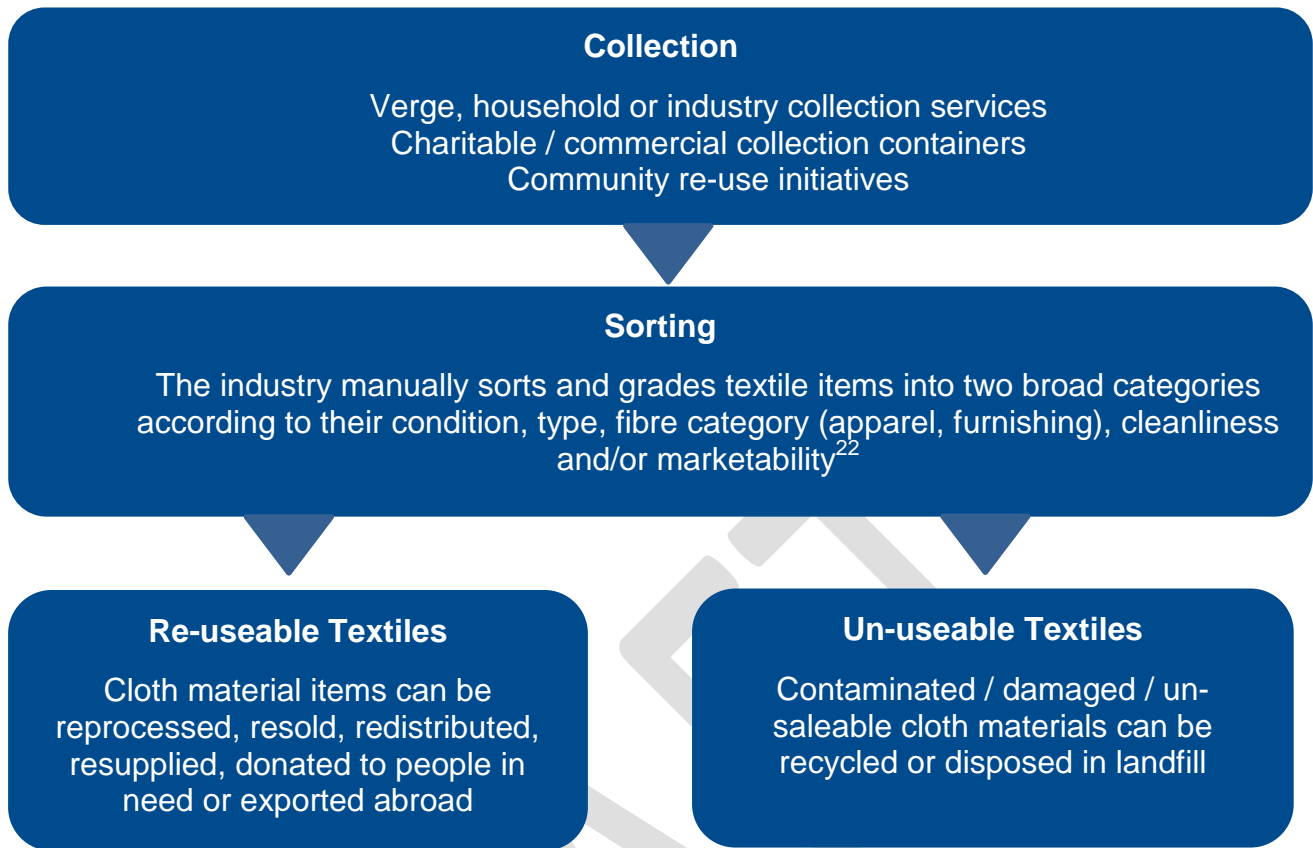


Figure 1: Collection and re-use of cloth material items

Un-useable textiles

Used cloth material items that are not fit for sale or supply may be disposed to landfill or recycled to make the following end products:

- textiles can be reprocessed into industrial rags, fibres for upholstery, insulation materials²¹ and building materials²²
- used mattresses and ensemble bases can be reprocessed to recover the following components:
 - steel springs can be recycled into products such as roof sheeting
 - foam can be recycled into carpet underlay, mattress quilting, filling sport goods e.g. punching bags
 - husk can be recycled into mulch
 - timber can be recycled into kindling and animal bedding.²⁰

Where prescribed in health local law, used cloth materials that are reprocessed for the purpose of filling material or for the purpose of flock manufacturing, should first be treated in a manner that is prescribed in the health local law.



The public health risks

What is a public health risk?

A risk to public health is something that is known to cause or potentially cause disease or harm to the public health or wellbeing of humans.

A variety of used cloth materials may present a risk of fomite transmission. Used cloth materials include, but are not limited to:

- clothing and costumes
- carpets and other soft floor coverings
- foot wear including shoes e.g. bowling shoes, ice skates, boots etc.
- head coverings including hats and head gear e.g. helmets, hard hats and hairpieces
- soft furnishings, linen and similar items including mattresses, pillows, upholstery and cushions.

