

## References

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## Resources

For other booklets and resources visit the Grampians Region Health Collaborative Website—Infection Control at:  
<http://infectioncontrol.grampianshealth.org.au>

## Cartoons in this booklet by

<http://www.davegibb.com.au/index.htm>

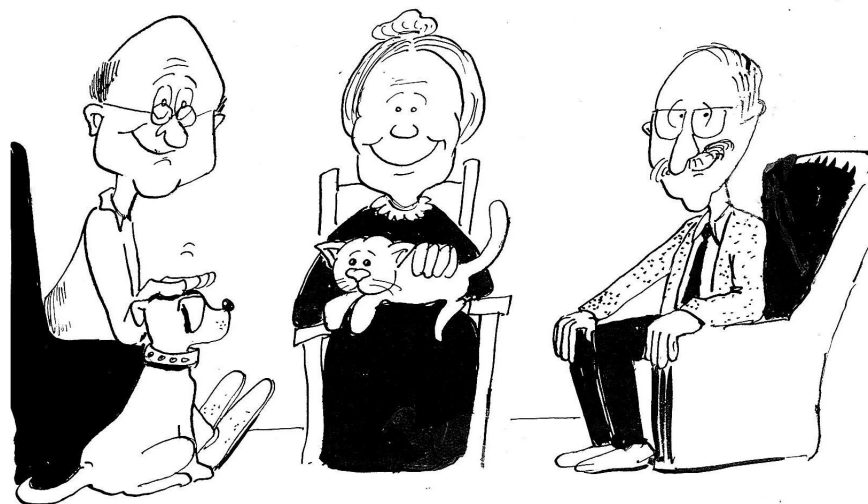


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## A LITTLE YELLOW INFECTION CONTROL BOOK

# INFECTION PREVENTION IN RESIDENTIAL AGED CARE



**Grampians Region Infection Control Group  
2019**

## ABOUT THIS BOOK

The Infection Prevention in Residential Aged care Booklet is one of a series of booklets designed to fill the need for simple, point-of-first-use infection control information.

It is not designed to be a comprehensive Infection Control Manual. Practitioners seeking detailed information should refer to their agency Infection Control Manual/Infection Control Consultant. The inclusion of many visuals should facilitate learning in “visual learners”, and the inclusion of humorous cartoons is designed to aid memory.

This booklet builds on the concepts contained In the Original Little Yellow Infection Control Book

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## Sodium Hypochlorite (Bleach, Chlorine) – Concentrations Required for Disinfection

Concentrated chlorine with 4% available chlorine (household bleach) can be diluted using the table below to achieve the concentrations shown

Granular Chlorine (5,000 ppm Sachet) dilution

Water volume to which chlorine added	200 ppm	500 ppm	1,000 ppm	5,000 ppm	One sachet 5,000 ppm	Water volume to which chlorine added
1 litre	5 ml chlorine	12.5 ml chlorine	25 ml chlorine	125 ml chlorine	5,000 ppm (1 sachet)	1 litre
5 litres	25 ml	62.5 ml	125 ml	625 ml	1,000 ppm	5 litres
10 litres	50 ml	125 ml	250 ml	1250 ml	500 ppm	10 litres
50 litres	250 ml	625 ml	1250 ml	6250 ml	200 ppm	25 litres

USE	DILUTION
Blood / body fluid spills	5,000 ppm
Clostridium difficile	5,000 ppm
Viral gastroenteritis/ Pandemic flu	1,000 ppm
VRE	500 - 1,000 ppm
Food preparation area	200 ppm

Note: Sachets come in different strengths – check strength before diluting to desired concentration.

Sanitisers/disinfectants will not work correctly if the surface to be sanitised has not been thoroughly cleaned first.

Sanitisers will only work correctly if they are used in the correct concentrations and the instructions are followed.

The effectiveness of chemical sanitisers can be directly affected by:

- temperature
- pH
- concentration of the sanitiser solution used (too little or too much)
- hardness of the water.

## Laundering of Residents' Personal Clothing

Many Residential Aged Care facilities are called upon to launder residents' personal clothing when resident's relatives cannot provide such a service.

Once this obligation is undertaken the agency has a requirement to meet the Australian Laundry Standard for Laundry Practice AS/NZS 4146.

This standard specifies that on completion of the laundering process the processed linen have a residual microbial load of not more than 1 micro-organism/cm<sup>2</sup>.

This specification can be met in one of three ways -

- Clothing sent to a commercial/regional laundry service for processing
- Clothing processed in a front-loading washer capable of processing at 65° C for 12 minutes to achieve thermal disinfection
- Clothing processed in a top-loading washer with warm or cold water using a chemical disinfectant at the correct concentration which contains an oxygen bleach sanitiser to achieve chemical disinfection. An example of a chemical disinfectant which meets all requirements in a single chemical is "Clinic" (Dominant Chemicals) Chemical disinfection is not considered adequate where there is an outbreak of an infection.

Other requirements in the Laundry Standard which must be met are prevention of re-contamination of laundry- in -process, and processed linen in storage as outlined:

- Handling of soiled linen with gloved hands
- Hand hygiene after glove removal and before handling clean linen, or linen being loaded from washer to dryer
- Complete drying of linen prior to storage and distribution
- Complete separation of clean and in -process -linen from soiled linen
- A comprehensive and **audited** cleaning program for the laundry
- Education of all staff involved in soiled linen transport, laundering, and transport/storage of clean linen in infection control techniques.



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## Infection risks in Residential Aged Care



* Constitutional Criteria	
<b>A Fever</b>	Single oral temp $>37.8^{\circ}\text{C}$ or repeated oral temp $>37.2^{\circ}\text{C}$ / rectal temp $>37.5^{\circ}\text{C}$ or single temp $>1.1^{\circ}\text{C}$ over baseline from any site
<b>B Leukocytosis</b> – as according to full blood examination results	1. Neutrophilia - ( $>14,000$ leucocytes/ $\text{mm}^3$ ) 2. Left shift ( $>6\%$ bands or $\geq 1,500$ bands/ $\text{mm}^3$ ) * Neutrophils - type of leucocyte * Left shift - increase in number of immature leucocytes in the peripheral blood)
<b>C Acute change in mental status from baseline</b>	Acute onset, fluctuating course and inattention AND either disorganized thinking or altered level of consciousness
<b>D Acute functional decline</b>	Increase in daily living activity score, bed mobility, transfer, mobility, dressing, toilet use, personal hygiene, eating

### Criteria NOT used to meet infection surveillance definitions:

**Behaviour and mental status changes alone** - While behaviour & mental status changes can be important health indicators that require evaluation and follow-up, mental status changes without additional clinical symptoms will not meet infection surveillance definitions.

