Infection Prevention & Control

Level 2

Core Skills for the North West Health Sector

Introduction

A wide variety of healthcare is delivered in primary, community and hospital care settings. Healthcare-associated infections (HCAI's) arise across a wide range of clinical conditions and can affect patients of all ages. Healthcare workers, carers and family members are also at risk of acquiring infections when caring for patients. HCAI's can occur in otherwise healthy individuals, especially if invasive procedures or devices are used.

HCAI's can exacerbate existing or underlying conditions, delay recovery and adversely affect quality of life.

During the past two decades, HCAI's have become a significant threat to patient safety.

Patient treatment can be undermined by the transmission of infections within the healthcare settings, particularly problematic are those infections caused by antimicrobial-resistant micro-organisms. (Nice 2012, Epic3 2013)

What you will learn in this session

a) Be able to describe the healthcare organisation's and their own responsibilities in terms of current infection prevention and control legislation

b) know how to obtain information about infection prevention and control within the organisation

c) understand what is meant by the term healthcare associated infections

d) understand the chain of infection and how this informs infection prevention and control practice

e) demonstrate an understanding of the routes of transmission of micro-organisms

f) understand individual roles and responsibilities for the three levels of decontamination

g) use single use items appropriately

h) be able to conduct a risk assessment in respect of ensuring infection prevention and control

i) explain different alert organisms and conditions that pose an infection risk

j) describe how to safely manage patients with specific alert organisms.

Health Care Associated Infection (HCAI)

HCAIs are infections that are acquired as a result of healthcare interventions and can occur in otherwise healthy individuals especially if invasive procedures are used. HCAIs are caused by a wide range of micro-organisms. HCAIs can exacerbate existing or underlying conditions, delay recovery and adversely affect quality of life. There are a number of factors that can increase the risk of acquiring an infection, but high standards of infection control practice will minimise the risk of occurrence.

There are at least 300,000 patients a year in England that acquire a HCAI as a result of care within the NHS. These lead to more than 9000 deaths a year.
(NICE 2012)

The prevalence of healthcare-associated infections (HCAI) was 6.4% in 2011 compared to 8.2% in 2006 (HPA 2011).

See the above image to view how many patients develop a HCAI

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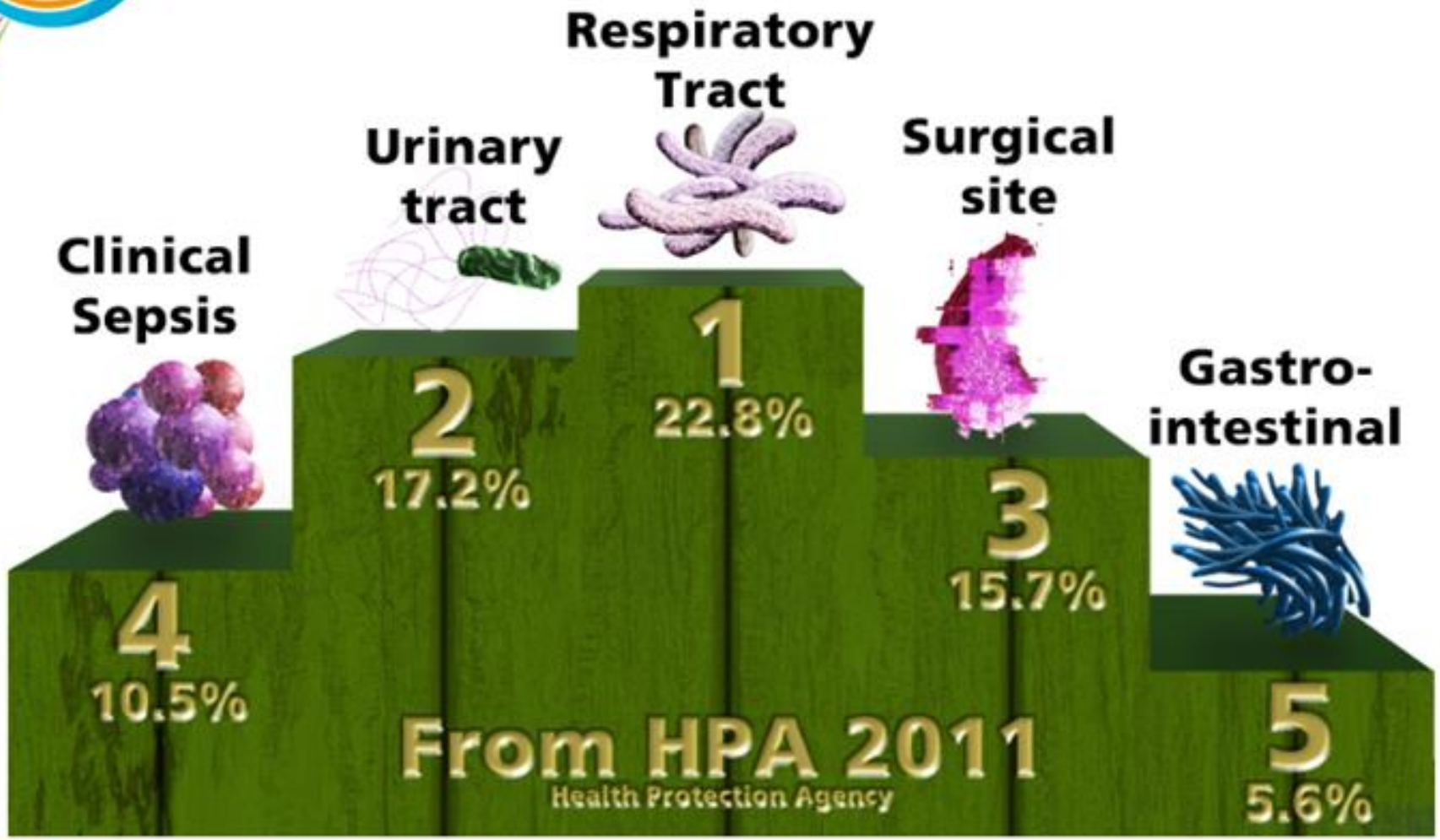
Top 5 Infections



Vulnerable to infections

Some people are more susceptible to healthcare associated infections, this could be due to:

- low immunity,
- recovering from illness,
- being under nourished,
- having an underlying disease,
- if they are very young/old.