Infection and/or infestation may be transmitted either directly or indirectly by used cloth materials. Agents of infection and/or infestation include:

- bacteria (e.g. Methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile*, *Salmonella*)
- bed bugs
- body lice
- fleas
- fungus (tinea)
- pin worm
- scabies
- viruses (e.g. norovirus, influenza).⁹

The presence of visible matter, microorganisms and other substances known to affect health e.g. allergens, on cloth surfaces can be attributed to historical use, exposure to blood, bodily fluids and infestation. Textiles are susceptible to contamination through direct contact with or environmental exposure to agents of infection/infestation.

Microorganisms can survive on porous fabrics such as cotton, nylon and polyester. Selective microbial growth on fabrics is known to occur under optimal moisture and temperature conditions. Microbial loading varies with fibre type (natural or synthetic), bacteria type, fabric composition and surface treatment or surface contamination.

Another factor which influences the microbial loading of a fabric is the degree of hydrophobicity of the fibre. Textiles composed of natural fibres e.g. cotton, have a higher ability to retain water, oxygen and nutrients which support microbial growth.

Textile fibres made from synthetic polymers e.g. nylon and polyester, create a substrate that is less likely to support the growth of microorganisms. Polyester fabrics are more resistant to washing and disinfection due to their hydrophobic properties. Whilst synthetic fibres do not



support microbial growth, surface treatments may be applied during the manufacturing process to improve the ability to effectively wash and disinfect the item. The application of surface treatments to synthetic fibres and the presence of surface contaminants may support the growth of microorganisms³.

Some types of bacteria that survive on used cloth materials are pathogenic and may result in the transmission of infection.³ Therefore, appropriate cleaning and disinfection of used cloth materials is required to reduce the risk of cross-transmission.

The survival rate of many pathogens is significantly lower on soft (porous) surfaces than the survival rate of pathogens on hard (non-porous) surfaces. In addition to this, most bacterial organisms are unlikely to survive on soft surfaces in large enough quantities to present a risk to public health. Transfer rates of bacteria and viruses from soft surfaces to a person's hands are considerably lower than transfer rates from non-porous surfaces.⁴

The overall risk of fomite transmission from used cloth materials is considered to be low, however risks to public health may be increased when:

- bacteria, viruses and parasites (including fungi) are present in sufficient quantities to overcome the natural defences of the exposed person, and
- the health status of the exposed person makes them more susceptible to infection, and
- hygiene and infection control measures are not carried out.

Infection and Infestation symptoms

Commercial businesses and charitable organisations should be aware of agents that may cause or contribute to infection and/or infestation which can be spread through the re-use of cloth materials and/or during the course of their work and should examine all process steps and develop standards to ensure that this does not occur.

Commercial businesses and charitable organisations are responsible for the sale or supply of used cloth materials that are not only aesthetically clean but also hygienically clean and free from vectors of disease.

A description of some of the symptoms associated with infection and infestation that may be transmitted to humans via cloth materials are listed in Table 1.



Table 1 Fomite transmission from used cloth materials

Infection / infestation	Who is at risk?	Symptoms	Transmission
<p>Bacteria- MRSA MRSA is a contagious and antibiotic-resistant bacteria also known as staph or golden staph.</p>	<p>Anyone</p> <p>People who have health problems such as diabetes or a poor immune system or who have broken skin due to wounds, or dermatitis are also more likely to get an infection.</p> <p>People in nursing homes and hospitals are most at risk.</p>	<p>The symptoms that develop with MRSA infection are common signs of local skin infection, such as:</p> <ul style="list-style-type: none"> ○ redness ○ swelling ○ pain ○ heat ○ the presence of pus. <p>Some skin infections will develop into more serious infections like boils or deep abscesses.</p> <p>Symptoms may also include high fever, shaking and low blood pressure. This can be a life-threatening illness and requires urgent medical treatment.</p>	<p>MRSA can enter the body through broken skin or sores, resulting in redness, pimples, swelling, tenderness or boils. Infections can become serious leading to blood infections or pneumonia.</p> <p>MRSA can remain on contaminated items such as towels and blankets for up to 40 days.⁵</p> <p>MRSA is a notifiable disease</p> <p>See the MRSA information page on the Public Health website.</p>
<p>Bacteria - Salmonella</p>	<p>Anyone</p> <p>However the old, young and people with a weak immune system are at greater risk.</p>	<p>The most common symptoms are diarrhoea, fever, abdominal cramps and vomiting.</p>	<p>Transmitted from contaminated food or via poor hygiene from sick persons.</p> <p>Salmonella is known to survive on contaminated soft surfaces for up to 24 weeks.⁴</p> <p>Salmonella is a notifiable disease</p> <p>See the Salmonellosis page on the Public Health website.</p>