**Falls** - Falls should be evaluated and interventions to promote safety implemented, but published studies indicate that a resident fall without additional signs or symptoms of infection is not included as a criterion that meets infection surveillance definitions.

**Foul-smelling urine** - Malodorous urine can be caused by several factors, including dehydration, diet, medication, or the presence of specific bacteria. Foul-smelling urine alone does not indicate the presence of UTI.

**Positive urinalysis (UA) or urine culture (UC)** - Urine does not typically contain bacteria, yeast, or white blood cells (pus or pyuria) in younger, healthy people. However, bacteria and pus are frequently found in the urine of elderly and debilitated people due to increased age, chronic disease, functional impairment, invasive devices, dehydration, and other risk factors. A positive UA or UC in the absence of other clinical symptoms of UTI does not meet the infection surveillance definitions.

Reference - Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria. *Infection Control and Hospital Epidemiology*, Vol. 33, No. 10 (October 2012)

## Skin Infection Criteria

<u>Cellulitis/soft tissue/ wound infection</u>	<b>Both</b> of the following criteria must be met <i>(Distinguish between necrotic tissue breakdown/slough in the pressure sores. These wound will often be colonised not infected)</i>	1. Pus present at a wound, skin or soft tissue site 2. <b>Four</b> or more of the following criteria At the affected site, new or increasing a) Heat b) Redness c) Swelling d) Tenderness or pain e) Serous drainage f) <b>One</b> of the constitutional criteria* <b>(see page 15)</b>
<u>Fungal skin infection</u>	<b>Both</b> of the following criteria must be met	1. Characteristic rash or lesions 2. Doctor or laboratory confirmation
<u>Herpes simplex or zoster infection</u>	<b>Both</b> of the following criteria must be met	1. Vesicular rash 2. Doctor or laboratory confirmation
<u>Scabies</u>	<b>Both</b> of the following criteria must be met	1. Maculo-papular rash 2. Doctor or laboratory confirmation and/or epidemiological linkage to another confirmed case of scabies

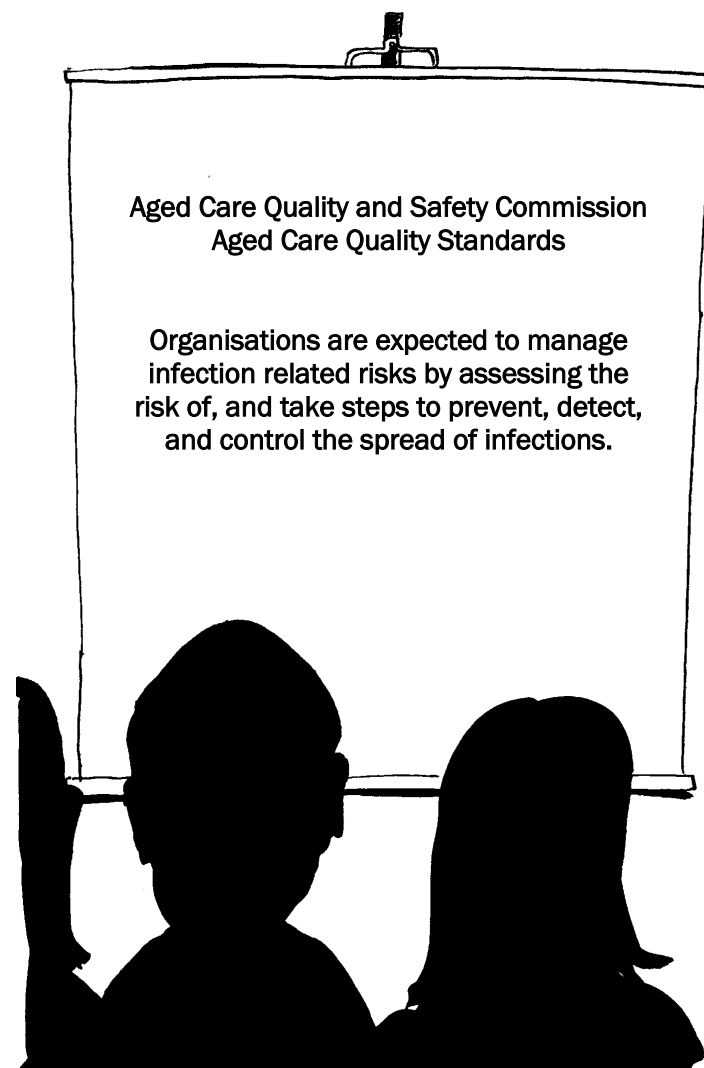
## Gastroenteritis Criteria

### Eye Infection Criteria

<u>Gastroenteritis</u>	<b>One</b> of the following criteria must be met  <i>Take care to ensure not caused by medications or underlying medical disease.</i>	1. Diarrhoea: three or more loose or watery stools within a 24 hour period 2. Vomiting: two or more episodes of vomiting in a 24 hours period 3. Both of the following a) A stool culture positive for a pathogen and b) At least <u>one</u> of nausea, vomiting, abdominal pain or tenderness, +/- diarrhoea
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<u>Conjunctivitis</u>	<b>One</b> of the following criteria must be met <i>Symptoms must not be due to allergy or trauma</i>	1. Pus appearing from eye/s, present for at least 24 hours 2. New or increased conjunctival redness +/- itching or pain for >24 hours
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Residential Aged Care facilities have a Duty of Care to monitor and prevent infections