Individual responsibilities

It is everyone's responsibility to maintain consistent infection prevention and control practice and a safe working environment.

Three obligations:-

- Contractual
- Professional
- Legal

- **Compliance with Health and Social Care Act (2008)**
- **Local procedures and policy**

The image below shows the important points of personal hygiene

Wear a clean uniform every day.

Look presentable and professional. Staff with long hair should have it tied back and off the collar.

Don't wear jewellery, rings with stones, acrylic nails, wristbands and watches. Your arms should be bare below the elbow.

Methods of spread

See below for some example;

Airborne/Droplet	→ Chest Infections, Colds and flu
Vector	→ Flies, rats, mice and cockroaches
Bloodborne	→ Needlestick injury
Direct	→ Skin to skin contact
Ingestion	→ Food poisoning, salmonella, norovirus and E Coli 0157
Indirect/fomites	→ Equipment, door handles and furniture

Select the correct method of spread next to each picture

- ☐ Airborne
- ☐ Indirect
- ☐ Direct

- ☐ Airborne
- ☐ Indirect
- ☐ Direct

- ☐ Airborne
- ☐ Indirect
- ☐ Direct

Three elements in the chain of infection

The chain of infection consists of three main elements.

Micro-organism

Means of transport

Host

Chain of infection

See below for examples;

Causative Agent	**Clostridium difficile** (C.difficile)
Infection Reservoir	Up to 5% of the general population has C.difficile in their intestines. Not all people, if any, are symptomatic. However, for example, inappropriate antibiotics, proton pump inhibitors, increasing morbidity could lead to developing C.difficile disease. A piece of **equipment** could also be a reservoir, for example, a **commode** contaminated with C.difficile that is not decontaminated between patient use.
Portal of Exit	Profuse watery **diarrhoea**
Mode of Transmission	Diarrhoea increases the risk of spread of the organism. C.difficile can be spread by **hands**, **equipment**, **clothes**, **PPE** and the contaminated **environment**.
Portal of Entry	C.difficile enters the body via the **oral** route i.e. it is ingested. The hands of patients may become **indirectly** contaminated from the local environment, equipment or hands of health care staff. The patient consequently may not clean their hands prior to eating or may touch their mouth. This is called the **faecal oral route of transmission**.
Susceptible host	Some people are more susceptible, this could be due to: low immunity, recovering from illness, being under nourished, having an underlying disease, or if they are very young/old.

Breaking the chain of infection

In some instances the risk of infection may be prevented or reduced by the use of vaccination e.g. TB, tetanus, polio, diphtheria, or by the use of prophylactic antibiotics e.g. PreOp. Generally the chain of infection can be broken by the effective use of **standard precautions** which breaks the 'route of transmission' link.

- Hand hygiene.
- Aseptic techniques.
- Cleaning equipment effectively and appropriately.
- Environmental cleaning.
- Wearing personal protective equipment (PPE) properly.
- Segregating laundry appropriately.
- Isolating or barrier nursing of the patient.
- Appropriate waste disposal, including sharps.

Antimicrobial-resistant infections

Carbapenems are powerful broad-spectrum antibiotics that are often the last line of effective treatment for patients with multidrug-resistant infections, including those caused by ESBL-producing bacteria. Cases of carbapenem resistance in *E. coli* and *Klebsiella* in the UK started to increase during 2008 and 2009.

(Society for General Microbiology 2011)

Antimicrobial-resistant infections

Chief Medical Officer annual report: volume 2 (March 2013) The report highlights that, while a new infectious disease has been discovered nearly every year over the past 30 years, there have been very few new antibiotics developed leaving our armory nearly empty as diseases evolve and become resistant to existing drugs.

"Antimicrobial resistance (AMR) is resistance of a microorganism to an antimicrobial medicine to which it was previously sensitive. Resistant organisms (they include bacteria and viruses) are able to withstand attack by antimicrobial medicines, such as antibiotics and antivirals, so that standard treatments become ineffective and infections are prolonged, with longer periods of infectivity and may spread to others. Inappropriate and irrational use of antimicrobial medicines provides favourable conditions for resistant microorganisms to emerge, spread and persist.

(WHO 2012).

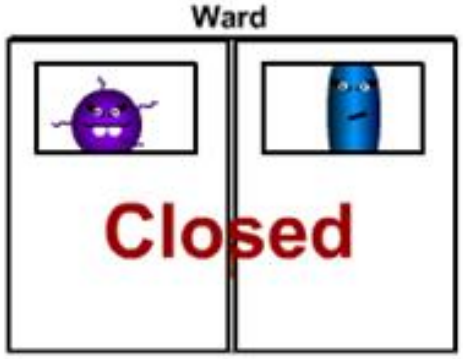
Ward closures

Within the NHS, high priority is given to preventing HCAIs. Achieving success is an immense task but a very important one. A National Audit Office survey of NHS acute trusts found that there has been an increase in the number of infection outbreaks leading to ward closures.

Outbreaks of hospital infection vary greatly in extent and severity, ranging from a few cases of diarrhoea and vomiting, to a larger outbreak of food poisoning involving hundreds of people.

Effective standard precautions by all staff will help prevent the spread of Infections and help prevent wards being closed due to an outbreak.

Effective surveillance, assessment and isolation of symptomatic patients and standard precautions by all staff will help prevent the spread of infections. This includes careful hand hygiene with soap and water; use of PPE; adequate cleaning/disinfection; careful handling of contaminated laundry and correct waste disposal.