Infection / infestation	Who is at risk?	Symptoms	Transmission
<p>Bed bugs Bed bugs are small parasitic insects that feed on human blood by piercing the skin. They do not live on humans or burrow into the skin.</p>	<p>Anyone</p> <p>Higher risk in backpackers and short term accommodation with high turnover.</p>	<p>Do not transmit disease but bites can be red, itchy and painful.</p> <p>Some people will not experience a reaction to a bed bug bite at all. Those that do experience symptoms of a bite are likely to experience one or more of the following:</p> <ul style="list-style-type: none"> ○ a bite with a red, swollen area and a dark red centre ○ bites in a line or grouped together in a small area ○ blisters or hives at the bite site. 	<p>Bed bugs can survive for more than a year without feeding, which enables them to hide out waiting for hosts in furniture, mattresses, bedding and clothing. Bed bugs can survive temperatures as varied as 0°C to 45°C.⁶ This trait enables them to survive transportation, spreading the infestation from one premises to another.</p> <p>See the Bed bugs page on the Department of Health website.</p>
<p>Fleas A flea is a very small, flat bodied insect that feeds on blood (cats, dogs and humans). In Australia, fleas are not known to transmit any human diseases, although this does occur in other parts of the world.</p>	<p>Anyone</p> <p>Higher risk in accommodation with dogs and cats.</p>	<ul style="list-style-type: none"> ○ Skin reactions to flea bites can appear within minutes or may be delayed over hours and even days. ○ People who are allergic to flea bites can develop lesions, itching or other symptoms. 	<p>In the early stages of development, fleas can survive in carpets or undisturbed edges of floors for up to 1 year.</p> <p>See the Fleas page on the Department of Health website.</p>
<p>Fungus (tinea) Tinea is a very common fungal infection of the skin. Infections can develop on many</p>	<p>Anyone</p>	<p>Tinea is often called "ringworm" because the rash is circular, with a ring-like appearance. Symptoms can include itching, stinging, burning and cracking when on the skin.</p>	<p>Can be transmitted through contaminated clothing, footwear and hard surfaces.</p> <p>See the tinea page on the healthdirect website.</p>



Infection / infestation	Who is at risk?	Symptoms	Transmission
<p>areas of the body including feet (athlete's foot), nails, body and scalp.</p>			
<p>Lice Body lice are uncommon in Australia. Pubic lice are parasitic insects that feed on human blood and can infest pubic areas and other areas of the body.</p>	<p>Anyone</p>	<p>Common symptoms of a pubic lice infestation include:</p> <ul style="list-style-type: none"> ○ intense itching (pruritus) ○ visible blue spots around genitals ○ blood spots or fine, gritty debris in undergarments. <p>Common symptoms of head lice infestation include scalp itchiness and presence of eggs and hatchlings in the hair.</p>	<p>Infestations occur worldwide and are spread via close person-to-person contact or through commonly shared bed linens, towels and clothing. Lice require warmth and blood to survive and do not survive for long (24-48 hours) away from the host. Eggs may be laid in the folds of clothing, bedding or personal items. However, eggs cannot hatch away from the host and usually die within a week. Transmission is most likely to occur during active infestation.⁷</p> <p>See the pubic lice page on the Department of Health website.</p> <p>Head lice are spread by head-to-head contact with another person who has head lice. Transmission is most likely to occur during active infestation.</p> <p>Eggs may be laid in the folds of clothing, bedding or personal items. However, eggs cannot</p>



Infection / infestation	Who is at risk?	Symptoms	Transmission
			<p>hatch away from the host and usually die within a week. Transmission is most likely to occur during active infestation.¹⁵</p>
<p>Pin worm (threadworm) A small thin worm that lives in the colon and rectum of humans and can deposit eggs on the outside of the skin.</p>	<p>Anyone</p>	<p>Pin worm causes itching around the anus which can lead to difficulty sleeping and restlessness. Symptoms are caused by the female pin worm laying her eggs. Symptoms of pin worm infection usually are mild and some infected people have no symptoms.</p>	<p>Pin worm infection is spread by the transfer of infective pinworm eggs from the anus to someone’s mouth, either directly by hand or indirectly through contaminated clothing, bedding, food, or other articles.</p> <p>Pin worm eggs become infective within a few hours after being deposited on the skin around the anus and can survive for 2 to 3 weeks on clothing, bedding, or other objects. People become infected, usually unknowingly, by swallowing eggs that are on fingers, or on clothing, bedding, and other contaminated objects and surfaces.¹⁶</p> <p>See the threadworms page on the Department of Health website.</p>
<p>Scabies A contagious skin infestation by the mite <i>Sarcoptes scabiei</i>. Mites burrow</p>	<p>Anyone</p> <p>Higher risk in lower socio-economic areas with reduced hygiene.</p>	<p>The symptoms are due to an allergic reaction to the mites. Common symptoms are severe itchiness and a pimple-like rash. Occasionally,</p>	<p>Scabies is most often spread during a relatively long period of direct skin contact with an infected person (at least 10</p>



