Department of Health

Health Protection Agency

Prevention of infection and communicable disease control in prisons and places of detention

A manual for healthcare workers

Prevention of infection & communicable disease control in prisons & places of detention

A manual for healthcare workers and other staff

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Overview

This document provides guidance for healthcare workers and other staff who work in prisons and places of detention. The manual provides advice on specific infections and dealing with outbreaks, key points on immunisation and vaccination and guidance on infection prevention and control within custodial settings.

Each section can be updated/reviewed as necessary. It is not an exhaustive document on all aspects of communicable diseases and Infection Prevention and Control (IPC) procedures. Therefore, it is recommended that it is used in conjunction with any relevant evidenced-based guidance from the Department of Health (DH), Health Protection Agency (HPA), Prison Service Orders/ Instructions and other relevant sources/departments. The guidance is not intended to replace other resources, such as local IPC policies, but to complement them.

This document may help in the development of training resources for healthcare staff and for training other staff working within custodial institutions.

Further information on the legal framework relating to the Health and Social Care Act and registration with the Care Quality Commission can be found in Appendix 1.

Introduction

The nature of the environment within prisons and places of detention varies widely with regards to their age, design, construction and healthcare facilities.

Additionally, the operational integrity of prisons/places of detention with regard to cell-sharing, staffing levels and access to healthcare services presents a challenge in the prevention and control of communicable diseases.

The document is divided into three sections and incorporates information based on the prison health performance and quality indicators (PHPQIs):

Section 1- Communicable Disease

- This chapter provides an overview of the factors within prisons and places of detention that contribute to the risk of infectious diseases. The updated list of notifiable diseases can be found in this section as well as information on communicable diseases (infections) that can occur in prisons/places of detention and when to report to your local Health Protection Unit (HPU).
- The section also provides signposting for staff on where to access information in the event of a suspected or confirmed outbreak.

Section 2 - Immunisation

- This section signposts the healthcare worker or the person with responsibility for prison health to general information on immunisation and recommended vaccines for prisoners

Section 3 - Infection Prevention and Control

- This section provides an overview of key aspects of IPC within the prison environment to protect staff and the patient/prisoner.

Responsibility

Under the current Health and Safety at Work Act and as part of the PHPQI[1]s, all staff are expected to participate in the prevention and control of infection. Every prison/place of detention has the responsibility to ensure that effective arrangements are in place for that as well as the control of communicable diseases among prisoners, staff (including volunteers) and visitors.

The PHPQIs also require that each prison has an infection control link nurse with specific responsibility for training. See full details in PHPQIs.

It is recommended that all staff should have ready access to an Occupational Health (OH) Service. All staff should be aware of their health-related obligations, and ensure that their own routine immunisations are up-to-date.Further advice is available from your local providers of IPC services and local HPU.

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1 http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_097117.pdf

Glossary of abbreviations

BCG	bacille Calmette-Guérin vaccine
BBV	Blood-borne virus
CCDC	Consultant in Communicable Disease Control
CE	Conformité Européene
COSHH	Control of Substances Hazardous to Health
CQC	Care Quality Commission
DH	Department of Health
EOD	Early Onset Disease
EHO	Environmental Health Officer
EPPs	Exposure Prone Procedures
GAS	Group A Streptococcus
GBS	Group B Streptococcus
GI	Gastrointestinal
PD	General Purpose Detergent
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HCW	Healthcare Worker
HCO	Healthcare Organisation
HIV	Human Immunodeficiency Virus
HMPS	Her Majesty's Prison Service
HNIG	Human Normal Immunoglobulin
HPA	Health Protection Agency
HPU	Health Protection Unit
HUS	Haemolytic Uraemic Syndrome
i-GAS	Invasive Group A Streptococcus
IDU	Injecting Drug User

IPC	Infection Prevention and Control
JCVI	Joint Committee on Vaccination and Immunisation
LOD	Late Onset Disease
MDR	Multi Drug Resistant Tuberculosis
MHSAWR	Management of Health and Safety at Work Regulations
MMR	Measles, Mumps and Rubella vaccine
MRSA	Meticillin Resistant Staphylococcus Aureus
OCT	Outbreak Control Team
OH	Occupational Health
PCV	Pneumococcal Conjugate Vaccine
PEP	Post Exposure Prophylaxis
PHPQI	Prison Health Performance Quality Indicators
PIP	Prison Infection Prevention Team
PPE	Personal Protective Equipment
PPV	Pneumococcal Polysaccharide Vaccine
PSO	Prison Service Order
PVL	Panton-Valentine Leukocidin
RMP	Registered Medical Practitioner
SARS	Severe Acute Respiratory Syndrome
SPC	Summary of Product Characteristics
SRSV	Small Round Structured Virus
TB	Tuberculosis
XDR TB	Extensively Drug Resistant Tuberculosis

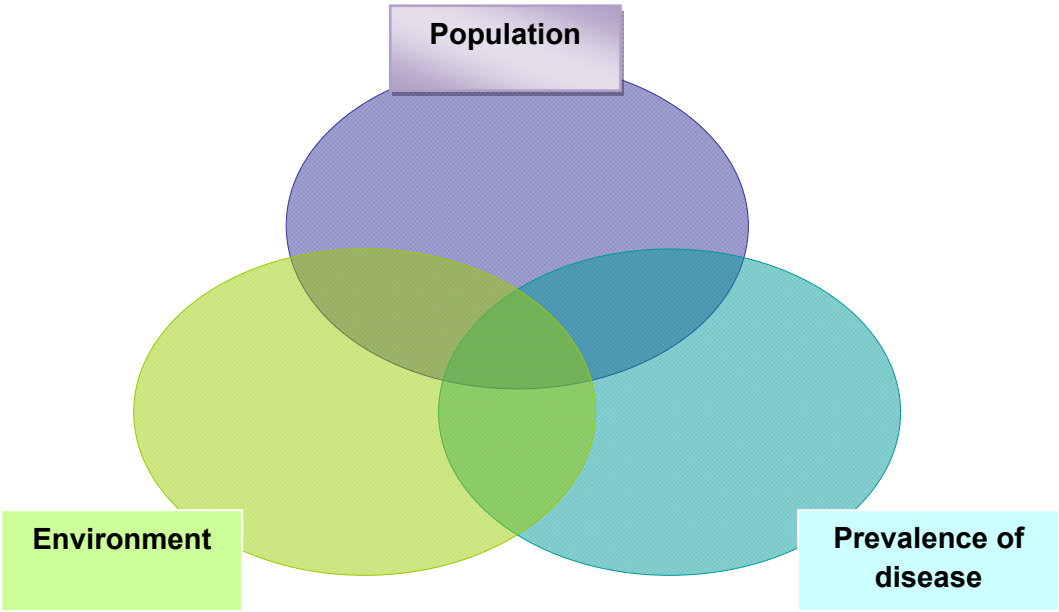
Section 1 Communicable Disease Control

1.1.0 - Factors in prison infection control and disease prevention

Prisons and other places of detention pose particular risks for the causes and transmission of infection **(Appendix 2)** and challenges for control of communicable diseases due to:

- **The nature of the environment:** prison and detention establishments vary in their age, design, construction and healthcare facilities. Cell-sharing is common. Staff levels and skill mix vary and access to healthcare services differ.
- **The nature of the population:** about 85,000 people are confined in prisons in England and Wales at any one time. Throughput and turnover are very high.
- **The prevalence of disease:** people in prison and detention often come from populations or groups at higher risk of certain infectious diseases e.g. blood-borne viruses, HIV and sexually transmitted infections and tuberculosis (TB).

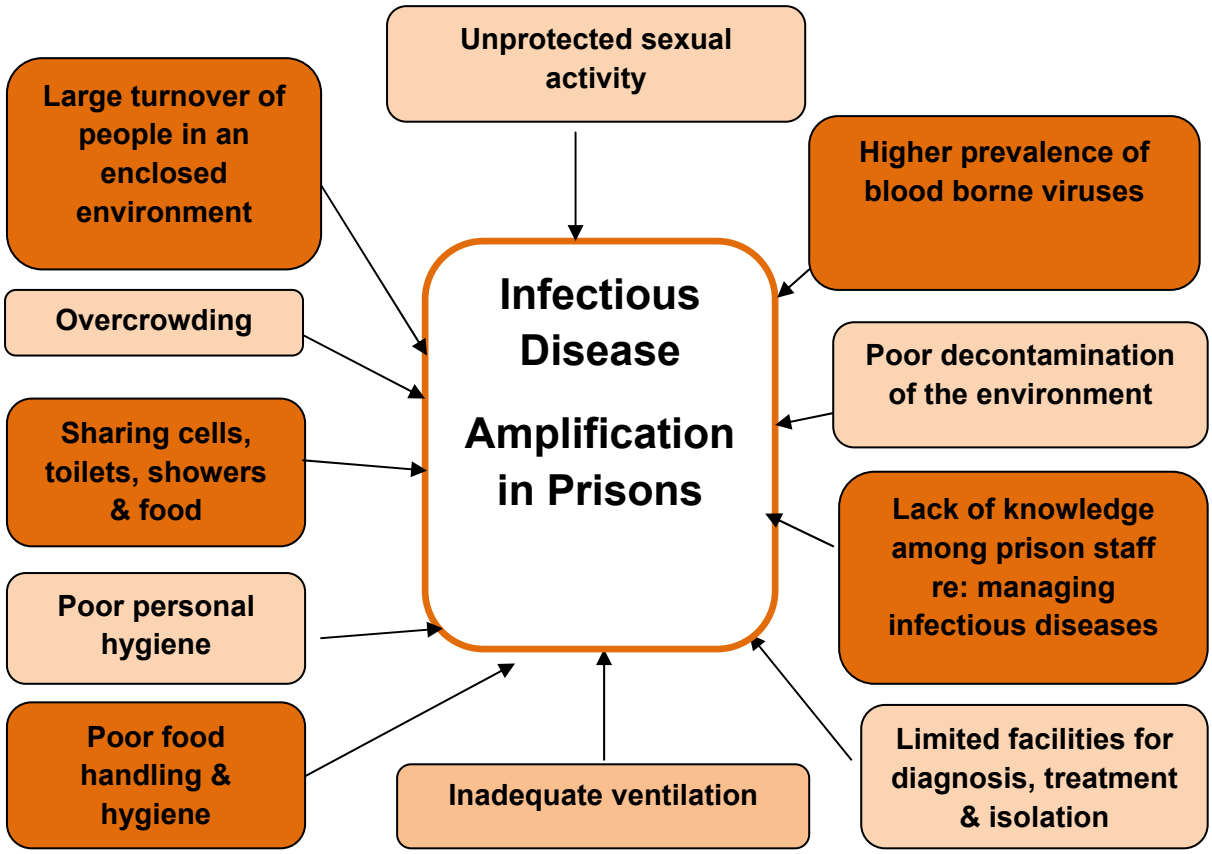
Figure 1 - Factors to consider in controlling and preventing infectious diseases in prisons and other places of detention.