## Older people are more vulnerable to infections



### Respiratory Tract Infection Criteria

<u>Common cold/ pharyngitis</u>	<b>Two</b> of the following signs or symptoms. <i>Fever may or may not be present. Ensure symptoms are not caused by allergies.</i>	<ol style="list-style-type: none"> <li>1. Runny nose or sneezing</li> <li>2. Stuffy nose (i.e. congestion)</li> <li>3. Sore throat or hoarseness or difficulty in swallowing</li> <li>4. Dry cough</li> <li>5. Swollen or tender glands in the neck</li> </ol>
<u>Lower respiratory tract infection</u>  <u>Bronchitis/ tracheobronchitis</u>	<b>All three</b> criteria must be met	<ol style="list-style-type: none"> <li>1. Chest x-ray <u>not</u> performed</li> <li>2. At least <b>one</b> of the <b>constitutional criteria*</b> (Page 53)</li> <li>3. At least <b>two</b> of the following <ul style="list-style-type: none"> <li>• Increased cough</li> <li>• Increased sputum production</li> <li>• Pleuritic chest pain</li> <li>• New or changed lung abnormalities on examination</li> <li>• O2 Saturation &lt;94% on room air or a reduction of &gt;3% from baseline</li> <li>• Respiratory rate &gt;25 per minute</li> </ul> </li> </ol>
<u>Influenza like illness</u>	<b>Both</b> criteria 1 & 2	<ol style="list-style-type: none"> <li>1. Fever</li> <li>2. At least <b>three</b> of the following signs and symptoms <ol style="list-style-type: none"> <li>a) Chills</li> <li>b) New headache or eye pain</li> <li>c) Myalgia or body aches</li> <li>d) Malaise or loss of appetite</li> <li>e) Sore throat</li> <li>f) New or increased dry cough</li> </ol> </li> </ol>
<u>Pneumonia</u>	<b>All three</b> criteria must be met <i>If a previous radiograph exists for comparison the infiltrate should be new.</i>	<ol style="list-style-type: none"> <li>1. Recent chest xray showing pneumonia or new infiltrate</li> <li>2. At least <b>one</b> of the <b>constitutional criteria*</b> (Page 53)</li> <li>3. At least <b>one</b> of the following signs and symptoms <ul style="list-style-type: none"> <li>• Increased cough</li> <li>• Increased sputum production</li> <li>• Pleuritic chest pain</li> <li>• New or changed lung abnormalities on examination</li> <li>• O2 Saturation &lt;94% on room air or a reduction of &gt;3% from baseline</li> <li>• Respiratory rate &gt;25 per minute</li> </ul> </li> </ol>

## McGeer's Definitions for Health care Associated Infection for Surveillance in LTCF

### Urinary Tract Infection Criteria

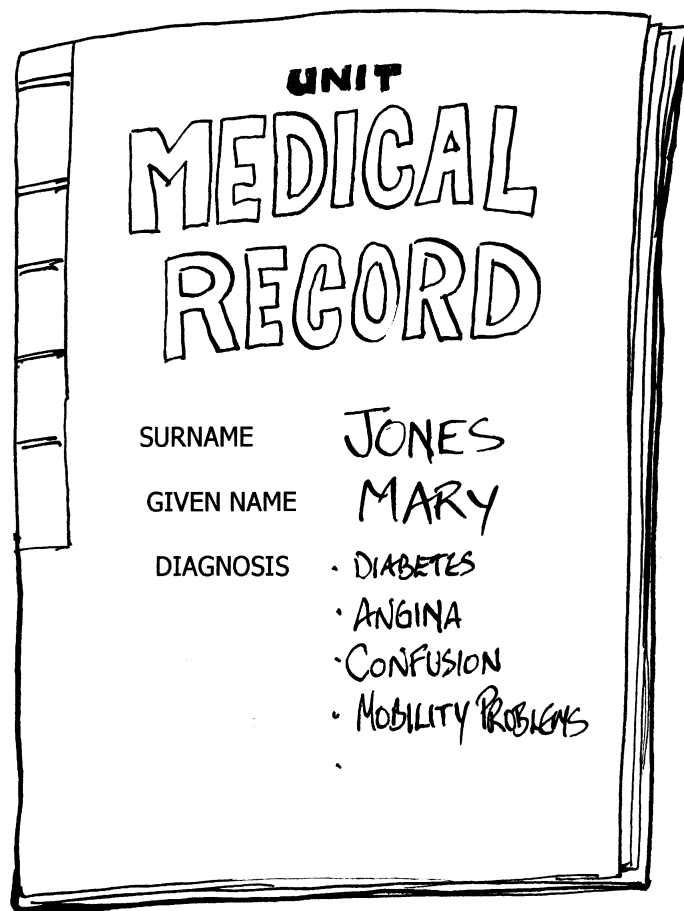
Urinary tract infection includes only symptomatic UTIs. *Asymptomatic bacteriuria* i.e. the presence of a positive culture in the absence of new signs and symptoms of UTI is NOT included

<b>UTI - With IDC</b> Must have at least one criteria: <ol style="list-style-type: none"> <li>1. Fever, rigors or new onset hypotension, with no alternate site of infection</li> <li>2. Either acute change in mental status or acute functional decline with no alternate diagnosis and leucocytosis</li> <li>3. New onset supra-pubic pain or costo-vertebral angle pain or tenderness</li> <li>4. Purulent discharge from around the catheter or acute pain, swelling or tenderness of the testes, epididymis or prostate</li> </ol>	<b>UTI - Without IDC</b> Must have at least one criteria: <ol style="list-style-type: none"> <li>1. Acute dysuria or acute pain, swelling or tenderness of the testes, epididymis or prostate</li> <li>2. Fever or leucocytosis and one localised urinary tract sub-criteria</li> <li>3. In the absence of fever or leucocytosis, two or more localised urinary tract sub-criteria</li> </ol>
<b>Localised urinary tract criteria:</b> <ol style="list-style-type: none"> <li>1. IF fever or leucocytosis present, acute costo-vertebral angle pain or tenderness</li> <li>2. Supra-pubic pain</li> <li>3. Gross hematuria</li> <li>4. New or marked increase in incontinence</li> <li>5. New or marked increase in urgency</li> <li>6. New or marked increase in frequency</li> </ol>	

### Deterioration of body defences makes aged residents vulnerable to infections

Decreased tear production	<ul style="list-style-type: none"> <li>• Eye infections</li> </ul>
Decreased oral hygiene Ill fitting dentures	<ul style="list-style-type: none"> <li>• Mouth infections</li> <li>• Gum infections/ulcers</li> </ul>
Decreased gastric acid production in stomach	<ul style="list-style-type: none"> <li>• Susceptibility to gastro-intestinal infections</li> </ul>
Decreasing cough ability Decreased respiratory tract protection	<ul style="list-style-type: none"> <li>• Respiratory tract infections</li> </ul>
Decreased vaginal secretions Double incontinence	<ul style="list-style-type: none"> <li>• Vaginal infections</li> </ul>
Urinary and/or faecal incontinent	<ul style="list-style-type: none"> <li>• Urinary tract infections</li> </ul>
Effects of urine/faeces on skin Loss of skin resilience and repair capability	<ul style="list-style-type: none"> <li>• Susceptibility to skinbreak-down and infection</li> </ul>
Decreased efficiency of white blood cells	<ul style="list-style-type: none"> <li>• Decreased killing of micro – organisms</li> </ul>
Decreased efficiency of white blood cells which produce protective antibodies	<ul style="list-style-type: none"> <li>• Diminished protective immunity</li> </ul>
Decreased efficiency of a number of body defence mechanisms	<ul style="list-style-type: none"> <li>• Re-activation of previous infections, eg. TB, Shingles</li> </ul>