Infection / infestation	Who is at risk?	Symptoms	Transmission
into the skin to live and lay eggs.	The young and old are more commonly affected.	tiny burrows may be seen in the skin.	minutes). Less commonly, scabies infestation can happen through the sharing of clothes, towels, and bedding. Items that have been exposed to infestation should be washed and should be removed from skin contact for 72 hours. See the scabies page on the Department of Health website.
Viruses (norovirus, influenza) Common viruses that affect humans and may be transmitted by cloth materials include norovirus and influenza.	Anyone The old and young are at greater risk.	Norovirus infection is characterized by diarrhoea, vomiting, and stomach pain.	The virus is usually spread by the faecal–oral route via contaminated materials or through the air. Enteric viruses can survive on soft surfaces between 0 hours and 140 days depending on the fibre type and environmental conditions. ⁸
	People with chronic conditions such as asthma, chronic lung disease, heart disease, blood disorders, liver and kidney disorders, endocrine disorders and obesity are more likely to develop complications from flu.	Influenza - symptoms can include fever, cough and cold symptoms, aches and pains, fatigue.	The influenza virus can survive on soft surfaces for up to 12 hours. ⁴
<p>The Department of Health Centre for Disease Control Directorate publishes a weekly virus watch report which summarises virus presentations based on data received from participating emergency departments.</p> <p>The Australia Government Department of Health publishes influenza reports and updates.</p>			



Infection / infestation	Who is at risk?	Symptoms	Transmission
<p>Blood-borne viruses Blood borne viruses that may be transmitted include hepatitis B virus, hepatitis C virus and human immunodeficiency virus (HIV).</p>	<p>Anyone in contact with objects contaminated with blood or infective body fluids via a sharps injury or break in the skin.</p>	<p>Blood-borne viruses may not cause symptoms at the time of infection, or for years afterwards. Viral infection can easily be detected by a blood test.</p>	<p>Sharps injuries and direct non-intact skin contact with blood or other potentially infective body substances such as breastmilk, semen, vaginal secretions. Hepatitis B is stable in the environment and can survive at room temperature for at least one week.²³ Survival rates of blood-borne viruses in the environment depends on the humidity, temperature, volume of blood and concentration of the virus.²³</p> <p>Is a notifiable disease</p> <p>See the Blood-borne viruses page on the Department of Health website.</p>

Whilst the risk of fomite transmission from used cloth materials is considered to be low, effective hygiene and infection controls should be adopted to manage the potential risk of transmission. There are many people in the community who are unaware that they have a blood-borne virus or other type of infection. Therefore, it should be assumed that all blood and body fluids are potentially infectious and should be treated as such.



Other risks associated with cloth materials

Sharp Objects

Sharp objects hidden in used cloth material items or incorrectly disposed in collection containers, expose people to the risk of injury resulting in the possible transmission of blood-borne infectious agents including hepatitis B virus, hepatitis C virus and human immunodeficiency virus (HIV).

Sharps objects include:

- syringe
- broken glass
- anything capable of cutting or penetrating the skin.

Any person who is responsible for the sale or supply of used cloth material items is responsible for ensuring the item is free from any sharp objects and where present, is responsible for the safe management and immediate disposal of the sharp object. Safe handling procedures and personal protective equipment should be used when sorting items to minimise the risk of sharp injuries occurring.

Any sharps found, should be placed in a suitable, designated sharps container. A suitable sharps container is a container that is rigid walled, fully enclosed, puncture-resistant, large enough to hold the sharp object and solely used for the purpose of safely storing sharp objects. The following precautions should be taken to ensure the safe handling and disposal of sharps:

- designated sharps container(s) should be located where waste is likely to be generated e.g. sorting area
- ensure the container is taken to the sharp object and placed on a flat surface
- sharp objects should be handled carefully whilst wearing appropriate protective equipment or using a hand-held tool to minimise the risk of a sharps injury occurring
- ensure the sharp edge or point is facing away from the body whilst placing the sharp in the designated container (do not attempt to re-cap a needle) and placed into the container with the sharp end first
- ensure there is sufficient space between the sharp object and the opening of the container
- secure the lid of the container after use.⁹

The following precautions should be taken to reduce the risk if a sharps injury occurs:

- if skin is penetrated, wash the affected area with soap and water, an alcohol-based hand rub can also be used if soap and water is not available
- avoid touching or squeezing the affected area
- cover the area with an adhesive dressing
- report the incident directly to the supervisor / manager
- seek medical assessment
- place the object in a sharp-resistant container that is sealed and provide it to the medical practitioner who is performing the medical assessment.²³

The risk of acquiring a blood-borne virus from discarded needles/syringes in the community is considered to be low and is based on virus viability in the environment.²³ The importance of immunisation to protect persons from infection should always be considered where there is a risk of accidental exposure.

Sharps waste must never be placed in general waste receptacles.



Standards for premises

General premises design

It is important that the premise is fitted out with appropriate equipment and fittings, and designed to reduce the spread of infections and minimise hazards.

The premises should:

- be kept in a clean and sanitary condition
- be free from any offensive odour arising from the premises
- ensure floors, walls, ceilings, fixtures, fittings, equipment and other items used on or in connection with the premises are maintained in a good state of repair
- be protected from pests and other contaminants such as dirt and fumes,
- ensure flooring is constructed of a smooth, impervious material that is easy to clean and keep clean and, if necessary, disinfect
- have enough clean water available at the right temperature for work to be done
- ensure operational areas are not used for food preparation
- have impervious waste receptacles to receive any trade wastes that are produced on the premises. Waste receptacles should be cleaned and disinfected after being emptied
- have a system for sharps waste (if applicable)
- provide a washroom and toilets for staff
- have adequate equipment and space to undertake the procedures carried out by the business.^{12,14}

Hand wash basins

A hand wash basin should be located in an accessible location to promote use by staff. The basin should be adequately supplied with hot and cold water through a single outlet, ideally with a hands free tap. A suitable cleaning solution for hands, paper towelling or hand-drying equipment and an appropriate waste receptacle should be provided next to hand wash basin(s).