1.1.1 Factors in prisons contributing to a risk of amplification of infectious diseases.

A number of factors contribute to the risk of infection in prisons and places of detention. Amplification of infectious disease may occur if appropriate control measures are not in place.

Figure 2 - Factors in prisons contributing to a risk of amplification of infectious diseases.



Prisons and places of detention also represent an opportunity to engage with normally excluded populations and can offer:

1. Diagnostic tests as part of screening or active case finding programmes, e.g. cervical screening programmes, testing for blood-borne viruses (BBVs) and TB.
2. Vaccines against infectious diseases e.g. hepatitis B
3. Access to primary and specialist care services for management of diagnosed infectious diseases e.g. HIV, hepatitis C, TB and sexually transmitted infections.

Primary healthcare teams in prisons should be part of an integrated public health system with community and hospital services to ensure effective disease prevention, diagnosis, surveillance, treatment and care for people in prison and for the protection of the health of the wider community.

1.2.0 - Public health legislation and statutory notification of disease

The statutory notification of infectious diseases has been a crucial public health measure since the late 19th century. Updated legislation came into effect in April 2010[1] modernising the requirements for notification in England.

1.2.1 Notification duties of registered medical practitioners.

Registered medical practitioners (RMP) including those working in prisons/places of detention are required to notify cases of infectious diseases and cases of contamination (chemical, poisoning, radiological) which they believe present, or could present, a significant risk to human health.

Any RMP attending to a prisoner/detainee is required to notify the proper officer of the local authority in which they attended a patient when they have "reasonable grounds for suspecting" that a patient:

- has a notifiable disease as listed in the table below and in **Appendix 3.**
- has an infection not included in the list of notifiable diseases which in the view of the RMP presents, or could present, significant harm to human health (e.g. emerging or new infections).
- is contaminated (such as with chemicals or radiation) in a manner which, in the view of the doctor presents, or could present, significant harm to human health
- has died with, but not necessarily because of, a notifiable disease, or other infectious disease or contamination that presents, or could present, or that presented or could have presented, significant harm to human health.

[1] Health Protection Legislation (England) Guidance 2010, DH www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_114589.pdf

List of notifiable diseases	
Acute encephalitis	Malaria
	Measles
Acute meningitis	Meningococcal septicaemia
Acute poliomyelitis	Mumps
Acute infectious hepatitis	Plague
Anthrax	Rabies
Botulism	Rubella
Brucellosis	SARS
Diphtheria	Smallpox
Cholera	
Enteric fever (typhoid or paratyphoid fever)	Tetanus
Food poisoning	Tuberculosis
Haemolytic uraemic syndrome (HUS)	Typhus
Infectious bloody diarrhoea	Viral haemorrhagic fever (VHF)
Invasive group A streptococcal disease and scarlet fever	Whooping cough
Legionnaires' disease	Yellow fever
Leprosy	

Some local authorities have designated the role of the proper officer to the consultant in communicable disease control at the local HPU. It is important to identify who to notify about notifiable diseases to in your area. Further information regarding the notification duties of RMP and relevant information required for notification is in *Appendix 4.*

Although notifiable diseases should be notified to the proper officer by a RMP it is good practice for prison healthcare managers to ensure that their local HPU is also notified of such diseases within their establishment.

1.2.2 Reportable diseases

There are some diseases that are NOT statutorily notifiable, however they are important for operational issues within prisons/places of detention and therefore should be reported to the local HPU by either a RMP or prison healthcare staff. These diseases are also listed in the table on the next page and in **Appendix 3**

List of Reportable diseases	
Chronic hepatitis B	Seasonal influenza
Chronic hepatitis C	*Staphylococcus aureus* Panton-Valentine Leukocidin (PVL) producing
Herpes-Zoster	Trichinosis
Leptospirosis	Varicella (chickenpox)
Relapsing Fever	

1.2.3 Reporting diseases

RMPs and healthcare staff should promptly inform the local HPU on clinical suspicion of any of the diseases listed in **Appendix 3**. There is no need to wait for laboratory confirmation or results of other investigations in order to report a case or outbreak. This ensures that public health interventions and control measures can be initiated as soon as possible. Further information regarding the notification duties of RMP and relevant information required for notification is in **Appendix 4**.

1.2.4 The Prison Infection Prevention (PIP) team

The PIP team is based within the HPA and is responsible for co-ordinating the surveillance of infectious diseases affecting the prison/ detention population.

Any case or outbreak reported to the local HPU by a prison/ place of detention will be reported to the PIP team by the HPU. The PIP team may contact the prison for further information regarding the case/outbreak.

1.2.5 The importance of reporting notifiable diseases to the HPU/ PIP team and the surveillance of infectious diseases in prisons

Monitoring infectious diseases helps to:

- Alert health professionals to incidents/outbreaks occurring in prison and thus reduce the risk of disease transmission and the impact of incidents on the functioning of the criminal justice system.
- Determine the number of individuals with chronic illness residing in prisons and the number of new diagnoses made in the prison setting.
- Inform the commissioning of health services in prison.
- Target health promotion and disease prevention strategies.
- Determine the effectiveness of policy and programme initiatives to tackle blood borne viruses and other infectious diseases in the prison setting.
- Demonstrate the importance of prisons as a prevention setting that delivers health services to 'hard-to-reach' groups and therefore help to improve health services in prison.
- Share best practice and learning between prison establishments.

1.3.0 – Outbreaks

A *Multi-Agency Contingency Plan for the Management of Communicable Diseases and other Health Protection incidents in Prisons in England and Wales* has been developed in partnership with Offender Health (Department of Health), HM Prison Service (HMPS) and the HPA. Additional guidance has also been added for outbreaks of gastro intestinal infections including diarrhoea and vomiting. See **Appendix 5**. Each prison should have signed off copy of the outbreak plan. This should be followed during an outbreak.

The plan outlines the roles and responsibilities of the prison governor, the HPA (through the local HPU) and the Primary Care Trust within which the prison is situated. It also explains what should trigger an outbreak/incident, how the plan can be activated, assessment of the situation/incident and who should be included in an Outbreak Control Team (OCT).

The following are examples of outbreaks/incidents that may need to be addressed:

- An outbreak/incident in which two or more people experiencing a similar infectious illness are linked in time/place.
- A greater than expected rate of infection compared with the usual background rate for the place and time where the outbreak has occurred.
- A single case for certain rare diseases such as diphtheria, botulism, rabies, viral haemorrhagic fever or polio.

The template for the Multi-Agency Contingency Plan for the Management of Communicable Diseases and other Health Protection Incidents in Prisons in England and Wales can be found on the HPA website below.
www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/PrisonInfectionPreventionTeam/Guidelines/

Summary of Communicable Diseases

Condition or Infection	Mode of Transmission	Isolation needs and special precautions (Standard Precautions must be followed at all times)
Acute Viral Encephalitis	Faecal/oral contact	Isolation not required.
Athletes foot	Contact	Isolation not required.
Body Lice, Head Lice and Pubic Lice	Contact	Patients with head and/or pubic lice do NOT require isolation – appropriate treatment is required. Patients who have body lice require treatment with a chemical insecticide. • Bed linen, towels, clothing to be sent to laundry as infected and washed / dried at temperatures above 55°C. • Investigate cell mates and treat those infested, according to site of infestation.
Campylobacter	Faecal-oral	Isolated in a single cell with a dedicated toilet whilst symptomatic with diarrhoea. Access to hand washing facilities is essential; ensure appropriate advice is provided regarding thorough hand washing after using the toilet.
Chickenpox (Varicella)	Airborne & contact with fluid from vesicles/ blisters	Isolate in a single cell. The cell door must be kept closed. The patient remains isolated until there are no new vesicles and the existing ones are dry. Non-immune staff should NOT attend the patient • If staff can positively confirm they have had chickenpox or have been previously vaccinated then they are considered immune. Immune staff cannot transmit chickenpox to others. • In emergency situations, if non-immune staff have attended the patient they need to receive Varicella vaccination from their GP/ Occupational Health within three days of exposure. Note: Infectious period is from two days before the onset of rash and lasts for five days after.
Cholera	Faecal- oral	Cases are normally admitted to an infectious disease unit. Isolate in a single cell whilst symptomatic of diarrhoea. The toilet and cell must be regularly cleaned with a bleach- based product to a dilution of 1,000ppm of chlorine.