Standard precautions

Standard precautions - practices to reduce the spread of infection.

The standard precautions were formerly known as universal precautions. They are infection control measures which should be applied **at all times by all staff for all patients/clients** regardless of the diagnosis or presumed infection status.

1. Hand hygiene
2. Protective clothing/equipment
3. Environmental cleaning
4. Management of clinical waste
5. Prevention of sharps injuries
6. Decontamination of equipment
7. Careful handling of linen

Hand hygiene

Hands are one of the most common means of transmitting micro-organisms and spreading infections. However simple routines can be used to decontaminate them and staff should be aware of how and when to use them.

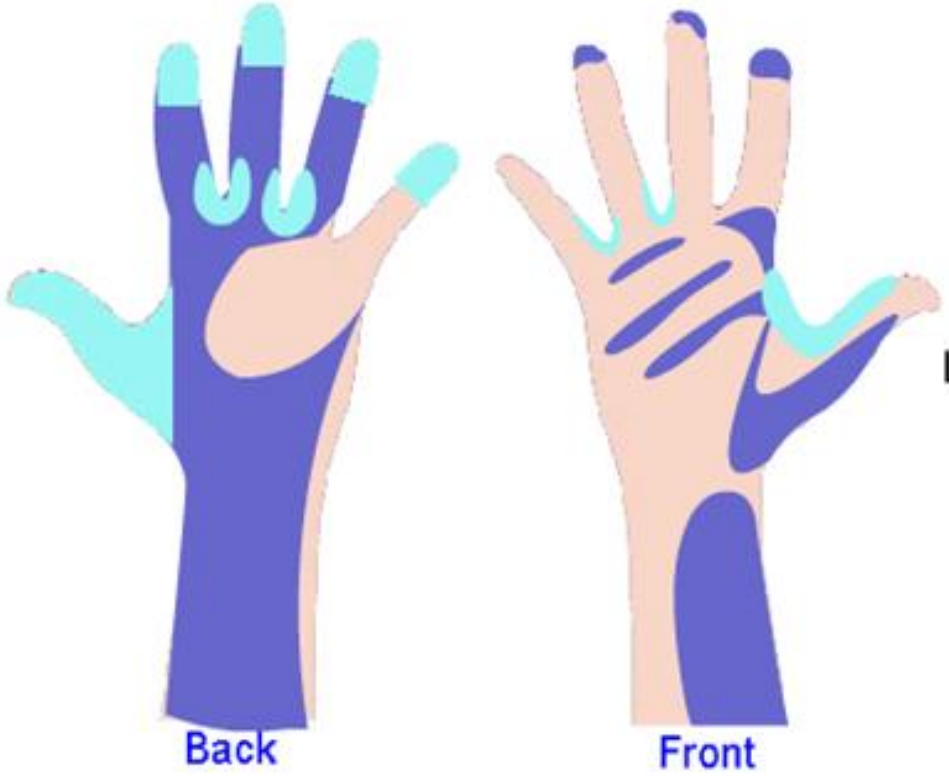
You should clean your hands:

- before and after direct patient care
- before handling food/beverages/drugs
- after dealing with waste/bodily fluids
- after dealing with contaminated equipment
- after using the toilet

Did you know
that soiled fingers can consecutively contaminate up to 7 surfaces?

Frequently missed

See below to find the areas frequently missed when washing hands;



Frequently Missed

Less Frequently Missed

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5 moments for hand hygiene at the point of care

Moment 1
Decontaminate hands before touching each patient

Moment 2
Decontaminate your hands before performing aseptic tasks.

Moment 3
Clean your hands straight away after possible exposure to bodily fluids .

Moment 4
Decontaminate hands after touching each patient and their surroundings.

Moment 5
Decontaminate hands after touching patient's surroundings even if patient has not been touched.

Hand hygiene 3

As you have seen you can use water and liquid soap to decontaminate your hands. Another method is alcohol hand rub which can be used providing your hands are visibly and socially clean.

Alcohol rub is:

- Quick and effective on most organisms
- Available at every bedside and ward entrance
- Used throughout the Trust
- **Not effective for Clostridium difficile infection, norovirus or other infective diarrhoeas.**

Personal Protective Equipment (PPE)

When you are performing a clinical procedure PPE, which includes gloves and aprons and if required, face masks and eye protection, should be used to prevent micro- organisms from coming into contact with you or with your clothing. Since there is a high risk of the PPE becoming contaminated it is essential to remove it as soon as you have completed the procedure and then to thoroughly clean your hands. Although the NHS is required to provide suitable equipment it is the responsibility of the individual concerned to use it correctly and appropriately.

Dress the surgeon by drawing an arrow from the PPE to the correct place on the surgeon.

Gloves

Gloves must be worn:

- when dealing with blood / body fluids
- when dealing with patients isolated with diarrhoea
- when dealing with non intact skin / mucous membranes
- when dealing with hazardous chemicals / medicines
- as part of Aseptic Non Touch Technique (ANTT)
- once, because they are for single use and should be changed for each procedure

Take gloves off at point of use and clean hands
Don't carry gloves in your pocket
Do not use alcohol hand rub on gloves

Gloves must be removed as soon as the clinical activity is completed.
Touching the patient or the immediate patient environment can contaminate the gloves which could then lead to cross-contamination of, for example - door knobs, light switches, telephones, computer keyboards, stacker drawers etc.

Gloves

Circle the correct glove for each scenario.

	Non-Sterile	Sterile
Emptying an urinary catheter bag		
Inserting a central venous catheter		
Taking blood		
Inserting a urinary catheter		
Touching key parts		
Capillary sampling		

Gloves 2

Circle the correct glove for each scenario.

	Non-Sterile	Sterile
Removal of peripheral cannula		
Preparation of Intramuscular Injection (IM) injection		
Changing an infusion bag		
Changing a catheter bag		
Removing wound clips		

Gloves 3

Circle the correct glove for each scenario.