Cleaning sinks

A separate sink with an adequate supply of hot and cold running water should be available for cleaning (if required).

Food preparation

The preparation and consumption of food should not occur in areas where the collection, transport, handling, sorting, washing, drying, packing, storing and display of used cloth materials is undertaken.^{12,14}



Infection prevention and control

It is the responsibility of the business/organisation to ensure all employees (including contractors and volunteers) have an understanding of how infections are spread and how they can prevent the spread of infection by adopting generally acceptable practices.

Personal infections such as gastroenteritis, dermatitis, skin lesions and boils increase the risk of disease transmission. Handlers should report all personal illnesses to their employer and not undertake the handling or sorting of cloth material items.¹²

Hygiene

Hand hygiene and hand washing

Hand hygiene is an important step in preventing the spread of infection and focuses on breaking the chain of infection rather than eliminating infectious agents.

Hands can become contaminated through contact with contaminated items, the environment or other workers.

As a general rule, a person should wash their hands:

- before and after contact with used cloth materials or after any interruptions in a procedure
- after eating or smoking
- after going to the toilet
- after blowing their nose, coughing or sneezing
- after handling laundry, equipment or waste
- after contact with blood or other bodily substances
- when hands become visibly contaminated.¹⁰

Important steps to follow when hand washing include:

- washing hands with soap and warm water. For general hand washing, plain soap or liquid soap is sufficient
- hands should be rubbed together for a minimum of 20 seconds so that the cleaning solution (soap) comes into contact with all surfaces of the hands, paying particular attention to the fingertips, thumbs and the areas between the fingers
- hands should be rinsed then patted dry using disposable paper towels or a hot air dryer
- paper towels, soap and a waste receptacle should be located next to the hand basin
- scrubbing brushes are not recommended for scrubbing hands as they can cause damage to the skin.^{10,19}

Personal hygiene and preventing the spread of infection is the responsibility of everybody.

Knowing how and when to apply standard hygiene precautions is critical to prevent the spread of illness, infection and infestation.



Alcohol-based hand rubs (ABHRs)

ABHR can be used for general hand washing in conjunction with soap and water.

ABHRs may also be used on hands that are already visibly clean.

The active ingredient in ABHRs varies and may include ethanol or isopropanol. A product with at least 70% alcohol (isopropanol) is the most effective. Excess use of alcohol rubs may compromise the acid mantle of the skin. A suitable barrier cream should be used to prevent drying/cracking of the skin after repeated hand-washing.

Please note the Department of Health does not promote specific products, nor do they mandate product selection.



Cloth material hygiene

Used cloth materials are required to meet hygiene and quality standards prior to sale, supply and/or distribution. A person should not sell, supply or distribute any used cloth material item, including synthetic or natural hairpiece, which is unclean, offensive, infested with vectors of disease or is otherwise considered to be harmful to health.

Some businesses / organisations may lack the resources required to clean and disinfect all used cloth material items upon receipt. Where visible contamination is identified upon inspection, these items should be effectively cleaned and disinfected in accordance with this Guideline. Cloth materials which are grossly contaminated should be disposed of appropriately.

Retailers should inform consumers that the cloth material item is used (unless otherwise implied) and should advise if the item has been cleaned and disinfected. Signage may also be considered to communicate information to end-users to ensure the risk to public health is appropriately managed.



Policies and procedures

Policies and procedures should address the collection, transport, handling, sorting, washing, drying and storage of used cloth material items (where applicable), including the wearing of personal protective equipment and hand hygiene requirements to reduce the risk of fomite transmission from cloth materials. Where wastes are generated in the course of business activity, appropriate waste management policies and procedures should also be developed.

Policies and procedures should be developed to ensure that:

- cloth material handling and cleaning and disinfection procedures are carried out in a consistent manner and are effective in reducing the risk of transmission
- waste materials are effectively managed and disposed of appropriately.

Collection equipment

Vehicles and containers used to collect, transfer, store and/or deliver used cloth material items should be constructed such that they:

- are waterproof, leak-proof and nonporous
- assist in the safe storage and handling of items
- are able to be easily and effectively cleaned
- are protected from weather, pests and other hazards that may be harmful or injurious to health.

Collection equipment should be maintained in a clean and hygienic condition. Clean and contaminated items should not be transported in the same vehicle, unless they are physically separated by a suitable barrier. A suitable barrier may include an impermeable container, bag or wrapping.^{12,14}

Sorting

All used cloth materials should be sorted as soon as they arrive at the premises and should be regarded as potentially hazardous during the sorting process. Sorting should take place in a dedicated sorting area using a method that will ensure cleanliness and protection from vectors of disease, dust, aerosols, moisture and contact with soiled or contaminated items.¹⁴

Items should be inspected for evidence of soil, blood or bodily fluids and infestation, in addition to assessing the general condition of the item (e.g. wear and tear, breakage etc.). Clean items should be separated from items requiring cleaning, repair and/or disposal. The following precautions should be taken to minimise the risk of transmission associated with handling used cloth materials:

- ensure cuts and abrasions are covered with a suitable waterproof dressing
- ensure gloves are worn as a minimum¹⁷
- visually inspect the inside of items prior to inserting hands
- hand hygiene should be performed after handling used cloth material items.