***Clostridium difficile* associated diarrhoea (CDAD)**	Faecal-oral	Isolated in a single cell with a dedicated toilet whilst symptomatic with diarrhoea. Access to hand washing facilities is essential; ensure appropriate advice is provided regarding thorough hand washing after using the toilet. The cell and toilet must be cleaned regularly with a bleach- based product to a dilution of 1000ppm of chlorine.. Bed linen, towels, clothing to be sent to laundry as infected and washed/dried at temperatures above 65°C.
Cold sores (Herpes Simplex)	Contact/ sexual contact	Isolation not required. Avoid kissing and contact with the sores.
Conjunctivitis	Contact	Isolation not required. Prisoner should use own towels and access to hand washing facilities can prevent transmission.. Bed linen, towels, clothing to be sent to laundry as infected and washed/dried at temperatures above 65°C.
Dengue fever		Does not require isolation or single cell. May be identified in prisoners with recent travel or arrival from high risk countries.
Diphtheria	Transmission of the infection is by droplet and through contact with articles (such as clothing or bed linen) soiled by infected persons.	Case should be admitted to a specialist unit. Isolate until this can be organised.
Gastro-enteritis (viral) e.g. **Norovirus** **Rotavirus**	Faecal-oral. Droplets contaminating surfaces. Foodborne	Isolate in a single cell with a dedicated toilet. Access to hand washing facilities is essential; ensure appropriate advice is provided regarding thorough hand washing after using the toilet. If two or more patients are affected by sudden onset of diarrhoea and/or vomiting in one area/ wing, notify the HPU. The cell and toilet facilities must be cleaned regularly with a bleach- based product to a dilution of 1,000ppm of chlorine.
Hepatitis (undiagnosed)	Faecal-oral/blood	Only hepatitis A and E require isolation. This should be for the first week following onset of jaundice.

Hepatitis A	Faecal/ oral and sexual (oral/anal contact)	Isolation in a single cell with a dedicated toilet for seven days after onset of jaundice or seven days after symptom onset if no jaundice. Access to hand washing facilities is essential; ensure appropriate advice is provided regarding thorough hand washing after using the toilet. Contact tracing
Hepatitis E	Faecal/ oral	Isolation in a single cell with a dedicated toilet for seven days after onset of jaundice. Access to hand washing facilities is essential; ensure appropriate advice is provided regarding thorough hand washing after using the toilet.
Hepatitis B	Blood-borne and sexual	Does not require a single cell. Advice against sharing needles, injecting equipment, unprotected sex or sharing toothbrushes and razors etc.
Hepatitis C	Blood-borne and sexual	Does not require a single cell. Advice against sharing needles, injecting equipment, unprotected sex or sharing toothbrushes and razors etc.
HIV	Blood-borne/sexually transmitted/vertical	Does not require a single cell. Advice against sharing needles, injecting equipment, unprotected sex or sharing toothbrushes and razors etc.
Infectious mononucleosis (glandular fever)	Droplet	Does not require isolation or single cell.
Influenza (clinical diagnosis)	Droplet direct and indirect contact	Isolate in single cell until symptoms have resolved. Diagnosis of influenza-like-illness is fever of 38^0 or above with two or more of the following symptoms: cough, runny nose, muscle aches, headache, diarrhoea (more common in children).
Invasive group A streptococcus **(i-GAS)**	Droplet contact	Does not require isolation. Cases are normally admitted to hospital. Appropriate treatment is required. Ensure the cell mate does not have symptoms such as sore throat, low grade fever and minor skin infections.

Impetigo	Contact	Isolation or single cell not required. There is no need to cover the infected area. Antibiotics may be helpful. Prisoner should use own towels and access to hand washing facilities can prevent transmission. . Bed linen, towels, clothing to be sent to laundry as infected and washed/dried at temperatures above 65°C.
Legionellosis (Legionnaires'disease)	Airborne	Does not require isolation or single cell.
Malaria	Transmitted by mosquitoes	Does not require isolation or single cell. May be identified in prisoners with recent travel or arrival from high risk countries.
Measles	Airborne	**Highly infectious disease** Isolate in a single cell. The cell door must be kept closed and non-immune staff should NOT attend the patient. • In emergency situations if non-immune staff have attended the patient they need to receive MMR +/- immunoglobulin within three days of exposure (via Occupational Health/GP). • Staff caring for measles patient must have a history of immunity or have had MMR vaccination. Note: Infectious period is from four days before and lasts for four days after onset of rash.
Meningitis undiagnosed (viral or bacterial)	Droplet	All suspected meningitis cases must be referred urgently to hospital. Use personal protective equipment and comply with hand hygiene when in contact with the patient. Isolate the patient whilst awaiting transfer to hospital.
Meticillin resistant *Staphylococcus aureus* (MRSA)	Contact	If the patient has no wounds and intact skin they do not require isolation. If the patient is sharing a cell, ensure the other prisoner does not have any wounds.
Mumps	Airborne and droplet	Requires isolation in a single cell until five days following onset of parotid swelling.
Panton valentine leukocidin	Contact	Does not require isolation. Appropriate treatment is required. Access to hand washing facilities is essential. Prisoners should not share towels and flannels. . Bed linen, towels, clothing to be sent to laundry as infected and washed/dried at temperatures above 65°C.

Pertussis (whooping cough)	Droplets	Requires isolation in a single cell five days from commencing antibiotic treatment.
Ringworm	Contact	Isolation not required. Appropriate treatment is required.
Rubella (German measles)	Airborne	Isolate in a single cell for five days after appearance of rash.
Salmonella species (if typhi or para typhi see relevant box)	Faecal-oral	Isolate in a single cell whilst symptomatic of diarrhoea. The toilet and cell must be regularly cleaned with a bleach-based product with a bleach-based product to a dilution of 1,000ppm of chlorine. Food handlers must be excluded from duties and cannot return until over 48 hours symptom free.
Scabies	Contact	Isolation not required. Bed linen, towels, clothing to be sent to laundry as infected. If sharing a cell and the other person requires treatment, keep together in the shared cell. Crusted scabies cases require isolation following institution of treatment.
Scarlet fever	Droplet	Isolation for 24 hours following institution of appropriate antibiotics.
Shigella	Faecal-oral	Isolate in a single cell whilst symptomatic of diarrhoea. The toilet and cell must be regularly cleaned with a bleach-based product with a bleach based product to a dilution of 1,000ppm of chlorine. Food handlers must be excluded from duties and cannot return until clearance stool samples (negative) are required before return to food handling duties. Seek advice from HPU.
Shingles (Herpes Zoster)	Contact with fluid filled vesicles (blisters)	Isolate in single cell until lesions have scabbed over and are dry usually up to seven days post onset. Less infectious than chickenpox, not airborne. Non-immune staff must avoid contact with the lesions.
TB open pulmonary **(*Mycobacterium tuberculosis*)**	Air-borne	Suspected / confirmed cases must be Isolated in a single cell under respiratory isolation. This lasts for at least forteen days following commencement of treatment. The decision to de-isolate is made by the TB physician.

TB closed non pulmonary	Contact	Isolation or single cell is not required.
Tetanus		Does not require isolation.
Thread worms	Contact	Isolation or single cell not required. Appropriate treatment is required. Prisoner should use own towels. Bed linen, towels, clothing to be sent to laundry as infected and washed/dried at temperatures above 65°C. Investigate cell mates and treat if infected. Access to hand washing facilities is essential; ensure appropriate advice is provided regarding thorough hand washing after using the toilet.
Other mycobacterium (MAI, *M.kansasii*, leprosy)	Various sources	Isolation or single cell is not required.
Typhoid fever	Faecal-oral	Isolate in a single cell whilst symptomatic of diarrhoea. The toilet and cell must be regularly cleaned with a bleach-based product with a bleach based product to a dilution of 1,000ppm of chlorine. Clearance stool samples (negative) are required before return to food handling duties. Seek advice from HPU.
Vancomycin resistant enterococcus	Contact	Isolation not usually required unless the patient has diarrhoea.
Verotoxin producing strains of *Escherichia coli* (*e.g. E.coli O157	Faecal-oral	Isolate in single cell whilst symptomatic with diarrhoea. May need microbiological clearance if a food handler or the person is of doubtful person hygiene/cannot maintain own hygiene.
Verruca/ warts	Contact	Isolation or single cell is not required. Verrucae should be covered in swimming pools, gymnasium and changing rooms.
Viral Haemorrhagic Fevers **Ebola, Marburg, Lassa Fever, Crimean-Congo Haemorrhagic Fever (CCHF)**	Direct contact with bodily secretions	**Highly infectious disease**. Isolate immediately in a single cell until transfer is organised to a high security infectious disease unit and seek medical / HPU advice. Blood & body fluids are highly infectious. Standard precautions and the use of personal protective equipment including water repellent gown, gloves, eye /face protection must be used when dealing with a suspected patient. The HPU must be notified as a matter of urgency.

1.4.0 -Summary of Communicable diseases and their management

1.4.1a Chickenpox and shingles (varicella zoster)

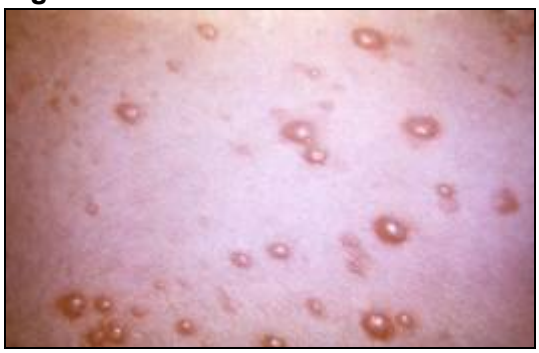
Chickenpox - causative organism

Chickenpox is an acute, infectious disease caused by the varicella zoster virus.

Clinical features

- Chickenpox may initially begin with cold-like symptoms followed by a high temperature and an intensely itchy, vesicular (fluid-filled, blister-like) rash. Clusters of vesicular spots appear over 3--5 days, mostly over the trunk and more sparsely over the limbs.
- The severity of infection varies and it is possible to be infected but show no symptoms.