	Non-Sterile	Sterile
Obtaining a catheter specimen of urine		
Cleaning a patient incontinent with diarrhoea		
Applying prescribed Topical Eradication Therapy		
Bone marrow aspiration		
Removal of urinary catheter		

Aprons

Remember that it is much easier to change a soiled apron than a dirty uniform.

This means that aprons should be worn:

- when you anticipate close patient contact
- when dealing with blood, bodily fluids, excretions and secretions
- to protect you from being contaminated with micro-organisms
- to protect the patient at risk
- protecting yourself from substances that are hazardous to your health (Control Of Substances Hazardous to Health - COSHH)
- during asepsis.

Aprons are single patient use
Change your apron between patients/procedures

Aprons 2

An apron should be worn in the following situation;

'Hands on' direct patient care	Dressing a wound
 That's Correct!	 That's Correct!
Changing dirty bed linen	**Serving food**
 That's Correct!	 That's Correct!

Mask/Eye Protection

- Facemasks and eye protection must be worn where there is a risk of blood / body fluids splashing into face and eyes.

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Cleaning

We are all responsible for ensuring that we maintain good personal and hand hygiene, and that our working environment and any equipment used is kept clean and safe. This includes keeping clinical areas tidy, as the presence of unnecessary clutter interferes with the cleaning process. Even if surfaces have been cleaned thoroughly they may still become contaminated with dust and dirt. Dust contains dead skin cells and fibres where the micro-organisms can survive.

Level 1 clean - daily clean around patient area/equipment with soap and water for patients identified with, for example, MRSA, ESBL or AmpC (beta- lactamases).

Level 2 clean - daily disinfection with 1000ppm Chlorclean for patients identified with, for example, infective diarrhoea (C.difficile, Norovirus), VRE or KPC.

Terminal clean - on patient discharge all equipment and bed area has a level 2 clean and curtain change.

Body fluid spillages

Body fluid spillages must be dealt with by the person who finds the spillage.

Following a risk assessment and wearing appropriate PPE :

- Soak up excess fluid using **disposable towels** and dispose directly into **clinical waste** bag.
- Wipe over the area with DETERGENT AND WATER.

IF, following a risk assessment, the body fluid spillage is deemed infective (e.g. infective diarrhoea/vomit) use 1,000 parts per million (p.p.m) solution of **Chlorclean** (1 tablet in 1 litre of cold water).

Blood requires one of two clean-up processes, which must be done by the person who finds the spillage. Wearing appropriate PPE:

1. **Soak up excess fluid using disposable towels and dispose directly into clinical waste bag.**
2. **Wipe over the area with 10,000 parts per million (p.p.m) solution of ChlorClean or Virusolve Plus wipes.**

OR

1. **Cover the spillage with HazTab granules.**
2. **Leave for 2 minutes.**
3. **Scoop up the debris with disposable towels and place directly into clinical waste bag.**
4. **Wash the area with detergent and warm water.**

Splashes

Exposure to bloodborne pathogens can be through incidents such as a **sharps injury**, **splash of blood** to the eyes and mouth or a wound on your skin.
To reduce the risk you must;

- Handle and dispose of sharps safely;
- Wear face (including eye) protection if there is a risk of splashing;
- Cover wounds with a waterproof plaster;
- Wear personal protective equipment (PPE).

If you get blood or bodily fluids in your mouth, eyes or a wound on the skin:

- Thoroughly rinse with running water
- Inform your manager
- Ring the occupational health department within working hours or A&E out of hours.

Please make sure you follow your organisation's incident form procedure

Linen

Used Linen

- Wear plastic apron.
- Handle carefully.
- Place immediately into white plastic laundry sack.
- Store in a designated area.

Soiled/Infected Linen

- Wear plastic apron/gloves
- Handle carefully
- Place in **red water soluble bag** and then into **the white plastic laundry sack**.
- Store in a designed area.

Decontamination of equipment

Equipment

Equipment needs to be cleaned appropriately after every patient use.
Equipment needs to be decontaminated if going for maintenance and a decontamination certificate completed.

There are 3 levels of decontamination:

- **Cleaning** - soap and water / detergent wipes e.g. BP cuff, Glucometer

- **Disinfection** - Alcohol wipe / chlorine releasing agent e.g. ANTT tray (70% Isopropyl alcohol (IPA) & 2% Chlorhexidine wipe), equipment following use by a patient suspected of or identified with infectious diarrhoea (Chlorclean)

- **Sterilization** - Autoclave (e.g. surgical instruments, laryngoscope blades – ensure safe/approved transfer/storage of instruments for sterilization)

Cleaning ALWAYS precedes the disinfection and sterilization processes

All staff must be aware of their individual roles and responsibilities relating to decontamination. See your local decontamination policy or guidelines for further information.

Safe waste disposal

Waste products contaminated with blood or other bodily fluids are called "Infectious / potentially infectious clinical waste" and should be disposed of in a way that avoids potential harm to staff, patients or visitors.

All clinical staff are responsible for the safe and correct disposal of sharps. To facilitate this, small sharps bins should be located at the point of use, to ensure that used sharps can be disposed of immediately.

You must NEVER overfill a sharps bin and NEVER try to re-sheath a needle.

Bloodborne infections

Exposure to bloodborne pathogens can be through incidents such as a sharps injury, splash of blood to the eyes and mouth or a wound on your skin. To reduce the risk you must:

- handle and dispose of sharps safely;
- wear face (including eye) protection if there is a risk of splashing;
- cover wounds with a waterproof plaster;
- wear Personal Protective Equipment (PPE).