A lifetime's accumulation of diseases increases resident susceptibility to infections



## INFECTIONS IN RESIDENTIAL AGED CARE

Reported rates of infection in residents of long-term care facilities are usually within the following ranges:

All infections	2.6–9.5 per 1,000 bed days
UTI	0.2–2.4 per 1,000 bed days
Respiratory	0.46–4.4 per 1,000 bed days
Skin/soft tissue	0.09–2.1 per 1,000 bed days *

\* Nicolle LE, Strausbaugh LJ, Garibaldi RA, *Infections and antibiotic resistance in nursing homes. Clin Microbiol Rev* 1996;9:1-7

However, infections may occur in long-term-care from time to time in the form of Gastroenteritis or Influenza Outbreaks.

Outbreaks of skin infestations such as Scabies, or Pediculosis may occur as a result of admitting a resident who has had sub-optimal hygiene



The following three pages contain examples of Infection definitions used in Residential Aged Care.

Please note that the definitions and action flowcharts used in your facility may be slightly different.

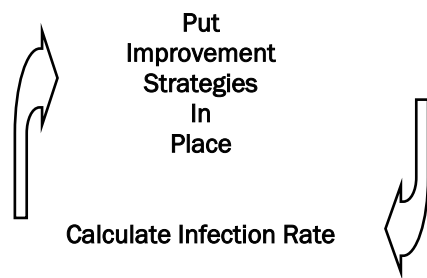


## Residential Care Infection Surveillance

Infection Control Surveillance is the monitoring of the incidence of infection to determine the rate of each type of infection. Having established the rate of infections this month/quarter/year, the rate can then be compared with previous periods to ascertain if it is increasing/decreasing.

Rates in similar facilities can also be compared (benchmarking).

### Quality Improvement Cycle



Some examples of recording infection rates:

- Number of urinary tract infections per 1000 resident days
- Influenza infections per total number of residents/staff immunised

## Very advanced age

**dramatically increases infection susceptibility and consequences of infections**



At age 65

At age 88

## Resident susceptibility to infection is substantially increased by the presence of indwelling medical devices



- Staff to report any respiratory illness in themselves
- Case List of all cases – both residents and staff to be kept ( signs and symptoms, bed position in unit, dates of onset and cessation of illness)
- Viral swabs (special culture medium) obtained from affected cases as soon as possible, and forwarded to Influenza Reference Laboratory (VIDRL) under cold transport conditions
- Staff/ volunteers who are symptomatic should not work at any other unit/ agency while the outbreak persists
- Anti-viral prophylaxis may be offered to staff and residents
- Flu vaccine should be offered to all non-immunised residents and staff
- Visitors should be informed of risk, educated in hand hygiene techniques (alcohol rub is easiest), be kept to a minimum, ill persons and children should not visit, should not visit any other resident, visitor restriction signs should be placed at the entry points, and on the doors of affected residents
- Thorough, frequent cleaning followed by disinfection of objects is important (detergent/water), followed by sodium hypochlorite 1,000 ppm ((refer to dilution table on last page), leave to air dry. Alternatively alcohol wipes may be more convenient for disinfection of items
- Pay particular attention to ensuites, hand rails, door knobs, tables - anything touched by residents
- Used tissues should be bagged and disposed of as Infectious Waste.

## Respiratory Outbreak Control Measures

Influenza can have a high attack rate in aged care facilities, even among immunized residents and staff.

### Notifications

- Notify Infection Control Consultant/Director of Nursing/Medical Officer

### Transmission

- Respiratory viruses are transmitted in droplet form by respiratory secretions and by contact with vehicles such as used tissues
- Hand contact with infected items plays a large role in infection transmission, eg. common-touch surfaces.

### Control Measures

- Hand hygiene (alcohol rub) before and after all resident contact
- Use gloves and masks when attending to affected residents
- Gowning is not necessary, unless carer's clothing is likely to become grossly contaminated
- Restrict affected residents to their rooms until 5 days after onset of infection, or until symptoms have completely resolved (unless this restriction is too distressing for resident)
- If cases are confined to one wing/ unit residents should avoid contact with residents from other wing/ unit
- Staff with current immunisation should care for affected residents, and not cross to unaffected areas
- New admissions should be postponed until facility returns to normal functioning
- If transfer out of resident is necessary, the receiving agency must be informed of the outbreak prior to reception
- Communal activities may need to be curtailed while the outbreak is still evident.

Close contact with other residents may allow easy spread of infections





### *Prevention of Transmission*

#### **Follow your organizational policy.**

Limit movement of clients into or out of unit until outbreak is over. Staff must not work on other units.

If clients require transfer out for urgent medical reasons inform receiving facility.

Maintain a Case List of ill clients and staff, bed position in unit, onset, signs and symptoms; and cessation of illness.



#### **Contact Precautions**

- Use separate room and bathroom for affected clients
- Scrupulous attention to hand washing by both residents and staff
- Glove and disposable gown use for resident contact. Staff in **close** contact with affected residents should wear P2/N95 mask
- Education of resident in mode of transmission and hand washing
- Restrict visitors
- If visitors allowed to unaffected residents they must wash their hands on departure
- Cleaning with warm water/detergent, drying and application of sodium hypochlorite 1,000 ppm (refer to dilution table on last page) to all environmental surfaces and common-use equipment. Leave on surfaces for 10 mins, then rinse off using warm water and clean cloth
- Encourage natural ventilation through open windows
- Kitchen hygiene will be reinforced by the Environmental Health Officer
- Steam clean carpets or drapes if contaminated with faeces/vomit
- **Affected staff must be excluded from work for at least 48 hours after symptoms have ceased, and on return to work employ scrupulous hand washing practices**
- Report escalation of cases to Infection Control Consultant and Regional Environmental Health Officer
- Inform **all** staff of measures to be taken (clinical, laundry, kitchen)
- Maintain all preventive measures for at least 72 hours after last case has recorded diarrhoeal episode.

## Gastro Outbreak Control Measures

Gastro in the elderly client can be very debilitating and sometimes fatal.

Gastro can spread rapidly through a residential care facility affecting large numbers of clients and staff.