Figure 1: Classic varicella rash



Source: Center for Disease Control and Prevention, Dr. K.L. Hermann, ID 5047
www.phil.cdc.gov/Phil/details.asp

Figure 2: Resolving varicella rash with encrusted lesions in resolution phase

Source: Department of Dermatology, University of Erlangen, Germany
www.clinical-virology.org/gallery/cvn_rash_bacteria_01.html

Reservoir
Humans

Transmission
Transmission is through:

- direct person to person contact
- airborne droplet infection
- contact with infected articles such as clothing and bedding.

Incubation period
The incubation period (time from becoming infected to when symptoms first appear) is from 10 to 21 days.
The most infectious period is from 1--2 days before the rash appears but infectivity continues until all the lesions have crusted over (commonly about 5 --6 days after onset of illness).

Treatment
Treatment is not normally indicated for chickenpox; it is a viral infection that will not respond to antibiotics. However, treatment with antiviral therapy may be used in some instances such as immunosuppression or pregnancy. Other treatments may be used to reduce symptoms such as fever and itchiness.

Prevention
Staff who have never had chickenpox or have never received a vaccine against chickenpox are at risk of both contracting and transmitting the infection in environments such as prisons or immigration removal centres. The higher than average risk in these environments is due to the closeness of the population and the fact that there are likely to be individuals who have never had chickenpox.

1.4.1b Shingles

Causative organism

Shingles is a local manifestation of reactivation of latent varicella infection in the dorsal root ganglia. Following primary infection with chickenpox, the varicella zoster virus can lay dormant in the nervous tissue for several years. It can reappear following reactivation of the virus as shingles (herpes zoster). It is not known what causes the virus to reactivate but reactivation is usually associated with conditions that depress the immune system such as old age, immunosuppressive therapy and HIV infection.

Clinical features

- The first sign of herpes zoster is usually pain in the area of the affected nerve - most commonly on one side of the chest or back.
- A rash of fluid-filled blisters then appears in the affected area, typically only on one side of the body.
- This rash is usually present for about seven days but the pain may persist for longer. Persistent pain is more common in elderly people and is termed 'post-herpetic neuralgia'.
- On average this lasts for 3--6 months, although it can continue for years.

Figure 3: Shingles rash

Source: Center for Disease Control and Prevention
www.cdc.gov/shingles/about/index.html

Transmission

Shingles is infectious, but less so than chickenpox varicella. It can be transmitted:

- Directly by person-to-person contact.
- From a shingles case if the lesion is on an exposed site and there is direct contact with a susceptible person.

People with shingles are contagious to those people who never had chickenpox or been protected by vaccination. Non-immune people who have had close direct contact with someone with active shingles are at risk of developing chickenpox. It is not possible to catch shingles if the person in contact is immune i.e. has had chickenpox.

Treatment

Shingles can be treated with oral antiviral drugs. Usually, the patient requires supportive treatment for the neurological pain such as analgesics.

NOTE:

If a person is immunosuppressed, reactivation of the zoster virus can manifest as disseminated shingles. In this instance, the person is managed as per chickenpox isolation guidelines.

Detailed guidance on chickenpox and shingles is available on the HPA website[1]

[1] Guidance on chickenpox and shingles in prisons, places of detention and immigration removal centres (2008)

www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1204186195209

1.4.2 Diphtheria

Causative organism

Diphtheria is a rare disease caused by the bacteria *Corynebacterium diphtheria* and *Corynebacterium ulcerans.*

Clinical Features

This depends on where the infection is.

- Respiratory diphtheria – sore throat, fever, enlarged cervical lymph nodes and swelling of the soft tissues of the neck.
- Nasal diphtheria – may be blood stained nasal discharge
- Cutaneous diphtheria – small ulcers, often on the legs.

It is a serious disease in those who have not been immunised. The toxin produced by the bacteria can damage the heart and nervous system and can be fatal in severe cases.

Reservoir

Humans

Transmission

The *C. diphtheria* bacteria are spread by close contact over a period of time with someone who has the illness or is a carrier.

The *C. ulcerans* bacteria can be spread by very close contact over a period of time with animals that carry the bacteria in their nose or throat or by drinking unpasteurised milk or eating products made from unpasteurised milk.

Incubation Period

The incubation period is 2--5 days, occasionally longer.

Infectious Period

Cases are no longer infectious after three days of antibiotic treatment. Untreated cases are infectious for up to four weeks.

Treatment

Treatment is urgent and should not be delayed. Patients with respiratory diphtheria require hospitalisation and treatment with diphtheria antitoxin. They will also be given antibiotics to eliminate the bacteria and a dose of diphtheria vaccine upon recovery because prior infection does not necessarily protect against further infection. People who have been in contact with a case will have their risk of infection assessed and may receive preventative antibiotic treatment and a booster vaccination.

Prevention

Diphtheria vaccine is administered as part of a combined childhood vaccine. See Section 2 for information regarding uncertain or incomplete immunisation status for prisoners.

1.4.3 *Escherichia*.coli O157

Causative organism
Escherichia coli (E. coli) are common bacteria that live in the intestines of warm blooded animals. Certain forms (strains) of E. coli are normally found in the intestine of healthy people and animals and cause no ill effects. However, some strains are known to cause illness in people. Among these is a group of bacteria which are known as Vero cytotoxin-producing E. coli or VTEC.

The most important VTEC strain to cause illness in the UK is *E. coli* O157. (The following information applies to VTEC O157 only).

Clinical Features
Infection with *E.coli* O157 may cause no symptoms or persons may suffer from:

- Diarrhoeal illness
- Haemorrhagic colitis with bloody diarrhoea and severe abdominal pain but usually no fever
- Haemolytic anaemia
- Thrombocytopaenia (particularly in children) and thrombocytopenic purpura (particularly in adults).
- Haemolytic Uraemic Syndrome (HUS) is a common cause of acute renal failure especially in children and can be life threatening. It is important to ensure that any prisoner diagnosed with *E.coli* O157 is passing urine appropriately.

Reservoir
The principal reservoir for VTEC O157 in the UK is cattle.

The organism can be found in the faeces of many livestock and wildlife species and is found in the intestines of healthy cattle, sheep, goats and a wide range of other species. The disease is a zoonosis.

Transmission
Primary infections are acquired by:

- Consumption of contaminated food:
  - Foods derived from infected animals:
    - mainly beef products especially undercooked dishes made from mince such as burgers, meat balls, meat loaf etc;
    - unpasteurised milk and soft cheeses etc made from unpasteurised milk;
  - Salad vegetables, herbs and fruit that have been contaminated through irrigation by contaminated water; the use of inappropriate fertilizers; or contact with faeces from local livestock or wildlife;
  - Ready-to-eat foods such as cold cooked meats, salad vegetables and cut fruit that have been contaminated through cross-contamination from infected raw meat or those that were prepared by infected food handlers.

- Consumption of contaminated water from untreated sources or from supplies that have had treatment failures.
- Contact with infected animals or their faeces, particularly on farms, including open farms.
- Recreational exposure to water from rivers, streams, ponds and lakes that has been contaminated with agricultural run off or faeces from wildlife.

Secondary infections are acquired by person-to-person spread by direct contact (faecal-oral). This is particularly important in prisons where many people live in close proximity.

Incubation period
The incubation period for the diarrhoeal illness is 1--8 days and is usually 3--4 days, although the incubation period can be longer
It is important that someone with *E. coli* O157 is NOT prescribed antibiotics in primary care because these could be harmful.

Infectious Period
E. coli O157 is infectious during the period that bacteria are excreted in the stool, which may be prolonged.

Diagnosis
Diagnosis is by isolation of the causative organism in a stool sample especially if specimens are obtained within four days of the onset of symptoms. A serum or saliva sample is useful for younger children in the absence of a faecal sample. For HUS cases where the bacteria have cleared from the intestine, serological diagnosis may be the only option.

Prevention and special precautions
Recommendations for the prevention of cross infection within the prison.
It is important that prisoners or children living in the prison environment with *E. coli* O157 should be clinically assessed and may require admission to hospital. If the case stays in the prison environment, it is important that adequate standard infection control measures are implemented to reduce the risk of cross infection.

The HPU will advise on prevention and special precautions including the possible exclusion of prisoners from work or education.

Risk Groups
High-risk groups for ongoing transmission
Group A: Any person of doubtful personal hygiene or with unsatisfactory toilet, hand-washing or hand drying facilities at home, work or school. This includes people in circumstances where hygiene arrangements may be unreliable.

Consideration should be given as to whether infant or school-aged children (aged six or seven years) are able to satisfactorily observe good personal hygiene.

Prisoners diagnosed with *E. coli* O157 or a cell mate of someone diagnosed with the infection may need to be excluded from work or education until two consecutive negative faecal specimens, taken at least 48 hours apart have been obtained.

This will need further discussion with healthcare and your local HPU.

Group B: Children under five who live within the prison setting and are diagnosed with the infection should be excluded from the nursery or play-group environment until two consecutive negative faecal specimens, taken after recovery and at least 48 hours apart, have been obtained.

A child under five whose mother is diagnosed with *E. coli* O157 should also be excluded from the nursery or play-group environment until two consecutive negative faecal specimens, taken after recovery and at least 48 hours apart, have been obtained.

Group C: People whose work involves preparing or serving unwrapped food to be served raw or not subjected to further heating. A prisoner who is a food handler or member of kitchen staff who has *E. coli* O157 infection should be excluded from work until two consecutive negative faecal specimens, taken after recovery and at least 48 hours apart have been obtained.

A cell mate, who is a food handler, of someone diagnosed with *E. coli* O157 should also be excluded from working as a food handler until two consecutive negative faecal specimens, taken after recovery and at least 48 hours apart, have been obtained.