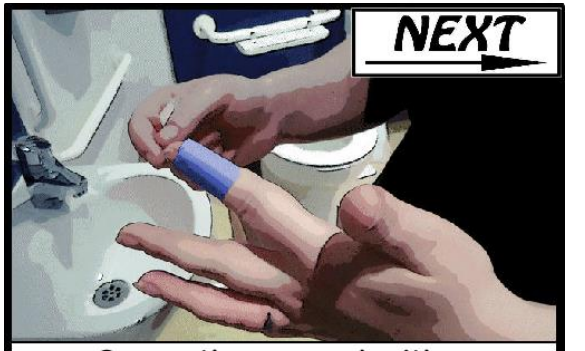



Accidental Inoculation

Look at the comic-strip below to see what to do in the event of a sharps injury.

Encourage the wound to bleed.

Wash liberally with soap and running water.



Cover the wound with a waterproof dressing.

Report to your supervisor.

Contact occupational health during open hours or A&E out of hours.

Follow your organisation's incident report procedure.

Waste Segregation

New Waste Segregation Overview Showing the Colour Code in Accordance with HTM 07-01

Anatomical waste or clinical waste contaminated by either category A pathogens or 'non cyto' medicines / *sharps / medicinal waste* – ***for incineration only***

Clinical waste contaminated by 'cyto' medicines – ***for incineration only***

Infectious / potentially infectious clinical waste NO medicines or sharps – ***for alternative treatment*** *or incineration*

Offensive waste

Sanitary waste and nappies that are not contaminated – ***for deep landfill***

Domestic / general / municipal waste - ***for processing as potential fuel pellets or landfill***

Aseptic Non Touch Technique (ANTT)

Safe aseptic practice is paramount for protecting our patients during invasive clinical procedures e.g.

- IV Therapy
- Wound Care
- Urinary Catheterisation
- Cannulation
- Removal of cannula
- Sterile sampling
- Chest drain insertion
- Lumbar Puncture

Any invasive clinical procedure

Main principles of ANTT

- Risk Assessment for:
  - **Standard ANTT** – General Aseptic Field (Promotes Asepsis)
  - **Surgical ANTT** – Critical Aseptic Field (Ensures Asepsis)
- Glove selection – sterile or non sterile
- Key Part/Key site protection
- Appropriate PPE
- Effective decontamination of equipment and skin
- Safe disposal of clinical waste and sharps

ANTT

Standard ANTT

An aseptic field that **promotes** asepsis during procedures by providing basic protection from the care environment, because key-parts will be easily protected by caps and covers, non sterile gloves and a non touch technique. Examples include: venepuncture, cannulation, blood culture collection.

Surgical ANTT

Critical aseptic field that requires critical management to **ensure** asepsis i.e. only sterilized equipment may come into contact with it. Sterile gloves must **always** be used (high risk of key part contact). Examples include: urinary catheterisation, wound care, lumbar puncture, chest drain insertion.

There are 3 main stages in the ANTT process:

- **Stage 1** - Preparation zone
- **Stage 2** - Patient zone
- **Stage 3** - Decontamination zone

Over the next 4 screens:

yellow numbered boxes show 'essential' steps in ANTT

red numbered boxes show 'critical steps' where there would be a risk to the patient should contamination occur

Essentially the same for all ANTT procedures

Stage 1 - Preparation zone

Before commencing with preparation, ask yourself - Can the procedure be undertaken without the risk of touching (either directly or indirectly) key parts?

YES	NO
Non sterile gloves must be used	**Sterile** gloves must be used

You need to take into account your own experience and competence with certain procedures.

1  **Clean hands** using soap & water or alcohol hand rub using 7 stage technique.

2   **Decontaminate tray or trolley** with 70% Isopropyl alcohol (IPA) & 2% Chlorhexidine wipe, and allow to dry for 30 seconds (soap & water must be used first if visibly dirty).

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Stage 1 - Preparation zone

3  

Gather equipment whilst the tray is drying – hands will become contaminated whilst gathering equipment from common touch points i.e. cupboard door handles, stacking systems etc.

4 

Clean hands using soap & water or alcohol hand rub using 7 stage technique.

5  

Apply appropriate PPE for preparation stage, gloves will be required for Drug Preparation, but not for all procedures.

6  

Critical step

Prepare equipment protecting key parts using a **non touch** technique.

7  

Where gloves have been used for preparation (i.e. in IV therapy), remove contaminated gloves, clean hands with soap & water or alcohol hand rub and proceed directly to patient.

Stage 2 - Patient zone

8 

Before you touch the patient - **Clean hands using soap & water** or alcohol hand rub using 7 stage technique.

9 

Apply sterile or non sterile gloves (dependant upon procedure and risk assessment) and any other appropriate PPE.

Critical step

10 

Decontaminate key parts/sites with 70% IPA and 2% chlorhexidine and allow to dry (30 secs).
NB In wound care or urinary catheterisation use recommended product for cleaning.

11 

Critical step

Perform procedure using **non touch** technique protecting key parts at all times.

12 

Dispose of any sharps immediately into sharps bin.

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Stage 3 - Decontamination zone

13 

Remove gloves & apron immediately following procedure and **dispose** of all equipment in nearest clinical waste bin.

14 

Clean hands using soap & water using 7 stage technique.

15 

Clean tray/trolley with detergent wipe or soap & water and return to storage area.

16 

Clean hands using soap & water using 7 stage technique.
Complete any relevant documentation.

For further information contact your ANTT lead.

Responsibilities

All healthcare organisations have the responsibility for ensuring effective systems are in place for infection prevention and control.

In order to be successful, local procedures must be supported by ALL members of staff.

Staff responsibilities

The responsibilities of an Infection Prevention and Control Team are to:

- develop and review policies and procedures relating to the prevention and control of infection
- distribute policies to relevant areas and initiate their implementation by means of support, advice and education
- ensure that compliance with Infection Control policies are monitored by either the Infection Control Team, Divisional Leads, designated Managers as appropriate
- formulate, implement and evaluate an Infection Control programme on an annual basis
- provide an ongoing training programme encompassing all healthcare workers within the Organisation
- provide specialist advice to key committees, groups, departments or individual staff members in relation to Infection Control practice
- provide advice relating to Infection Control measures when caring for patients with known or suspected infectious conditions
- advise and support patients and/or relatives in relation to infectious conditions.