### Transmission

Common viral and bacterial organisms causing gastroenteritis are spread by the faecal-oral route. This can lead to person to person transmission, spread by contact with contaminated surfaces, contact with infected objects, and food or water.

**There is evidence that norovirus can be transmitted by the airborne route. Norovirus is the most common causative organism in Residential Aged Care outbreaks.**

In most outbreaks the **source** of the infection will be impossible to determine. However, analysis of faecal samples will identify the causative organism.

#### *An outbreak is:*

Two or more residents/staff with unexplained vomiting/diarrhoea within the last 72 hours. Diarrhoea caused by effects of medication particularly aperients, change in diet, effects of hot weather; need to be eliminated.

#### *If diarrhoea is unexplainable due to the factors above contact:*

- Notify Nursing Administrator, Infection Control Consultant, residents' Medical Officers

Nursing Administrator/Infection Control Consultant will contact Department of Health & Human Services Regional Environmental Health Officer.

Collect faecal samples from affected persons (residents and staff) identifying pathology request to identify "**Clinical Area**" and

**"Outbreak"** (month/year)

Faecal samples can be collected up to 7 days after cessation of diarrhoea/vomiting.

Consult your pathology service regarding transport of specimens to Microbiological Diagnostic Unit (MDU), or these may be collected by Local Council Environmental Health Officer.

## Preventing Infection by Promoting Resident Health and Mobility

### Eye Care

Using each residents towel/face washer only

Individual eye drops and eye toilet supplies

Hand hygiene prior to eye care

### Mouth Care

Adequate mouth hygiene

Attention to developing mouth conditions

Well-fitting dentures

Tooth-cleaning gear kept in hygienic conditions

### Skin Care

Prompt removal of products of incontinence

Adequate skin hygiene

Prevention of unrelieved pressure

Early treatment of developing skin breaks

### Nutritional Care

Adequate protein, vitamins, minerals in diet

Adequate fluid intake

### Immunization

Annual influenza vaccine

Five yearly pneumococcal vaccine (twice only)

### Maintenance of Mobility

Rectify all factors preventing/inhibiting mobility, where possible.



### VRE (continued)

- Resident may attend communal areas, activities if:
  - not faecally incontinent
  - not demented
  - clean clothing and hand washing attended prior
- Notification of status is required if resident is transferred to another unit/facility
- Infection control and medical input is required before discontinuance of Contact Precautions
- Thorough terminal cleaning and disinfection of room when precautions discontinued.



## VRE

Vancomycin-resistant enterococci are descendants of microbes normally present in the gastrointestinal tract, which have become resistant to many antibiotics, including Vancomycin.

VRE are transmitted by contact with infected /colonised residents, and the items which they have contacted.

VRE is most often acquired by a resident during an acute admission to hospital.

### Contact Precautions

- Single room with en suite preferred
- Hand washing with antimicrobial wash or Chlorhexidine /alcohol hand rub after all resident contacts
- Protective gloves/apron for personal care and when handling soiled linen
- Thorough cleaning of bedroom and en suite with hot water/detergent, drying, then application of sodium hypochlorite 500 ppm (1,000 ppm may be preferred in outbreak situation (refer to back page for dilution table). leave to air dry. A combined detergent/disinfectant may be used in one step cleaning
- Individual resident equipment/supplies
- If shared equipment must be used clean and disinfect as above
- Normal processing of soiled linen, waste and crockery
- Resident educated regarding modes of transmission and hand washing, if possible
- Particular cleaning attention to communal areas eg: door knobs, bathrooms
- Visitors educated regarding modes of transmission, hand washing, protective clothing, etc.

## Preventing Infection by Blocking Transmission Pathways





### MRSA (continued)

- Wounds kept covered with fresh dressings
- Other colonised areas kept covered with clean clothing
- Affected residents should **not** be excluded from group activities—areas covered and residents to wash hands prior to socialising
- Visitors should be instructed in modes of transmission, and hand washing, and **may** choose to wear a gown and gloves if in direct contact with resident
- Equipment should be resident-specific, or washed thoroughly before use on other residents (or alcohol wipe if not visibly soiled)
- Thorough cleaning of residents environment, but disinfectants not required, unless there is evidence of an outbreak
- Soiled linen, used crockery, and waste are treated as usual
- If resident is transferred to another unit or agency notification of status must be provided
- Infection control and medical officer inputs are required before discontinuance of Contact Precautions
- When Contact Precautions are discontinued the room is thoroughly cleaned with detergent and water, screens and curtains changed, everything in room changed, e.g. nurse call handpieces changed or cleaned
- No supplies from room are reused. (MRSA transmission in acute facilities have been traced to reuse of adhesive tape rolls)
- The residents colonised state may persist for a long period—months, years.



## MRSA

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a microbe which is resistant to many antibiotics, including Methicillin. MRSA can be contracted during an acute hospital admission or from members of the community. There will often be several residents in a Residential Aged Care facility with unrecognised MRSA.

MRSA is spread by contact with the infected/colonised person, and by indirect contact via articles which have been in contact with the infected/colonised person.

Residents are more likely to have a colonisation, rather than an active infection (the number of organisms shed is likely to be smaller). However, vulnerable residents (those with open wounds, invasive medical devices) may become infected through contact.

Residents with serious MRSA infections of wounds or chest infections with copious sputum are likely to be heavy dispersers of MRSA (but are most likely to be in acute care).

### Contact Precautions

- Single room with en suite preferred
- If single room is unavailable a room shared with a low-risk room-mate, i.e. no open skin areas, no tubes, not debilitated/bed-bound
- If a bathroom must be shared it will require scrupulous cleaning with detergent and water
- Hand hygiene with Chlorhexidine/alcohol hand rub or hand washing after all direct resident contact/contact with resident care equipment /glove removal
- Protective gloves/apron when contamination likely.

## Chest Infections

Chest infections (pneumonias) may be viral or bacterial. Influenza is one common viral infection which is very contagious, and experts advise that all residents and staff have an annual influenza immunisation.

*Early signs of chest infection may include:-*

- **increased respiratory rate ( >24 respirations/min.)**
- dyspnoea/ increased shortness of breath
- increased disorientation/onset of disorientation
- increased falls
- fever (may not be a prominent, or early feature)
- cough
- residents with swallowing difficulties or tube fed are at particular risk

### Diagnosis

Medical assessment and chest X-Ray

### Transmission

Respiratory secretions

### Prevention

- Cough etiquette practised by staff, visitors, other residents
- High levels of influenza immunization uptake among both residents and staff
- Five yearly pneumococcal immunisation for residents
- Single room with **Contact /Droplet Precautions** for affected resident
- Staff and resident hand hygiene (alcohol rub is easiest)
- Rigorous environmental cleaning and disinfection of environmental surfaces in the outbreak situation.