Group D: Clinical, social care or nursery staff who work with young children, the elderly, or any other particularly vulnerable people, and whose activities increase the risk of transferring infection via the faeco-oral route. Such activities include helping with feeding, or handling objects that could be transferred to the mouth.

Members of staff with *E. coli* O157 should be excluded from work until two consecutive negative faecal specimens, taken after recovery and at least 48 hours apart, have been obtained.

Cell mate and other contacts
Contacts in groups A to D should be screened microbiologically, initially to identify those who are excreting VTEC and subsequently for microbiological clearance. The prison must consider the adequacy of hygiene and toilet facility arrangements. Hand washing by children should be supervised.
Since *E. coli* O157 can be spread by the faecal-oral route, other factors should be taken into consideration, for example; inadequate hand hygiene and oral sex where the exchange of faeces may have taken place.

Exclusions from work and education
Guidelines for the control of VTEC infection suggest that cases are excluded for 48 hours after the first normal stool for cases not in risk groups. Cases and contacts in risk groups A to D should be excluded until microbiological clearance is obtained.

Microbiological clearance
Risk groups A to D only –

Two negative faecal specimens taken at intervals of not less than 48 hours apart. The ease of spread means that it is important to ensure that all cases and contacts in high-risk groups are no longer excreting *E. coli* O157 before being allowed to return to work and education. Such risks depend in part on the risk of transmission in the prison setting and can ultimately only be assessed locally.

1.4.4 Gastrointestinal Infection

A wide variety of bacteria, viruses and parasites may cause gastrointestinal (GI) infection: the, most commonly identified ones in the UK are listed in 4.4.1. Less common, but highly pathogenic infections such as cholera, typhoid and paratyphoid may be imported from abroad.

Transmission
Most GI infections are either food/water-borne or spread person to person.

Prevention[1]

- Good hand hygiene immediately after going to the toilet and before handling/ eating food. Soap (preferably liquid) must be available to all staff and prisoners throughout the prison.
- Cases of gastrointestinal infection must be reported to the local HPU, either by telephone in urgent cases and/or outbreaks (**see Appendix 3 and 4**), or using the notification form and sending by fax or secure email.
- Where possible, a faecal sample should be sent to the laboratory in suspected cases for microbiology and virology studies.
- Cases, and in some instances contacts, who are in a risk group may need to be excluded from work (e.g. food handler), school or nursery for a period of time in order to limit secondary spread.

Groups that pose an increased risk of spreading infection
It is particularly important to assess infected prisoners or staff who belong to one of the four groups for whom special action should be considered:
Group A:- Any prisoner who may have difficulty implementing good standards of personal hygiene (e.g. learning difficulties) or where personal hygiene arrangements are unreliable (e.g. cells that do not have toilet facilities).

Group B:- Children aged under five who attend nurseries, nursery schools or playgroups.

Group C:- Prisoners and staff whose work involves preparing or serving unwrapped foods not subjected to further heating.

Group D:- Healthcare staff with direct contact, or contact through serving food, with susceptible patients or persons in whom intestinal infection would have particularly serious consequences.

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[1] Preventing person to person spread following gastrointestinal infections: guidelines for public health physicians and environmental health officers. Communicable Disease and Public Health Vol 7, No 4, December 2004.

Table Gastrointestinal Infections

Disease/ Organism	Incubation	Symptoms	Transmission	Infectious Period	Notes
Diarrhoea or vomiting – not specified	Variable	Diarrhoea and/or vomiting	Food, water Airborne Faecal-oral	Usually until 48 hours after diarrhoea stopped	
Bacillus cereus food poisoning	1 to 6 hours (vomiting) 6 to 24 hours (diarrhoea)	Nausea and vomiting or Diarrhoea & abdominal pain	Bacterial spores survive cooking, replicate in cooked food and produce toxins	Not infectious to others	Environmental spores. Particularly associated with rice - cooked, cooled slowly & reheated
Campylobacter	1 to 10 days (usually 2 to5 days)	Diarrhoea Abdominal pain Bloody diarrhoea Vomiting uncommon	Food, water Animal contact Faecal-oral	While organisms are present in stools - usually until 48 hours after diarrhoea stopped	Common. **Animals especially poultry are reservoir**
Cryptosporidium	1 to 12 days (usually 7 days)	Prolonged diarrhoea	Water, food Faecal-oral	While cysts are present in stools - usually until 48 hours after diarrhoea stopped - may be weeks	Can cause severe illness if HIV positive
***E. coli* O157**	1 to 8 days (usually <4 days)	Diarrhoea Abdominal pain Bloody diarrhoea	Food Water Faecal-oral Environmental contact		Low infectious dose Animal reservoir Serious complications and death can occur

Disease/ Organism	Incubation	Symptoms	Transmission	Infectious Period	Notes
Giardia	3 to 25 days (usually 7 to10 days)	Prolonged diarrhoea Abdominal cramps Weight loss	Faecal-oral Water	As long as symptoms persist Asymptomatic carriage	Low infectious dose Can be hard to isolate in faeces
Hepatitis A (infective hepatitis)	15 to 50 days (usually 28 to30 days)	Fever & malaise Nausea Abdominal pain Jaundice	Faecal-oral Water & food Possibly sexual contact	For 7 to 14 days before onset of jaundice to 7 days after onset of jaundice.	Consider vaccination of sexual partners and close contacts
Norovirus	24 to 48 hours	Usually vomiting Diarrhoea Abdominal pain	Airborne Faecal-oral	Usually until 48 hours after diarrhoea stopped	Humans only reservoir Very likely to cause outbreaks
Paratyphoid fever	1 to 10 days	Fever Headache & malaise Rash Often constipation	Food Water Faecal-oral Possibly urine	While organisms present in stool or urine Prolonged carriage occurs	Humans only reservoir Exclude food handlers - until 6 consecutive negative stool samples at fortnightly intervals
Rotavirus	24 to 72 hours	Usually vomiting Fever Watery diarrhoea	Airborne Faecal-oral	While virus shed in stools - usually 8 days	Seasonal Very likely to cause outbreaks
Salmonella	6 to 72 hours (usually 12 to 36 hours)	Diarrhoea Abdominal pain Nausea and vomiting	Food and water Faecal-oral	While organisms present in stool Prolonged carriage occurs	Animal reservoir, particularly eggs and chicken

Disease/ Organism	Incubation	Symptoms	Transmission	Infectious Period	Notes
Shigella	12 hours to 4 days	Diarrhoea Abdominal cramps Fever Nausea & vomiting	Faecal-oral Water & food	While organisms present in stool - may be several weeks (antibiotics reduce)	Humans only reservoir Low infectious dose
Staphylococcal food poisoning	30 minutes to 8 hours (usually 2 to4 hours)	Abrupt onset Vomiting Abdominal cramps Sometimes diarrhoea	Staphylococci multiply in food and produce toxin which causes symptoms.	Not infectious to others	Prevent by temporarily excluding food handlers with boils and abscesses
Typhoid fever	3 days to 3 months (usually 7 to 21 days)	Fever Headache & malaise Rash Often constipation	Food Water Faecal-oral Possibly urine	While organisms present in stool or urine Prolonged carriage occurs	Humans only reservoir Exclude food handlers - until 6 consecutive negative stool samples at fortnightly intervals

1.4.5 Hepatitis A

Causative organism

Hepatitis A virus (HAV) has only one serotype. The virus resists inactivation by lipid solvents, extremes of pH and moderate temperatures. Infection is followed by lifelong immunity so once someone has been infected they can never be infected again.

Clinical Features

Hepatitis A is the most common cause of acute hepatitis. In childhood the majority of cases are asymptomatic. In adults there are usually a few days of:

- Prodromal malaise
- Fever
- Anorexia
- Nausea
- Abdominal discomfort
- Jaundice in 70--80% of cases

Severity increases with age and in people with underlying health conditions, e.g. liver problems or immunosuppression, but complete recovery without sequelae is the rule. Complications are few: less than 1% may develop overwhelming liver failure.

Reservoir

Humans

Transmission

Person-to-person and faecal-oral.

Person-to-person spread is the most usual method of transmission although contaminated food or drink may sometimes be involved. Sexual practices, such as oro-anal contact ('rimming'), have also been implicated in transmission.

Incubation period

The usual incubation period is 28 days (range 15--50 days).

Infectious period

Peak infectivity occurs in the week prior to the onset of jaundice, and falls after the first week of jaundice. Children and infants may shed HAV longer than adults although chronic carriage does not occur. Immunity following infection protects against re-infection and appears to persist for life.

Diagnosis

Diagnosis is by serology. Any patient presenting with jaundice requires blood tests for liver function and hepatitis markers.

Treatment

Any prisoner with jaundice requires a full clinical assessment.

Exclusion from work/education

All cases in risk groups; children under five, food handlers, healthcare workers and older children and adults who may find it difficult to implement good standards of personal hygiene should be excluded for seven days after the onset of jaundice and/or symptoms.

Management of sporadic cases of HAV and outbreaks

Definition of a contact:

- A prisoner sharing the same cell as the case or who regularly shares food or toilet facilities with the case during the infectious period. This is likely to not include other prisoners or staff on the wing in an outbreak situation, however this will be risk assessed at the incident/outbreak meeting.
- Any prisoner who has regularly eaten food prepared/served by the index case during the infectious period, or who ate food prepared/served by the index case on a single occasion during the infectious period if there is concern about the hygiene practices of the index case or if the index case had diarrhoea at the time of food preparation/serving.
- Any prisoner who has engaged in sexual activity with the index case.
- If the index case is a child in nappies or requiring assistance with toileting, any person who has been involved in nappy changing or assistance with toileting during the infectious period.