Staff responsibilities continued

The responsibilities of an Infection Prevention and Control Team are to:

- review practice through Infection Control audits and recommend improvements based on current guidance; research; evidence and best practice
- carry out alert organism surveillance, liaising with medical and nursing staff as appropriate
- identify, control and advise on the management of outbreaks of infection within the organisation
- inform the local Health Protection Agency (HPU) of any significant episodes of infection occurring
- monitor and support incident reporting in relation to Infection control issues/incidents and ensure appropriate risk assessments are completed. Ensure any trends identified as a result of incident analysis are integrated into work plans, policies and teaching programmes
- ensure liaison with the Occupational Health Department with regard to staff health and transmission of infectious disease
- demonstration of compliance with key external standards (i.e. NHSLA; Standards for Better Health, Care Quality Commission, Health Act 2006, NHS North West (NHSNW) Provider Assurance framework).

Staff responsibilities continued

Divisional Leads:

are responsible for ensuring the implementation of Infection prevention and control policies and procedures through their clinical directorate structure. They are also responsible for ensuring adequate allocation of funds to facilitate remedial action, following feedback from risk assessments or audits.

Line Managers:

are responsible for ensuring the implementation of advice, policies and procedures within their department and for ensuring that their staff attend mandatory Infection control training sessions.

All staff responsibilities

All staff will be personally accountable for their action and responsible for ensuring that they comply with Infection Control policies of their place of work.

Staff must understand their legal duty to take reasonable care of their health, safety and security and that of other persons who may be affected by their actions and for reporting untoward incidents and areas of concern.

Any breach in Infection Control Policies or Practice will place staff, patients and visitors at risk and subsequently the completion of a clinical incident form will be required.

All staff are obligated professionally, contractually and legally to adhere to policies of their place of work that will help to prevent and control infections (Health and Social Care Act, DoH, 2008)

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What to do when ill

Infectious illness

Your local Occupational Health Department offer a range of services, including immunisations and advice on health matters. Their staff can advise you about fitness to work if you are suffering from infections such as coughs, colds, flu, diarrhoea or vomiting.

Although it is widely believed that flu is very like the common cold this is not the case. Flu has symptoms which differ from those of a cold, including a high temperature, headache, shivery feelings, lack of energy and aching limbs.

Diarrhoea and/or vomiting

Seek medical advice. You must refrain from returning to work until you have been symptom free for 48 hours.

Skin conditions

You should ask the Occupational Health Department for advice if you suffer from skin conditions such as psoriasis or eczema, especially if this is on your hands. To reduce the risk of infection it is important to use the moisturisers to avoid hands becoming dry and cracked.

MRSA

MRSA stands for *Meticillin-Resistant Staphylococcus aureus*
MRSA are *Staphylococcus aureus* bacteria that have become resistant to certain antibiotics.
People may be colonized or infected with *S.aureus*.
•**Colonization** means that the *S.aureus* is present in or on the body but is not causing illness.
•**Infection** means that the *S.aureus* is present and is causing illness.

How is MRSA spread?

- **MRSA** is transmitted primarily by contact with a person who has an infection or is colonized with the bacteria.
- Skin scales may contaminate if they become airborne.
- Sputum droplets/aerosols may contaminate if they become airborne through coughing and sneezing.
- Equipment may contaminate if it has not been cleaned effectively.
- Uniforms may be contaminated if PPE is not worn appropriately.

Dealing with MRSA

- Standard precautions are essential in preventing cross-infection.
- Patients must be started on the MRSA Integrated Care Pathway and isolatec
- Patients must be commenced on topical treatment – body wash, nasal ointment, mouth wash.

**Chlorhexidine anaphylaxis / sensitivity – observe patient - rare but does occur – alternative treatment available, discuss with Infection Control Team. Items containing Chlorhexidine – Hibiscrub body wash, Chloraprep (FREPP, SEPP), Corsodyl mouthwash, some catheters, Chlorhexidine wash cloths – Note, this list is not exhaustive.

MRSA screening and surveillance

Who should be screened?

- Emergency admissions.
- Elective surgical admissions.
- Local anaesthetic day cases (LADC), elective medical admissions and non-orthopaedic paediatric admissions and orthopaedic paediatric admissions.
- Patients known to be previously MRSA positive ('ICT' flag on patient centre).
- Patients transferred from another hospital.
- Patients directly admitted to ITU/HDU.
- Patients who are receiving chemotherapy or who are otherwise immunosupressed.
- Patients who are suffering from decompensated alcoholic liver failure.

How and what to screen:

- Use red MRSA swab and MRSA microbiology card.
- Swab nose – single swab only for both right and left nostrils (just swab **nose** for low risk emergency admissions, day-case surgical admissions).
- Swab groin – single swab for both right and left groin.
- Additional swabs may be taken from:- wounds / site of invasive devices / urine / sputum (if clinical signs of infection), throat – only in ITU/HDU / umbilicus (neonates). Note – the Lab will test the Red MRSA swab **only** for MRSA. If sending a wound swab use the black swab, this way the Lab will test for MRSA and other organisms.

Reporting

NHS Trust are **formally** required to report MRSA, MSSA Bacteremia and Clostridium Difficile Infection (CDI) cases to the Department of Health (DoH).