Hazardous cloth materials

Cloth material items that are infested or contaminated with blood, body fluids, secretions or excretions are considered to be hazardous to health. Hazardous materials should be



segregated from clean items by either a suitable barrier or by distance to prevent cross contamination and should be effectively cleaned and disinfected or discarded appropriately.¹⁴

The following precautions can be applied to cloth material items that are contaminated by blood:

- ensure gloves are worn
- blood-stained items should be washed in cold or cool water no more than 35°C (hot water will set blood stains). When the stains are removed the item can then be cleaned and disinfected in accordance with generally acceptable practices in this Guideline
- clean contact surfaces with detergent and warm water
- wash hands thoroughly after removing gloves.

Cleaning and disinfection

In this guideline, the general term 'textiles' refer to used cloth materials such as:

- small textiles including linen, cushion covers etc.
- apparel
- hire garments
- footwear
- headwear including hats, hairpieces etc.

The term 'bulky textiles' refer to used cloth material items such as:

- soft furnishings including carpets, rugs, textile window coverings etc.
- upholstered furniture
- mattresses
- bed bases
- bedding materials (pillows, mattress overlay etc.).

General skills

Used cloth material items are not required to comply with mandatory care labelling requirements.¹¹ Therefore, it is important that all persons involved in cleaning and disinfection of used cloth materials have the skills and experience required to clean and disinfect textiles properly.

All persons involved in the cleaning and disinfection of used cloth materials should be able to:

- demonstrate knowledge of textile characteristics such as types, features and finishes
- readily identify signs of infestation by thoroughly inspecting surfaces, seams etc.
- classify fibres, soils and stains
- select suitable cleaning agents
- select a suitable cleaning method
- follow business/organisation policies and procedures.¹²

Laundering

Conventional laundering processes are effective in reducing the microbial loading and spread of infestation in textiles. Conventional laundering processes include domestic or commercial grade machine-washing with detergent and hot water and dry cleaning processes. Machine-washing at:

- 60°C for 30 minutes is known to deactivate HIV



- 70°C for 10 minutes is known to deactivate most microorganisms.¹²

Textiles should be laundered in accordance with the manufacturers' instruction. Where product labelling or care instructions are not available, recommendations for the conventional laundering of clothing and textiles include:

- machine-wash in hot water (>60°C), a complete wash cycle and the use of a chemical disinfectant is recommended
- tumble dry on high heat for a minimum of 40 minutes
- hot ironing is also effective in reducing the microbial loading in textiles.

Laundry bags, where they are used, should be fit for their intended purpose i.e. able to withstand handling and transport processes, maintained in good condition, have a suitable closure system and washed after each use.¹² Cloth material laundry bags can be washed in the same cycle as the items contained in them.¹⁷

Foot wear

Microorganisms, soil, sweat and odours can build-up in footwear during use. Whilst there is no prescribed method to clean and disinfect the inside of shoes, the following recommendations are made:

- inspect exterior and interior surfaces for contaminants
- classify fibres, soils and stains
- remove insoles (if possible)
- select suitable cleaning agents, typically a solution of water and detergent is sufficient for interior cleaning
- wipe the inside of the shoe with the cleaning solution, covering all areas
- allow footwear to air-dry in a well ventilated area
- soft-surface spray disinfectant may be applied prior to sale or supply of the item. Only products specified in the Australian Register of Therapeutic Goods (ARTG) should be used: www.tga.gov.au/australian-register-therapeutic-goods.

Headwear

Head lice are not known to spread through bed linen, clothing or head wear (hats, helmets and hairpieces), though research suggests lice can survive 24-48 hours away from the host. Bacteria, sweat, dirt, dust and odour build-up can occur during the course of environmental exposure and periods of physical excursion. There is no prescribed method for cleaning headwear however, the following recommendations are made:

- shared headwear should be cleaned in accordance with the manufacturers' instruction prior to sale or supply
- suitable cleaning agents should be chosen based on the type of fibre, nature and degree of contamination
- soft-surface spray disinfectant may be applied prior to sale or supply. Only products specified in the Australian Register of Therapeutic Goods (ARTG) should be used: <https://www.tga.gov.au/australian-register-therapeutic-goods>.

Bulky textile cleaning

Bulky textiles such as mattresses, cloth furnishings and soft floor coverings are required to be cleaned to prolong the lifespan of the material and promote the health and well-being of end-users. Bulky textiles, as the term suggests, are cloth materials which cannot be cleaned and



disinfected by conventional laundering processes due to their size, shape and/or construction. Large surface areas, crevices and seams may harbour microorganisms and are more difficult to clean than clothing and other smaller textile items.