Management

- Patient management and the need for prophylaxis of contacts must always be discussed with the local HPU.
- The patient should be reminded of the importance of good standards of personal hygiene, especially washing hands after using the toilet.
- The patient should be cared for in a single cell under enteric precautions for a week after the onset of jaundice. This includes sanitary disposal of faeces, urine and blood. In institutionalised patients, use a separate room, preferably with its own toilet. Good hygiene, principally hand-washing should be part of the response to every identified case of HAV infection.
- Close household contacts of the case (who share bathroom and kitchen) may receive post-exposure prophylaxis (see below) if they have been in contact with the case in the two weeks around the onset of jaundice.
- Investigation of the source of infection is required and the HPU and the local environmental health officers (EHO) will aid this process (see questions that may be asked below).

Immunisation for contacts

- Immunisation with the hepatitis A vaccine is the primary method used in protecting contacts.
- It also used in the wider community in the advent of a possible outbreak. The use of vaccine is preferred for the control of outbreaks that affect people more likely to get hepatitis A, such as prisoners.
- Protection is achieved 10--14 days from the first dose of vaccine.
- Human normal immunoglobulin (HNIG) is used for contacts who are defined to be at risk of serious complications of HAV infection. If given within 14 days of exposure, HNIG is effective in preventing 80--90% of infections in contacts.
- If HNIG is given after 14 days it can attenuate the infection in at risk contacts.

- Pregnant women exposed to a case of HAV should be given prophylaxis because the liver is vulnerable during pregnancy and HAV may lead to foetal loss. HNIG or vaccine are both safe in pregnancy although vaccine is not recommended by the manufacturers.

Hepatitis A vaccine schedule

- Children and adolescents up to 15 years old:
  One single dose, 0.5ml (720 ELISA units)
- Adults:
  One single dose, 1ml (1440 ELISA units)
  A booster dose given at 6--12 months increases protection to at least 10 years.

Questions to ask

A. About risk groups:

- Family contacts of cases.
- Travellers to areas where hepatitis A is endemic, e.g. military personnel when deployed to endemic areas.
- Staff and residents of residential care homes, child day-care centres (especially in centres with children in nappies) and other institutions where hygiene may be hard to maintain.
- Other healthcare workers, including lab workers and hospital cleaners.
- Sewage workers.
- Homosexual males who practice oral-anal contact.
- Intravenous drug users (transmitted in blood via needle-sharing and in faecally-contaminated drugs).
- Recipients of blood and blood products.

B. About exposure to vehicles of faecal-oral transmission.

- Contaminated drinking water.
- Shellfish from sewage-polluted waters that are eaten raw or inadequately cooked.
- Foods handled without sufficient hygienic precautions and not subsequently cooked.
- Recreational/occupational contact with faecally-contaminated water, e.g. diving, sailing etc.
- Foods such as lettuce irrigated with faecally-contaminated water and not adequately washed.

1.4.6 Hepatitis B

Causative organism
Hepatitis B virus (HBV) is a double stranded DNA virus.
Clinical Features
HBV can cause an acute illness that lasts several weeks. People can take several months to a year to recover from the symptoms. HBV can also cause a chronic liver infection that can later develop into cirrhosis of the liver or liver cancer. Symptoms vary from person to person from a mild to a severe overwhelming illness that can be fatal.

Common symptoms include:
- Anorexia
- Joint pains
- Nausea and vomiting
- Abdominal discomfort
- Jaundice (yellowing of the eyes)
- Dark urine

Among adults, 90--95% of those infected recover fully, but 5--10% of adults with acute infection become long-term carriers. Carriers may have no symptoms but are infectious.

Reservoir
Humans

Transmission
In the UK, most cases are contracted through injecting drug use or sexual intercourse. perinatal and Iatrogenic transmission can also occur. When assessing the risk of transmission, consider if the “donor” is antigen, in particular ‘e’ antigen positive and the type of exposure.

The virus may be transmitted by contact with infected blood or body fluids such as through household or sexual contact with an infected person. The virus can be spread by the following routes:

- Sharing or use of contaminated equipment during injecting drug use.
- Vertical transmission (mother to baby) from an infectious mother to her unborn child.
- Sexual transmission.
- Receipt of infectious blood (via transfusion) or infectious blood products (for example clotting factors).
- Injuries from needlesticks or other sharps, and other body fluid exposures.
- Tattooing and body piercing with contaminated equipment.

Incubation Period
This varies from14--200 days and is usually more than 40 days.

Infectious period
The failure to clear hepatitis B infection after six months leads to the chronic carrier state. Many people who become chronic carriers have no symptoms and are unaware that they are

infected. These individuals will remain infectious and will be at risk of developing cirrhosis and primary liver cancer.

Laboratory Confirmation
This is by detecting surface antigen (HbsAg), or antibodies to the hepatitis B core antigen (anti HBc IgM), which is a marker of acute infection. Acute Hepatitis B is a notifiable disease.

4.6.1 Interpretation of hepatitis B blood test results

Antigens		**Antibodies**			**Status**
HBs	HBe	Anti HBs	Anti HBc	Anti HBe	
-	-	+	-	-	Vaccinated and/ or protective immunity
+	+	-	IgM +	-	Acute infection
+	+	-	+	-	High infectivity carrier
+	-	-	+	+	Low infectivity carrier

Treatment
Treatment is initiated following specialist assessment. Alpha interferon is an antiviral drug that is used to treat patients with chronic hepatitis B infection. Other drugs with antiviral properties, such as lamivudine, are also used. Not all patients are suitable for treatment.

Prevention
As well as precautions to prevent blood-borne virus infections in general, hepatitis B may be prevented by immunisation. Immunisation is not available to the general population, but is advised for those at increased risk. It is recommended that the following groups are offered hepatitis B vaccination:

- All prison service staff in regular contact with prisoners, including regular visitors to the prison such as the Board of Visitors, teachers etc.
- All unimmunised prisoners should be offered immunisation against hepatitis B at reception screening, and immunisation should begin within one week of reception. Prisoners should receive the super accelerated course of single hepatitis B immunisation. TWINRIX (combined A & B vaccine) should be considered if the prison population is static.
- In the event of an outbreak the super accelerated course of single immunisation should be used.

Hepatitis B vaccination schedule:

- Children and adolescents up to 15 years should receive four doses at 0, 1, 2 and 12 months.
- Adults in prisons should receive the super accelerated course of single hepatitis B vaccination this consists of four doses administered at 0, 7, 21 days and a booster at 12 months if considered at high risk. **(This super accelerated schedule is only licensed for adults aged over 18 years).**
- In persons aged 15--18 years a schedule of 0, 1, 2 and 12 months should be administered.

Prevention of transmission of hepatitis B

- The transmission of hepatitis B following a significant exposure may be prevented by vaccination (and in some circumstances immunoglobulin).
- Condoms should be used for all sexual contact with a partner whose HBV status is unknown. Prison and places of detention should provide condoms for prisoners.
- In the absence of a needle exchange programme, all injecting works should be cleaned in disinfection tablets.
- Individuals who undergo body piercing/tattooing should ensure that disposable sterile needles and equipment are used.
- Sharing of personal items like toothbrushes, injecting equipment and razors should be avoided.
- In a healthcare setting, standard precautions should be adhered to. All blood, body fluids and body tissues should be treated as potentially infectious at all times.

Hepatitis B in prisons

There is a significant overlap between the prison population and the population of injecting drug users (IDU) in the community. Around 40,000 problematic drug users are in prison at any one time, which is about half of the standing prison population at any one time.

Prison is a setting where there may be a significant number of people infected with hepatitis B and where large numbers of people at risk of infection can be offered vaccination. Vaccinating high-risk individuals in prison is a good public health measure to prevent cases of acute hepatitis B among IDU in the community.

Uptake of hepatitis B vaccination is a Department of Health key performance and quality indicator.

1.4.7 Hepatitis C

Causative organism
The hepatitis C virus (HCV) is an RNA virus. At least six different genotypes and more than 90 subtypes exist.

Clinical features
Hepatitis C infection affects people in different ways. Many experience no symptoms while others experience:

- Extreme tiredness and can feel very unwell
- Fatigue
- Weight loss, nausea
- Flu like symptoms
- Problems concentrating
- Abdominal pain
- Jaundice

Transmission
Hepatitis C is a blood-borne virus infection. The virus is spread when blood from an infected person gets into the bloodstream of another.

Today, injecting drug use is the most common way to acquire hepatitis C virus infection. Individuals who inject drugs acquire their infections when they share contaminated injecting equipment with other infected individuals.

In the UK, blood donations have been screened for hepatitis C since September 1991. Consequently, it is now highly unusual to acquire hepatitis C virus infection by blood transfusion. However, some people who received blood prior to 1991 or blood products prior to 1986 could be infected if they received blood from a donor who was carrying the hepatitis C virus. It is also possible to acquire hepatitis C virus infections by blood transfusion in a country that does not screen its blood for the virus.

Unlike many other blood-borne viruses, sexual transmission is thought to be relatively rare. Nevertheless, it may occur and people with new or casual sexual partners are advised to use condoms to protect them against all sexually transmitted infections.

Infection is not acquired through normal social contact, but it can occur in situations where blood can be transferred from one person to another, for example by sharing razors or toothbrushes. It is also possible to acquire hepatitis C infection during body piercing (like tattooing or acupuncture) if sterile equipment is not used.

The risk of a mother infecting her newborn baby with hepatitis C is estimated to be less than 10%. This risk is highest in mothers who are also infected with HIV and in those who have particularly high levels of virus circulating in their blood. Current regulations do not advise HCV-infected women against breast-feeding because there is insufficient evidence to assess the risk of transmission via breast milk.

Incubation period
The incubation period is 6--9 weeks but can range from two weeks to six months.