Department of Health

Clostridium Difficile Infection

C.difficile infection (CDI) is a diagnosis in its own right. It is a spectrum of disease ranging from mild diarrhoea to a severe and life-threatening condition. It is transmitted by clostridial spores, which are shed in large numbers by infected patients and are capable of surviving in the environment for long periods. Those most at risk are older patients and those who have had a recent course of antibiotics. (DoH 2010)

Pathogenesis of disease

For the disease to occur there must be disturbance of normal flora (loss of colonisation resistance). This happens especially when our "good bacteria" are killed off by a broad spectrum antibiotic e.g. Cefuroxime, Ciprofloxacin, Co-amoxoclav. This leaves room for other "bad bacteria" such as *C difficile* to flourish. *C difficile* might start to produce toxins. Toxins act on the gut wall to produce disease. Some antibiotics are worse than others at disturbing the "good bacteria" also some strains of *C difficile* are more aggressive than others.

C.difficile is found in up to 5% of healthy adults

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Clostridium Difficile Infection

Who gets the disease?
Hospitalised patients, especially the elderly.
There are two theories;

Endogenous reactivation

The patient may already be carrying small numbers of C.difficile in the flora of the gut. The 'good; flora present in the gut are disturbed by antibiotics. Colonisation resistance is lost and overgrowth of C.difficile occurs. Toxins are produced by the organism and disease occurs.

Exogenous acquisition

A susceptible patient acquires C.difficile from the hospital environment and/or healthcare staff and gets the disease (the facial/oral route) i.e the patient is given C.difficile infection.

C.difficile is transmissible to other patients and outbreaks are well described.
It can cost Trusts **up to £4,000** to treat a patient who has CDI and the NHS over £200 million per year.
8% of patients identified with C.difficile infection have C.difficile on their death certificate as the cause of death (HPA, DOH 2008).

Good practice guide to control *C.difficile* (HPA 2007)

- Justifiable use of antibiotics,
- Early isolation of infected patients,
- Enhanced environmental cleaning,
- Good hand hygiene,
- PPE,
- Proton pump inhibitors e.g. Omeprazole – RISK FACTOR

Algorithm

Suspected Clostridium difficile infection (CDI). This pathway relates to the diagnosis of CDI only.

Patients should be considered for treatment of CDI before test results are available, particularly if symptoms / signs indicate severe infection. However, any patients with suspected infectious diarrhoea should be isolated to prevent

1. Clinically assess the patient's condition

Diarrhoea (Bristol Stool Chart types 5-7) that is NOT clearly attributable to an underlying condition (e.g. inflammatory colitis, overflow) or therapy (e.g. laxatives, enteral feeding) then assess for risk of CDI. If in doubt seek advice.

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2. Isolate patient & commence source isolation precautions

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3. Collect stool specimen & send to Microbiology

The sample must take on the shape of the container and ideally be at least 3/4 filled (to indicate the patient has diarrhoea).

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CD test positive & toxin positive:

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1. Continue to isolate patient
2. Level 2 cleans daily
3. Hand hygiene using soap and water
4. Commence Integrated Care Pathway
5. Commence treatment for CDI
6. Review antibiotics

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Do not send repeat samples

CD test positive & toxin negative:

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1. Consider other causes of diarrhoea
2. Consider continuation of single room isolation and other measures to reduce risk of CDI
3. Commence Integrated Care Pathway
4. Seek Infection Prevention/Microbiology advice for appropriate treatment

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Consider repeat testing after 7 days if symptoms persist

SIGHT

Clinicians (doctors and nurses) should apply the following mnemonic protocol (SIGHT) when managing suspected potentially infectious diarrhoea:

S **Suspect** that a case may be infective where there is no clear alternative cause for diarrhoea.

I **Isolate** the patient and consult with the infection control team (ICT) while determining the cause of the diarrhoea.

G **Gloves and aprons** must be used for all contacts with the patient and their environment.

H **Hand** washing with soap and water should be carried out before and after each contact with the patient and the patient's environment.

T **Test** the stool for toxin, by sending a specimen immediately.

Patients should be monitored daily for frequency and severity of diarrhoea using the Bristol Stool Chart.
All antibiotics that are not required should be stopped, and other drugs that might cause diarrhoea.
Consideration should be given to stopping/reviewing the need for PPIs in patients with or at high risk of CDI.
Surveillance, assessment and isolation of symptomatic patients/residents and standard precautions by all will help prevent the spread of this organism.

Specimens

- You must obtain **fresh** and **appropriate** specimen.
- **Prevent** contamination.
- Use a **leak-proof** container, that must be securely sealed in a dual pocket intact plastic bag.
- Complete the request form **fully** & **accurately** and **label** the specimen.
- Store it for the **shortest** time possible.

Microbiological culture specimens from individuals known or suspected of having Tuberculosis or Typhoid are considered 'HIGH RISK' and an appropriate hazard sticker MUST be attached to the specimen and the request form.

For further information contact the infection prevention lead.

Conduction a risk assessment

Crucial to effective prevention and control of infectious agents is the Identification of risk in healthcar
the adoption of measures to remove or control such risks.

1

Avoid the risk – the best way to manage a risk is to avoid it. Ask yourself, is the task/intervention necessary? (is it necessary to change dressing today? Does the patient still require an intravascular device/urinary catheter, or can it be removed?)

2

Identify the risks – when approaching a clinical task it is useful to consider the risks of transmission in terms of when/where/why and how can they occur. For example;

- What potential agents are involved (ie the source)
- How are they transmitted? (ie mode of transmission direct and indirect, airborne, fomites)
- Who is at risk of infection? (ie the patient, HCW or the patient care area?)
- What are the aspects of the procedure that can transmit infection?