Appropriate cleaning methods, chemicals and equipment should be chosen based on the fibre type of the textile, degree and nature of contamination or infestation with regard to minimising the impact on the environment.

Cloth furnishings have the potential to harbour higher concentrations of fungi than non-porous furnishings. Careful consideration should be given to the amount of moisture applied during the cleaning process and ambient humidity conditions to assist in speeding up drying times. Drying times in excess of 24 hours may result in the growth of mould or mildew.¹³

Emerging issues

Bed bugs are becoming an emerging issue due to their increasing prevalence worldwide. The resurgence of bed bug infestation is likely attributed to the trading of used cloth materials, international travel and pesticide resistance.⁶

Bed bugs are nocturnal and can conceal themselves in mattress seams, within cracks and crevices of upholstered furniture and carpet edges, behind skirting boards or between wooden floor boards during the day. Bed bugs can walk short distances to other areas or can be carried in and on people's belongings and clothing. Bed bugs can survive for more than 6 months without feeding and can also withstand temperatures as varied as 0°C to 45°C.¹⁸

Used cloth material suppliers could inadvertently spread bed bugs. Commercial businesses and charitable organisations should attempt to demonstrate 'due diligence' by taking reasonable steps towards minimising the spread of infestation. Appropriate risk management strategies should be implemented wherever infestation is identified.

The presence of dark spots of bed bug excrement or bloodstaining on pillows, linens and in mattress seams is an indicator of bed bug infestation.

Bed Bug Treatment and Control

Inspect cloth furnishings carefully, particularly bedroom furnishing and mattresses for evidence of bed bugs. Items that are infested by bed bugs should be treated prior to disposal to landfill. Treatment prior to disposal is required because transferring infested items to another location can spread the infestation.¹⁸



Non-chemical treatments

Non-chemical treatments are safe and effective in reducing bed bug numbers prior to insecticide treatment. Treatment prior to the removal of the infested item from the area is strongly recommended to prevent the spread of infestation. Infested linen should be contained in plastic bags prior to machine-washing. Treated linen and containment materials should then be disposed to landfill immediately.



Non-chemical treatments include:

- steam ironing the seams of mattresses or other items where there is stitching or folds in the material
- application of high temperature ($\geq 50^{\circ}\text{C}$) and low vapour steam
- thorough vacuuming of edges, cracks and crevices using a vacuum cleaner fitted with a disposable dust bag. Seal the dust bag prior to disposal.
- disposal of the item to landfill.¹⁸

Chemical treatments

Chemical treatments may be applied directly to the insects and to harbourage areas identified during inspection. It is recommended that a licenced pest technician is engaged or consulted in the application of chemical insecticides to ensure:

- the appropriate use and safe handling of chemicals
- the correct use of equipment
- correct technique is applied to prevent re-deposition and/or dispersal of infestation and;
- basic infection control procedures are applied.¹⁸

A range of low toxicity products such as synthetic pyrethroids and carbamates are available for use indoors. Pesticide products which leave a residue on the treated surface are more effective over for a longer period of time than non-residual products. Less toxic residual chemicals should be used where available.¹⁸

It is important to note that some chemical treatments are only available to licensed pest management technicians.

Always read the product label before purchase to ensure the product chosen is effective in the treatment of bed bugs.

Whenever using a pesticide product, ensure appropriate personal protective equipment is worn and product label instructions are followed at all times.

Vacuuuming

Vacuuuming equipment should be well maintained and fitted with high efficiency particulate air (HEPA) filters. Bulky textiles should be vacuum-cleaned using a method that:

- minimises airborne transmissions
- removes all visible matter
- is consistent with the manufacturers' recommendations.

Hot water injection and extraction

Hot water injection and extraction, also known as hot water extraction, involves the application of heated detergent solution followed by vacuum extraction.¹³ Other cleaning methods such as liquid shampooing and/or vacuuming may be carried out in combination with hot water extraction.

Hot water injection and extraction equipment should be operated in accordance with the manufacturers' instruction. Perfumes, deodorants and disinfectants may also be used in accordance with the manufacturers' recommendation.¹³



It is important to ensure the cleaning solution is sufficiently extracted from the material to prevent mould growth. Outdoor ventilation or direct exposure to sunlight may also assist in speeding up drying times.

Mattress Cleaning

Mattresses and mattress overlays may come with labels which outline specific cleaning instructions. Where provided, the manufacturers' advice should be followed. Vacuuming can be used to assist in the reduction of dust mite allergens and other matter in mattresses that pose a risk to public health. Where steam cleaning is performed on mattresses, the recommendations for steam cleaning in this Guideline should be followed. Soft-surface spray disinfectants may also be sprayed over the entire surface area of the item to reduce the quantity of microorganisms. Ensure the mattress is completely dry after cleaning is carried out.

Steam cleaning

Steam cleaning involves the application of steam, generated from heated water, to clean soft surfaces. Whilst steam cleaning requires the application of moisture, increasing the potential for mould growth, steam cleaning can be effective in:

- stain removal
- deep cleaning
- reducing the presence of bacteria, bed bugs and dust mites.