Infectious Period
It is estimated that around 15--20% of infected people clear their infections naturally within the first six months of infection. For the remainder, hepatitis C is a chronic infection that can span several decades and can be life-long.

In the 80--85% of individuals who fail to clear their infections naturally, the outcome of infection is extremely variable. Many people never develop any signs or symptoms of liver disease in their lifetime and consequently may not even know that they have been infected. Other people go on to develop serious liver disease. It is not currently possible to work out who will progress to serious liver disease and who will have only very mild, if any, disease.

In most cases the infection will not be apparent for many years. This is partly because the liver has a remarkable capacity to 'cope' with the infection. Symptoms do not often develop until the liver has been quite extensively damaged. Alcohol consumption, acquiring the infection at an older age, and being male, have all been shown to be associated with more progressive disease.

Diagnosis
Diagnosis is by testing blood serum and hepatitis C antibody (anti-HCV). This shows that the patient has been infected with hepatitis C in the past, but it does not give any indication of degree of infectivity, which is detected by viral PCR. Patients with hepatitis C should be referred to a hepatologist/gastroenterologist for assessment and advice.

Treatment
The treatment of choice for individuals with chronic hepatitis C infection is a combination of two drugs: interferon and ribavirin. This combination therapy is successful in clearing virus from the blood of around 40% of those treated. However, not everybody is suitable for treatment or can tolerate it. Factors such as age, sex, duration of infection, the strain of the virus, and the degree of existing liver damage determine the effectiveness of treatment. New more effective treatments are likely to become available in the near future.

Prevention
There is no vaccine available for protection against HCV. Prevention is centred on stopping the blood from infected individuals from coming into contact with others.

- Injecting drug users are at high risk of infection and when injecting cannot be avoided, sterile injecting equipment should always be used; injecting equipment should never be shared.
- Individuals who undergo body piercing/tattooing should ensure that disposable sterile needles are used.
- Sharing of personal items, like toothbrushes and razors, should be avoided.
- Wounds and cuts should be cleaned and covered with waterproof dressings.
- Blood spills should be cleaned-up with undiluted bleach.

- In a healthcare setting, standard infection control precautions should be adhered to; all blood, body fluids and body tissues should be treated as potentially infectious at all times.
- Condoms should be used for all sexual contact with a partner whose HCV status is unknown. Prison and places of detention should provide condoms for prisoners.

Hepatitis C in prisons

Around half of intravenous drug users with hepatitis C remain unaware of their infection. As many IDU pass through the prison system and because tattooing is common, information should be provided to prisoners and blood borne virus testing should be offered.

Uptake of testing for hepatitis C is a Department of Health prison health performance and quality indicator.

1.4.8 Human Immunodeficiency Virus (HIV)

Causative organism
Human immunodeficiency virus is a retrovirus. Two types have been identified: type 1 (HIV-1) and type 2 (HIV-2).

Clinical features
An acute febrile illness, similar to glandular fever, can occur one to three months after the initial infection with HIV, but there may only be very mild symptoms that may go unnoticed. HIV infection damages the immune system, which can lead to the development of a number of opportunistic infections such as TB, various types of cancers and neurological problems. This is described as late stage or advanced HIV infection (previously referred to as AIDS, (acquired immune deficiency syndrome). HIV-related deaths are caused by these other infections and conditions.

Reservoir
Humans

Transmission
- HIV is spread from person to person as a result of exposure to infected blood or tissues
- Sex between men and women
- Sex between homosexual and bisexual men
- Mother to child
- Injecting drug use

Incubation period
The time period between becoming HIV positive and developing advanced HIV can vary from less than a year to up to ten years or longer. Antiviral treatments mean that increasingly, many people remain relatively well for many years after becoming HIV positive.

Diagnosis
Diagnosis is through a blood test or a finger prick test. The commonly used HIV test does not detect the HIV virus, but an antibody produced by the body in response to the infection. There may be a delay of 3--4 months between the time of exposure to HIV and the development of enough antibody for the HIV test to become positive. During this time, the test will be negative, but the infection can still be transmitted to other people.

Treatment
All prisoners with HIV will require referral for specialist care. Antiretroviral drug treatment is the main type of treatment for HIV. Treatment is not a cure, but it can prevent people from becoming ill for many years. The treatment consists of a combination of drugs that are taken every day for the rest of a person's life. The aim of antiretroviral treatment is to stop HIV reproducing and allows the immune system to recover from any damage that HIV might have previously caused.

Prevention

- There is no vaccine available for the prevention of HIV infection.
- The general guidance for prevention of blood-borne viruses should be followed to reduce the risk of infection.
- Condoms should be used for all sexual contact with a partner whose HIV status is unknown.
- Individuals who undergo body piercing/ tattooing should ensure that disposable sterile needles are used.
- Sharing of personal items like toothbrushes, injecting equipment and razors should be avoided.
- In a healthcare setting, standard infection control precautions should be adhered to; all blood, body fluids and body tissues should be treated as potentially infectious at all times.
- Post exposure prophylactic (PEP) antiviral drugs begun within hours (and certainly no later than 48 to 72 hours after exposure) of a significant exposure to HIV virus may prevent infection occurring. Information, support and advice can be obtained from GUM clinics and the HPU. Prison healthcare should have a policy for access to PEP and advice.
- All pregnant women are now offered an HIV test during pregnancy which has greatly reduced the risk of children being born with HIV infection.

1.4.9 Influenza (Flu)

Causative organism
Influenza or flu is an infection caused by a virus that mostly occurs during the winter months. There are two main types that cause infection-influenza A and influenza B. Most outbreaks of influenza are caused by type A viruses. The viruses are constantly changing so that different strains predominate from year to year.

Clinical features
Many people who think that they have flu may just have a bad cold. Usually what people call gastric flu is a gastrointestinal infection caused by another virus.

Flu affects mainly the nose, throat and the lungs. The symptoms usually consist of:

- High fever of 38.9--40.0°C (102-104°F) which lasts 3--4 days
- Headaches
- Chills
- Dry cough
- General muscle aches and pains which can be severe.
- A stuffy nose, sneezing and a sore throat can also be present and some children may feel sick (nausea), or have vomiting and diarrhoea.

Most people recover completely from influenza in a matter of days or a week. For others, for example the elderly, newborn babies and those with other illnesses (such as chest or heart disease, or diabetes), influenza can be a serious illness.

Serious illness from influenza is usually not due to the flu itself but to secondary bacterial infections causing lung infections (bronchitis and pneumonia) or to a worsening of underlying chronic medical condition such as heart disease.

Reservoir
Humans

Transmission
Influenza is spread via respiratory droplets and is caught by breathing in air containing the virus and via direct and indirect contact with surfaces. The virus is passed into the air when an infected person coughs or sneezes, is highly infectious and can spread rapidly from person to person. Human influenza virus can survive for many hours on hard surfaces. Anyone can catch flu; the highest rates of infection are often in school age children.

Incubation period
Usually 1--3 days.

Infectious period
Usually 3--5 days from clinical onset in adults, up to seven days in young children.

Diagnosis
Diagnosis of influenza in the community is clinical. In prison, swabs for virology may be recommended by the HPU in an outbreak situation.

Treatment
Prisoners in clinical risk groups may be offered anti viral treatment in keeping with NICE and HPA guidance.

Prevention
There is a vaccine against flu. Each year a new vaccine is produced to protect against the flu viruses that are expected to circulate that winter. How effective the vaccine will be depends on how well the vaccine matches the strains of flu that circulate that year.

The vaccine is very safe and cannot cause flu. The vaccine is given in the autumn before the flu season begins. It is not recommended for everyone but it is advisable for those likely to be more seriously affected by flu[1], such as everyone over 65 years, pregnant women and those with chronic heart, lung and metabolic disorders. Healthcare workers should also be immunised. The Department of Health clarifies the risk groups in guidance issued each year in the Chief Medical Officers letter and the Green Book "Immunisation and Infectious Disease" chapter on influenza

Prisoners in clinincal at risk groups should be offered the Influenza vaccination at the beginning of the influenza season each year.

Pandemic flu
Pandemics arise when a new virus emerges against which the human population has little or no immunity, and which is capable of spreading worldwide. This can result in several, simultaneous epidemics worldwide with enormous numbers of deaths and illness.

The Influenza A H1N1 (2009) 'swine flu' pandemic virus emerged in Mexico in 2009 causing mild/asymptomatic disease in the majority of cases but severe illness and death in a small proportion of cases, particularly in more vulnerable groups. The threat of a more severe and disrupting pandemic remains. It is important that prisons are prepared for such an event.

Guidance on responding to the pandemic in 2009 was produced by the HPA and Offender Health. This has now been superseded by guidance on managing flu outbreaks in prisons for winter 2010/11 (Appendix 6)

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[1] Link to list of "risk" groups:
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_128075.pdf

1.4.10 Legionnaires' disease

Legionnaires' disease is a rare but serious illness and deaths may occur in approximately 10--15% of otherwise healthy individuals. The number of deaths reported may be higher in some groups of patients, such as those who have weakened immune systems.

Causative organism
Legionnaires' disease is an uncommon form of pneumonia caused by the legionella bacterium. The majority of cases are reported as single (isolated) cases but outbreaks can occur. All ages can be affected, but the disease mainly affects people over 50, and generally men more than women. Smokers and immunocompromised people are at a higher risk.
The bacteria are widely distributed in the environment. They can live in all types of water including both natural sources such as rivers and streams, and artificial water sources such as water towers associated with cooling systems, hot and cold water systems and spa pools. They only become a risk to health when the temperature allows the legionellae to grow rapidly, such as in water systems that are not properly designed, installed and/or maintained.

Clinical features
The range of symptoms includes a flu-like illness with muscle aches, tiredness, headache, loss of appetite, dry cough and fever, leading to pneumonia. Diarrhoea sometimes occurs and confusion may develop.