(see page 46 - Respiratory Outbreaks)




## CONTACT PRECAUTIONS

IN ADDITION TO STANDARD PRECAUTIONS



**- VISITORS -**

PLEASE SEE NURSE IN CHARGE PRIOR TO ENTERING

Before entering room:	
	<b>Put on apron or gown</b>
	<b>Perform hand hygiene and put on gloves</b>
On leaving room:	
	<b>Discard gloves and apron</b>
	<b>Clean patient-related equipment</b>
	<b>Perform hand hygiene</b>



**AUSTRALIAN COMMISSION ON  
SAFETY AND QUALITY IN HEALTHCARE**

## Multiple Drug-Resistant Organisms (MROs)

Antibiotic resistance is the ability of many micro-organisms to develop resistance to individual antibiotics or whole groups of antibiotics by mutation or gene-transfer. The development of resistance is favoured in clinical environments in which particular antibiotics or groups of antibiotics are intensively used.

MROs include:

- MRSA
- VRE
- and many other micro-organisms

## Prevention of MRO Transmission

- Treat **all** residents as if they have undiagnosed MROs by:
  - using **hand hygiene** between each resident contact—alcohol hand rub, alcohol hand rub with an added antiseptic such as chlorhexidine or triclosan, or hand washing
  - sanitise all patient care equipment between resident use by using detergent wipe if visibly soiled / alcohol wipe if not soiled
- CONTACT PRECAUTIONS applied in a common-sense manner are usually the only additional measures required for residents **identified** as having MRO's.

## Eye Infections

Conjunctivitis (eye inflammation) may be due to an 'eye infection' (bacterial or viral), or by contact with irritants e.g. face washers which have been laundered but still contain some laundry chemical; or simply dust in "dry eye".

Infectious conjunctivitis can spread through a residential care facility due to transmission by staff hands or contaminated shared eye drops, or eye toilet supplies.

### *Clinical Features*

- Red eye, sticky with discharge
- Intensely irritating for resident

### *Treatment and Prevention of Spread*

- Eye toilets using individual supplies/eye drops
- Installation of prescribed antibiotic drops/ointment
- Scrupulous hand hygiene prior to eye care
- Ensure affected residents towels, face washers are kept separate
- Ensure all residents towels and face washers are kept separate
- Disinfect bathroom towel rails between residents, if en suite facilities are not available
- In the event of an epidemic increase cleaning of all "common-touch" surfaces, and disinfect with alcohol wipes, or appropriate wipes often.



## Prevention of Catheter-Acquired Infections

- Aseptic technique should be used for catheterisation
- Catheterisation should be avoided if at all possible
- The appropriate indwelling catheter should be used for long-term care, long-term silastic catheter, or latex with bonded silicone or hydrogel coating lasts up to 12 weeks. Catheters coated with slow release antiseptic or silver may be used in specific circumstances.

**Breaking the closed drainage system should be avoided at all costs:**

- Routine (non-prescribed) bladder washouts are not seen by experts as useful, and present a further possibility for acquiring infection
- CSU specimens should be obtained by **aseptic** puncture of the drainage lumen i.e.: alcoholic prep of tubing and sterile syringe and needle
- Connect leg bag, if in use, to disposable overnight drainage bag, rather than breaking the closed system
- Empty the drainage bag as **infrequently** as possible
- Wash hands before and after handling the drainage system
- Use disposable gloves when emptying the drainage system, and use a clean container which does not touch the drainage outlet
- Antiseptics are not recommended for perineal/meatal toilets, but scrupulous hygiene at showering and following faecal incontinence episodes
- Maintain drainage bag below bladder level, avoiding contact with the floor, and avoiding compression of the bag/ backflow into urinary bladder.

## Catheter-Acquired Infections

Can occur at time of catheter insertion due to poor aseptic technique.

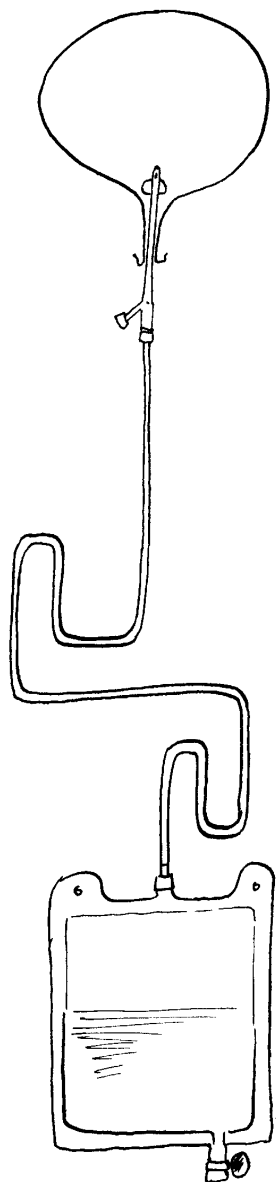
Due to installation of contaminated bladder washout fluid.

Chance of infection increases the longer catheter remains in situ.

Infection tracks up outside of catheter in urethral exudate, and in the bio-film which accumulates on the internal walls of the catheter.

Potential for infection occurs whenever closed system broken, e.g. if becomes disconnected or is disconnected to obtain CSU.

Contamination within drainage bag caused at emptying travels up tubing in air bubbles, or fluid back flow due to pressure on bag and incompetent valve.



## Gastroenteritis (gastro)

Infectious gastroenteritis may be viral or bacterial, or due to bacterial toxins in food.

Viral gastroenteritis can spread extensively through a residential care facility with new residents becoming infected every few days (refer to Gastro Outbreak Guidelines).

### *Clinical Features*

Diarrhoea often accompanied by abdominal cramps  
Vomiting may, or may not, be a feature.