3

Analyse risk – the identified risks associated with the task need to be analysed. This can be achieved by considering;

- **Are there set procedures or protocols in the place that minimise risk?**
- **What is the likelihood of transmission?**
- **What are the likely consequences (ie associated morbidity or mortality associated with HCAI?)**

4

Evaluate the risks - The next stage requires assessment of whether the level of risk is acceptable or not. If you determine that there is a risk, then you need to decide whether existing controls are sufficient or you need to do more. Factors that influence this decision are:

- Is the risk so low that it is not considered a problem?*(e.g. taking the blood pressure of a healthy individual is considered to have a low risk of transmission of infection)*
- Does the need to perform the task outweigh the possible risk of HCAI transmission?
- What can be done to reduce or eliminate the risk?*(i.e. what can be done to break the chain of infection? e.g. using ANTT to dress a wound or wearing gloves and aprons when contacting a patient suspected to have infectious diarrhoea and washing hands with soap and water following patient contact or cleaning the piece of equipment)*

Legionella

Legionella bacteria occur commonly in nature and small numbers are often found in the water systems of hospitals and other buildings. The bacteria do not appear to cause a problem unless they are present in large numbers. Aerosols containing Legionella can be spread by water or ventilation systems and people inhaling them may develop symptoms of the disease. These can range from mild discomfort to, in severe cases, death. Reasonably fit people are unlikely to be affected but those who are elderly, sick, or on immunosuppressant drugs are more susceptible.

What should you do?

In order to prevent an outbreak **all** staff should acquaint themselves with the general principles set out below.
If you come across **ANY** of the following please report it to the **Estates HELP DESK** immediately:-

If you have any queries please contact the Infection Control Department on site.

Local Infrastructure

Please ensure you are aware of your organisation's infection prevention policies and procedures. This information may be found on your organisation's intranet or website. For further information please contact your organisation's infection prevention and control lead.

National Resource for Infection Control

www.nric.org.uk

Infection Control Services

www.infection-control-services.co.uk

Introduction

The assessment includes 10 questions. 9 questions must be answered correctly to pass.

Once you have started, tick the correct option or options for each question. When you have chosen your answer move onto the next question.

At the end of the assessment, there is a declaration to sign and date. This is to ensure you have read and understood the content of the presentation and answered all of the 10 questions.

The assessment and declaration needs to be sent to clinicalbank.mrt@dgh.nhs.uk or posted to; Bank Information Co-ordinator, Professional Development Team, 2nd Floor South Block, Russells Hall Hospital, Dudley, DY1 2HQ.

Infection Prevention & Control

NHS

Assessment

Before performing an invasive procedure on a patient, staff should ensure that sterile equipment to be used is: (Select **TWO** of the following options)

- ☐ contained within packaging that is intact
- ☐ within its expiry date
- ☐ the correct colour
- ☐ the correct size

Assessment

When using decontamination products which of the following risk assessments, in line with COSHH data, should have been undertaken prior to the product being part of a disinfection protocol? (Select **ALL** that apply)

- ☐ Whether there are any training requirements that need to be addressed before product use
- ☐ Whether the product is safe to use in a non ventilated area
- ☐ Whether there is a requirement for Personal Protective Equipment when in contact with the product?
- ☐ Whether the product needs to be stored a locked cupboard

Infection Prevention & Control

Assessment

NHS

How do micro-organisms (germs) enter the body?
(Select **THREE** of the following options)

- ☐ Through unbroken skin
- ☐ Inhalation (breathing in)
- ☐ Ingestion (eating)
- ☐ Sexual transmission

Assessment

What are the three levels of decontamination of reusable medical devices?
(Select **THREE** of the following options)

- ☐ Sterilising
- ☐ Cleaning
- ☐ Disinfecting
- ☐ Rinsing

Assessment

It is important to reduce the incidents of Healthcare Associated Infections because (Select **THREE** of the following options)

- ☐ They can lead to the death of patients
- ☐ They spread easily
- ☐ They increase the length of time patients spend in hospital
- ☐ They can protect you from other infections

Assessment

Which of the following can cause an infection?
(Select **ALL** that apply)

- ☐ A fungus
- ☐ A virus
- ☐ A bacterium
- ☐ A cut

Infection Prevention & Control

NHS

Assessment

Which three statements require a local risk assessment to be undertaken in your clinical or working area? (Select **THREE** of the following options)

- ☐ When locating alcohol based hand sanitizer products
- ☐ When a patient requires isolation in a room with a door shut and they are at risk of falls
- ☐ Before using latex gloves
- ☐ When taking patient details on admission

Assessment

How does Norovirus spread?
(Select **THREE** of the following options)

- ☐ Coughing and sneezing
- ☐ Contaminated hands
- ☐ Contaminated environment
- ☐ Vomiting and diarrhoea

Assessment

Meticillin resistant staphylococcus aureus (MRSA) is spread via which method? (Select **THREE** of the following options)

- ☐ Vectors
- ☐ Droplets
- ☐ Contact
- ☐ Dust

Assessment

Which of the following statements best describe the role of the Care Quality Commission (CQC) with regards to infection prevention and control?
(Select **THREE** of the following options)

- ☐ The CQC monitors both NHS and independent healthcare providers to make sure they adhere to the guidance on infection prevention and control
- ☐ Healthcare providers report instances of MRSA and C.difficile to the CQC
- ☐ The CQC will issue an Improvement Notice if it finds a healthcare provider is not meeting the required infection prevention and control standards
- ☐ Liaises with the Chief Executive Officer about what appropriate infection prevention and control measures are suitable for the healthcare organisation
- ☐ Places healthcare organisations under Special Measures if necessary and this means the organisation must improve its standards within a particular time frame

Infection Prevention & Control

NHS

Assessment

Which of the following would help prevent the spread of infection?
(Select **TWO** of the following options)

- ☐ Appropriate use of Person Protective Equipment (PPE)
- ☐ Good hand hygiene
- ☐ Administering antibiotics to all patients

Declaration – Infection Control Level 2

- I confirm that I have read and understood the content of the infection Control Level 2 presentation.

- I confirm that I have answered all 10 questions as part of the assessment.

NAME: …….

POSITION: Bank Only Clinical Support Worker/ Registered Nurse (cross off where appropriate)

SIGNATURE: ……

DATE: ……..