There are a variety of steam cleaning units available on the market. Generally steam cleaning units should be able to produce steam at a continuous low vapour flow and high temperature. Steam cleaning should only be used on soft surfaces that are able to withstand the application of intense heat. Soft furnishings contaminated with diarrhoea or vomit should be cleaned immediately with detergent and hot water (>60°C), followed by steam cleaning to prevent the transmission of bacteria e.g. salmonella.

The attachment of the steam cleaning unit should be placed in direct contact with the surface being treated. Appropriate time and temperature controls should be applied alongside correct techniques to prevent re-deposition and/or the dispersal of infestation. Steam cleaning units should always be operated in accordance with the manufacturers' recommendation.

Carpet cleaning

Commercial businesses may request or periodically require specialist carpet cleaning where visible contamination or infestation is identified. It is recommended that a skilled technician who is a member of a recognised industry association, such as the Carpet Cleaning Association of Western Australia (CCAWA), is engaged to ensure:

- the appropriate use and safe handling of chemicals
- the correct use of cleaning equipment e.g. wet or dry foam machine, liquid shampoo equipment, absorbent compound extraction equipment, hot water injection and extraction equipment etc.
- correct technique is applied to prevent re-deposition and/or dispersal of infestation, and
- basic infection control procedures are applied.

Carpets that have been soiled by faeces or vomit should not be vacuum cleaned, as viruses may be recirculated. Carpets should be cleaned with detergent and hot water followed by steam cleaning.



Carpets that are infested with fleas may contain fleas in all stages of their development. Steam cleaning assists in the reduction of fleas, however some eggs may survive the steam cleaning process and hatch after treatment. Consultation with a professional carpet cleaning company will assist in determining whether steam cleaning is a suitable treatment method for managing infestation.

Storage

Clean items should be stored in a dedicated storage area using a method that will ensure cleanliness and protection from vectors of disease, dust, aerosols, moisture and contact with soiled or contaminated items. Storage areas should be clean and dry and should facilitate stock rotation. Prolonged storage is not recommended due to concerns relating to mildew growth.^{12,14,17}

Cleaning the premises

Routine cleaning of work areas is important because dust, dirt, viruses and/or bacteria on surfaces can transmit infection. A cleaning program should be developed for each area including equipment.¹²

Products used for general cleaning are at the discretion of the premises but must be suitable for purpose. As a general rule, detergent and water are all that is required for general cleaning.¹⁹ Chemical disinfectants are not recommended for routine cleaning unless environmental contamination from cloth materials has occurred.

In general, when cleaning equipment:

1. wear appropriate personal protective equipment, check manufacturers' advice or relevant Material Safety Data Sheet for chemicals being used
2. dismantle or fully open items to ensure all contact surfaces are able to be effectively cleaned
3. immerse a clean, single-use cloth in a solution of warm water and detergent and wipe over all contact surfaces
4. apply disinfectant (if required) and allow to air dry
5. inspect the item for cleanliness and completeness.

Waste management

Disposal of waste

Waste should be managed in the following manner:

- general waste should be disposed of into a lined waste container with a tight fitting lid that is easily accessible and disposed of via normal refuse collection
- dry solid waste generated by vacuum operated equipment may contain potentially harmful biological and chemical allergens and should be contained in sealed bags and disposed of via normal refuse collection
- sharps containers should be disposed of in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004* using a licensed controlled waste carrier. Contact the Department of Environment and Regulation for more information on sharps disposal



- laundry waste, detergents used for cleaning and some acidic or alkaline textile chemical treatments should be disposed in a manner which is approved by a relevant local authority. A trade waste permit may be required to discharge wastewater to sewer. Where required, consult with your local environmental health officer regarding appropriate methods for the safe disposal of wastewater.

Other agencies requirements

Industry workers should be aware of other agencies that may have a regulatory or advisory role related to their industry. Some agencies to be aware of include:

WorkSafe WA- www.commerce.wa.gov.au/worksafe/

WorkSafe is a division of the Department of Commerce, the WA State Government agency responsible for the administration of the *Occupational Safety and Health Act 1984*.

The principal objective of the *Occupational Safety and Health Act 1984* is to promote and protect the safety and health of people, including visitors, in the workplace.

Therapeutic Goods Administration - www.tga.gov.au

The Therapeutic Goods Administration (TGA) is part of the [Australian Government Department of Health and Ageing](http://www.health.gov.au), and is responsible for regulating therapeutic goods including medicines, medical devices, blood and blood products.

This includes goods such as:

- chemicals and disinfectants.

The TGA administers the *Therapeutic Goods Act 1989*. This legislation provides a framework for a risk management approach that allows the Australian community to have timely access to therapeutic goods which are consistently safe, effective and of high quality.

National Industrial Chemicals Notification and Assessment Scheme (NICNAS) - www.nicnas.gov.au

NICNAS aids in the protection of the Australian people and the environment by assessing the risks of industrial chemicals and providing information to promote their safe use.

Laundry Association Australia

The Laundry Association (Australia) Limited (LAA) represents commercial textile merchants, commercial laundries and general industry requiring commercial laundering of textile products and the related supply chain. The LAA provides professional best practice advice to improve competency and skills within the industry.



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