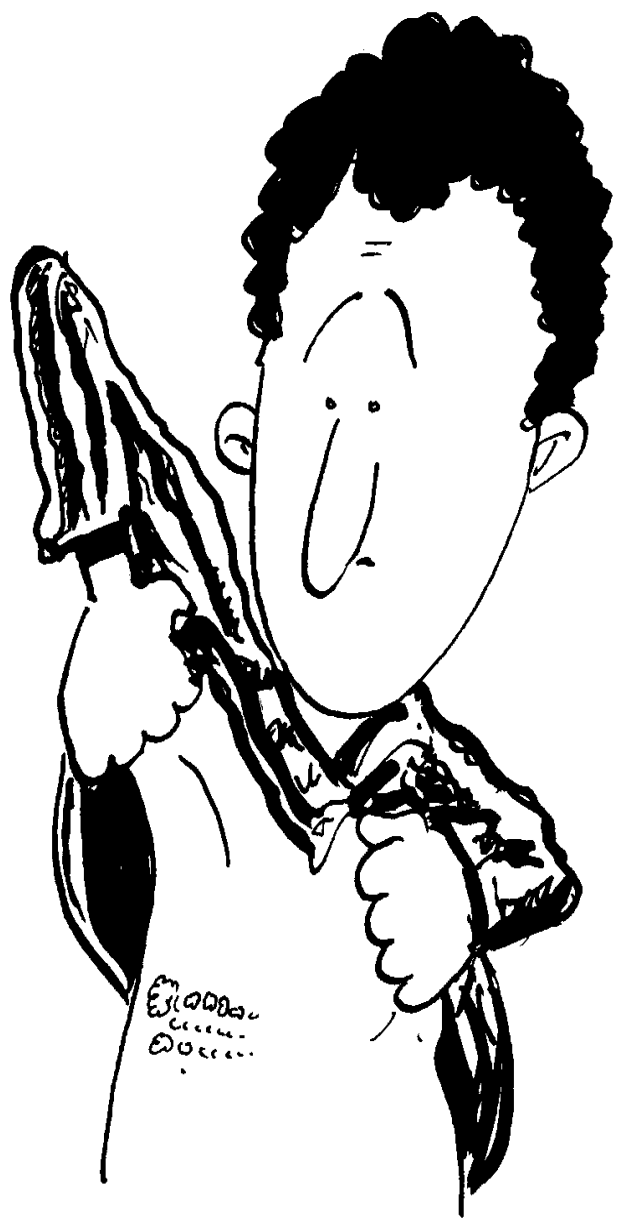
Eliminate other causes of diarrhoea, for example, liberal use of aperients, hot weather, etc.

### *Treatment*

- Maintain fluid and electrolyte balance by administration of prescribed replacement therapies
- Limit fluid and electrolyte losses by administration of prescribed anti-diarrhoea /anti-emetic medications as prescribed.

### *Prevention of Transmission*

- If more than one case suspect an **outbreak** (refer to page 44)
- Gather best information available on possible cause—eg : foods possibly involved
- Kitchen decontamination as ordered by Environmental Health Officer
- Careful attention to hand hygiene
- Isolate infected residents if possible
- Increased cleaning; then disinfection of environmental surfaces with sodium hypochlorite 1,000 ppm (refer to dilution chart on back page)
- Infected staff to remain off work for 48 hours after symptoms abate, and to exercise scrupulous hand hygiene on return to work.



## SYMPTOMATIC Urinary Tract Infection

### Clinical Features:

**Three (3) of the following in non-catheterised client:**

**Two (2) of the following in catheterised client:**

- New or worsening dysuria (painful/difficult passage of urine in the non-catheterised resident)
- Frequency ( frequent urination in the non-catheterised resident)
- Urgency ( urgent desire to pass urine in the non-catheterised resident)
- Fever > 37.9°C or chills
- Flank pain/tenderness
- Suprapubic pain/tenderness
- Worsening functional/mental status
- Change in character of urine
- Onset of delirium/hypotension/shock.



### Action:

- Increase fluid intake if possible
- Perform urinary dipstick test
- Notify GP as soon as possible (dictated by the client's condition)
- Obtain MSU / CSU (aseptically) as ordered by GP
- Depending on severity of infection GP may order antibiotics while awaiting culture and sensitivity results
- Follow medical management plan



## Skin Infections

### Shingles

Shingles is a reactivation of the Varicella-zoster infection which the resident had in early life as chicken pox (Varicella).

Whereas chicken pox is transmitted by both respiratory aerosols and blister fluid, shingles is **only** spread by contact with blister fluid.

Shingles painfully affects the skin overlying an affected nerve.

### Prevention of Transmission

- The resident is considered infectious (only the blister fluid), until **all** blisters have crusted over
- Contact Precautions are necessary, with good hand hygiene, during the infectious phase
- Immuno-compromised residents should be kept away from affected residents
- Cleaning procedures should be increased for any common-use patient equipment
- Only immune staff should attend affected residents
- Clothing contaminated with blister fluid should be handled with gloves, and thermally disinfected by washing at 65°C for 12 minutes
- Residents affected with varicella pneumonia should be transferred to a facility which can provide negative pressure isolation. For transfer skin lesions to be covered, and mask worn by resident.

**Varicella pneumonia is highly contagious!**



## Skin Infections

### Tinea

Tinea pedis (feet) and Tinea unguium (nails) are superficial fungal infections characterised by raised, scaly, discolouration with cracking.

#### Diagnosis

- Clinical picture
- Microscopic examination of scraping from affected area
- Treatment usually by topical and sometimes oral antifungal agents
- Attention to drying the skin.

#### Prevention of Transmission

Thorough cleaning of shower floor and disinfect with chlorine 2,000 ppm (250 mls of bleach in 5 litres of water).

Towels/socks from affected residents require HOT water wash (65°C for 12 mins).



## ASYMPTOMATIC Bacteriuria

### Clinical Features:

- Onset of smelly, and/or turbid urine
- No fever
- No genitourinary signs



### Action:

- Increase fluid intake if possible
- Perform urinary dipstick test
- Report to GP (only take MSU if directed by GP)
- If GP diagnoses a asymptomatic bacteriuria ensure this is recorded in Medical Record as asymptomatic bacteriuria
- Asymptomatic bacteriurias are not counted in infection surveillance records
- No further urinary dipstick tests are required if the smelly or turbid urine state becomes chronic.

#### MSU for microscopy and culture

- Obtain the "cleanest catch" specimen possible
- Transfer to specimen container within a few minutes
- Transfer to Pathology within 30 minutes
- If transfer to Pathology delayed refrigerate at 4°C
- Microscopy results (without culture) should be available within 2 hours



## ASYMPTOMATIC BACTERIURIA

- 25-50% of women in residential aged care, and 14-30% of men will show asymptomatic bacteriuria at some time
- The presence of asymptomatic bacteriuria is **NOT** an indication for antibiotic administration in the absence of localising clinical features in the genitourinary tract
- Urine odour or turbidity alone is not indicative of symptomatic UTI and is no reason to test urine
- Dipstick urine testing should not be performed as a ward routine to detect residents with asymptomatic bacteriuria
- Cloudy urine is expected in all residents with a long-term urinary catheter
- Asymptomatic bacteriuria should **not** be treated with antibiotics, as:
  - ⇒ Affected residents suffer no increased mortality
  - ⇒ Rapid re-establishment of bacteria occurs following A/B course
  - ⇒ Unnecessary antibiotic use promotes the emergence of resistant bacteria

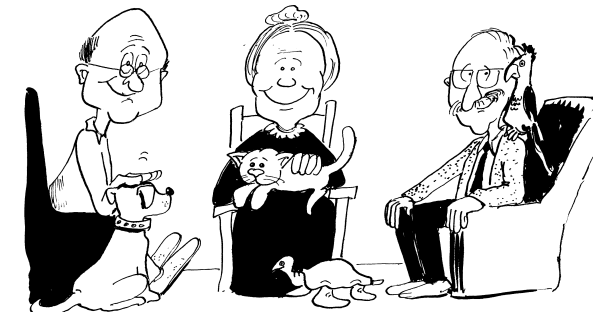


### ROUTINE DIPSTICK TESTS ARE NOT NECESSARY

Because residents have a high background rate of asymptomatic bacteriuria/pyuria there is no place for routine dipstick screening.

Positive nitrites / leucocytes will be present in that percentage of residents who have asymptomatic bacteriuria.

Surveillance of urinary tract infection includes **ONLY** symptomatic UTIs. Surveillance for asymptomatic bacteriuria in the presence of a positive urine culture but in the absence of new signs and symptoms of urinary tract infection) is **not** recommended, as this represents baseline status for many residents.



## Infections/Parasites from Pets

Companion pets and pet-therapy in residential care is now well established.

### Transmission

Pets can be hosts to quite a few infections and parasites which may be transmitted to residents.

For example:-

- Many birds carry microbes in their digestive tracts—these can be spread in their excreta, and cause gastro or respiratory infections. Because of their high level of infection potential birds are considered unsuitable for Nursing Homes
- Dogs and cats can harbour intestinal worms/fleas/hydatids.

### Prevent of Transmission

- Have your pets checked by a vet regularly
- Ensure vaccinations/worming/flea treatments are performed at prescribed intervals
- A Pet Care Plan will ensure your pet receives treatments at the specified times
- Encourage resident hand washing following pet contact
- Avoid facial contact and food-sharing with pets
- immunocompromised residents should not have contact with pets.



For outbreaks in RACF, all residents and staff who have had contact with residents with scabies require treatment. Quarantine the area if possible. If staff from the affected area have worked elsewhere, that area should also be assessed.

Reference: Therapeutic Guidelines Ltd (eTG November 2017 edition)  
Accessed 15/02/2018

## DEFINITIONS

### Bacteriuria

Presence of bacteria in the urine, which can cause smelly and cloudy urine.

### Pyuria

Presence of / increased numbers of white blood cells in the urine; either alone or frequently associated with presence of bacteria.

### Asymptomatic Bacteriuria (Asymptomatic UTI)

Presence of bacteria/white blood cells (positive dipstick); possibly smelly, turbid urine; possibly with  $10^5$  of a single bacterial species on urine microscopy, **BUT absence of clinical features, (or presence of some chronic, but stable features); of localising infection to the genito-urinary tract.**

### Symptomatic UTI

A UTI which relies for diagnosis on clinical features localising to the genitourinary tract,

- Onset or worsening of urinary features,
- Positive urine microscopy (number and types of bacteria) presence of significant WBCs in spun urine sample),
- Fever, deterioration of mental state, signs of shock or bacteraemia.

### Short-term Urinary Catheter

Indwelling catheter for < 30 days

### Long-term (chronic) Urinary Catheter

Indwelling catheter > 30 days

### Catheter-Associated Bacteriuria

Patients with indwelling urinary catheters (particularly long-term catheters) will inevitably develop bacteriuria and cloudy urine.

### Dipstick Urine Test

- Bacteriuria indicated by positive nitrites on dipstick test
- Pyuria indicated by positive LE/leucocytes on dipstick test
- A **negative** dipstick test makes UTI unlikely (but does not definitely exclude it)
- A **positive** dipstick test does not indicate a symptomatic UTI nor the need for antibiotic therapy in the absence of localising features in the genitourinary tract.

## Urinary Tract Infections are among the most common infections in Residential Aged Care



## Skin Infestations

### Scabies

Scabies is a highly contagious skin infestation caused by skin-burrowing mites, which lay their eggs in the skin.

#### *Clinical Features*

- Tiny thread-like short tunnels/ redness/blisters
- In the severe form profuse infestation of large areas may produce dermatitis-like extent with redness then crusting
- Intense itching particularly at night and after hot bath/shower
- Scratching frequently causes secondary skin infections.

#### *Transmission*

- Skin to skin contact
- Freshly contaminated clothing from infested residents.

#### *Prevention of Transmission*

- Isolation of affected resident until treatment completed
- Hot wash all clothing and bed linen (65°C for 12 mins.)
- Dry clean all non-washable clothing
- Maintain a “watching brief” over residents in contact with affected resident for signs of infestation.

#### *Resident Treatment*

- Diagnosis confirmed by skin scraping- microscopic examination
- Initial treatment— Permethrin 5% cream topically to dry skin. Follow product information avoiding application to face and head
- Leave on for a minimum of 8 hours (usually overnight).
- Repeat treatment in 7 days
- Antihistamines and soothing topicals for resident itch
- Antibiotics may be required for treatment of secondary infection.



## Skin Infestations

### Pediculosis

Different species of lice can infect the head, body or pubic area.

#### *Transmission*

- Transmission is by direct contact with affected persons, but shared, infested clothing can also be involved
- Transmission is possible as long as lice or eggs remain alive on the infested person or their clothing.

#### *Prevention of Transmission*

- Avoid contact with infested persons or their clothing (**Contact Precautions** until 24 hours after treatment)
- Hot wash all affected clothing/bedding at 65°C for 12 minutes, or dry clean
- Perform direct inspection of all non-affected residents following a case.

#### *Treatment*

- Application of suitable preparation — check Therapeutic Guidelines for most appropriate preparations.
- Re-treatment may be necessary in 7-10 days if eggs survive
- Chemical-free removal of head lice is possible by applying ordinary hair conditioner then combing with fine 'nit' comb on several, spaced occasions.