Reservoir

- Hot water systems (showers)
- Air conditioning cooling towers
- Evaporative condensers
- Humidifiers
- Whirlpool spas/ hot tubs
- Decorative fountains

Transmission
The infection is not contagious and cannot be caught from another person. People become infected when they breathe in legionella bacteria that have been released into the air in an aerosolised form (small water droplets that evaporate very quickly) from a contaminated source. Aspiration, where contaminated water gets into the lungs by mistake can be the source of infection in some rare cases. Once in the lungs the bacteria multiply and cause either pneumonia or a less serious flu like illness called (Pontiac fever).

All ages can be affected but it mainly affects people over the age of 50 and men more than women. Heavy smokers are also at risk from the disease.

Incubation Period
The incubation period ranges from 2--10 days, typically 5--6 days. In rare cases, some people may develop symptoms as late as three weeks after exposure.

Infectious period
Person-to-person transmission has not been documented.

Diagnosis
A rapid diagnosis can be made by testing a urine sample for antigen from the patient once the relevant symptoms have occurred.

Treatment
Antibiotics against the infection are effective in treating the disease.

Prevention
Control and prevention of the disease is through control of the source of the infection, i.e. by treating the contaminated water systems, and good design and maintenance to prevent growth in the first place.

Management of a prisoner and the prison environment
A prisoner with Legionnaires' disease will normally be admitted to hospital**. The infection is not contagious and cannot be caught from another person so there is no direct contact risk to other prisoners or staff. However, urgent and thorough investigation of the source of the infection is needed if it is thought that the person's exposure was within the prison in order to prevent further cases from occurring.** The incident must be reported to the health and safety department within the prison establishment. The HPU and local environmental health officers will work with the prison establishment to investigate the possible source of infection. An outbreak control team may be required in response to a single case.

1.4.11 Measles

Measles is one of the most highly infectious diseases known. It can be particularly severe in susceptible infants, pregnant women and immunocompromised people.

Causative organism
Measles is a systematic viral infection caused by a paramyxovirus.

Clinical features
In an **unvaccinated individual**, there is a prodromal illness with:

- High fever
- Coryzal respiratory infection
- Cough
- Conjunctivitis
- Runny nose
- Koplik spots appear during the early stage of the illness. These look like grains of salt on a red inflamed background and are found on the mucosa of the cheek.
- The rash starts on day 3--4 but spreads rapidly to cover the face, trunk and limbs. It is maculopapular, but not itchy

Source: Centre for Disease Control and Prevention

Reservoir
Humans

Measles Transmission:
Spread is from person to person by direct contact with nose and throat secretions or respiratory droplets

Incubation period
The incubation period (to onset of fever) is 8--13 days, usually about 10 days.

Infectious period
The period of communicability starts from one day before the onset of the prodrome symptoms (high fever and coryzal respiratory infection, usually about four days before rash onset).

Treatment
There is no specific treatment for measles. Treatment should be based on alleviating symptoms.

Prevention
Measles vaccine is one of the components of the measles, mumps, rubella (MMR) vaccine. For full protection two MMR vaccinations are required.

Measles is a notifiable disease and must be reported the local HPU as soon as it is suspected. A risk assessment is required to assess potential vulnerable contacts and prompt action is required to prevent an outbreak.

1.4.12 Meningococcal Infection (meningitis and/ or septicaemia)

Causative organism
Meningococcal infection is the spectrum of disease caused by the bacterium *Neisseria meningitidis.* The infection may present as meningitis, septicaemia or a combination of both.

Neisseria meningitidis (meningococci) is found naturally at the back of the throat or nose in about 10% of the population. Many adults and children carry the bacteria without ill effects. Many of the meningococci seem to be harmless and may prevent more dangerous meningococci getting into the body.

There are a number of different groups of meningococci:

- Five groups of *N. meningitidis* (A, B, C, W135, and Y) are the commonest causes of disease with B being by far the commonest in the UK.
- Meningitis C used to be a problem in the UK but now all children (and adults born from 1982 onwards) are vaccinated against it and, as a result, there are now very few cases each year.
- Meningitis A is a common cause of meningitis in Africa where there has also been outbreaks of meningitis W135. Meningitis A and W135 are usually caught as a result of travel or contact with someone who has recently travelled to the areas of the world where these forms of meningitis are common.
- Meningitis Y is rare in the western world but is gradually increasing with more people being affected. It is not known why some people become ill while others remain symptomless carriers of the bacteria.

Infection can occur at any age. However, most cases occur in children under four. The next highest incidence is recorded for teenagers between 15 and 19 years of age.

Clinical features
Meningitis usually causes a combination of the following symptoms:

Septicaemia	**Meningitis**
• Fever/Vomiting	• Fever/Vomiting
• Limb/joint/muscle pain	• Severe headache
• Cold hands and feet/shivering	• Stiff neck (less common in younger children)
• Pale or mottled skin	• Dislike of bright lights (less common in young children)
• Breathing fast/breathless	• Very sleepy/vacant/difficult to wake
• Rash (anywhere on the body)	• Confused/delirious
• Very sleepy/vacant/difficult to wake	• Rash (anywhere on the body, not present in all cases)
• Confused/ delirious	• Seizures

Source: DermNetNZ

Reservoir
Humans

Transmission

- Only rarely do meningococci overcome the body's defences and cause illness.
  When this does occur, the bacteria cause meningitis (infection and inflammation of the lining of the brain) and a severe condition called septicaemia (blood poisoning) where bacteria spread through the body in the blood.

- Meningococcal infection is not highly infectious.
- The bacteria are passed by close contact, so family members of a case and others who have close contacts with a case may be spreading the same germs. This usually means household or kissing contacts.
- Close contact in residential accommodation, such as prisons can also give the opportunity for the spread of infection.

Incubation period
Usually 3--5 days, although it may occasionally be up to 10 days.

Infectious period
Persons are usually no longer infectious 24 hours after starting appropriate antibiotic treatment.

Diagnosis and treatment
If meningitis is suspected, it is important that medical advice is obtained immediately and an emergency ambulance called. If meningococcal disease is suspected, and the patient has no record of penicillin allergy, benzylpenicillin should be given immediately by intravenous or intramuscular injection while awaiting emergency ambulance transfer.

Untreated, meningococcal disease can cause death within hours.

Action to be taken following a case of meningitis in a prison
In conjunction with the prison healthcare staff, the HPU will take the following action:

- Confirm the diagnosis with the hospital.
- If **viral** meningitis is suspected no further action is required.
- If **meningococcal** meningitis or disease is suspected, close contacts* should be identified following discussion between the HPU team, the affected prisoner, cellmates and prison staff.
- Close contacts of meningococcal disease may be carrying the germ in their throats and may be at an increased risk of developing the disease or passing it on to others. They will therefore be offered antibiotic prophylaxis with ciprofloxacin or rifampicin. These should only be prescribed on the advice of the HPU.

- Advice about meningococcal disease, including signs and symptoms to look out for should be given to close contacts to raise awareness about the disease and advise on what to do if they become unwell.

***Close contacts** include people who have had close and prolonged contact with the patient during the seven days before the onset of symptoms. In prison this will include anyone who:

- Shared a cell with an infected prisoner overnight or prolonged contact, discuss with the HPU.
- Had intimate kissing contact.
- Shared smoking equipment.
- Shared intravenous drug taking equipment.
- Gave mouth-to-mouth resuscitation to the case.

Other prisoners, prison staff and visitors who have **not** had this type of close contact would **not** usually require antibiotic prophylaxis.

Isolation or exclusion is not necessary for contacts or those convalescing after infection.

ACW135Y - If people are infected with meningitis A, C, Y or W135, they are treated in the same way in hospital as someone with meningitis B. However, for their contacts, the public health management involves vaccinating all of the contacts who have received antibiotics. The vaccine of choice is Menveo, which is a conjugated A, C, Y, W135 vaccine. This gives these people additional protection against these rare forms of meningitis.

Prevention

Prevention of the infection is through vaccination.

- Immunisation against meningitis C. Meningitis C vaccination is available to prevent the Group C strain and should be offered at reception screening to all prisoners/young offenders under the age of 25 who have no previous history of such immunisation.
- Immunisation against serogroups A, C, W135, Y usually used for people travelling to endemic countries or following exposure to a case with confirmed A, C, W135 or Y.
- There is no vaccine against meningitis B.

Guidance for public health management of meningococcal disease in the UK, Health Protection Agency, January 2011.
www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947389261

1.4.13 Mumps

Causative Organism
Mumps is a systematic infection caused by the paramyxovirus.

Clinical Features
An acute viral disease characterised by:

- Headache and fever
- Swelling of the parotid glands, which may be unilateral (one side) or bilateral (both sides).

At least 30% of infected people experience no symptoms whilst others develop complications.Complications of symptomatic mumps include:

- Swelling of the ovaries (oophoritis)
- Swelling of the testes (orchitis)
- Aseptic meningitis
- Deafness

Other symptoms may include:

- Pancreatitis
- Neuritis
- Arthritis
- Mastitis
- Nephritis
- Thyroiditis
- Pericarditis

Cases may have no salivary gland involvement but develop symptoms elsewhere (orchitis, meningitis). Despite common belief there is no firm evidence that orchitis causes sterility.

Transmission
Mumps is contracted by direct contact with saliva or droplets from the saliva of an infected person.

Incubation period
The incubation period is 14--21 days. Mumps is transmissible from several days before the parotid swelling to several days after it appears. Contagiousness is similar to that of influenza and rubella but not as infectious as chickenpox or measles.

Exposed individuals should be considered infectious from 12--25 days after exposure.

Treatment
There is no specific treatment for mumps. Treatment should be based on alleviating symptoms.

Prevention
Mumps vaccine is one of the components of MMR vaccine. For full protection, two MMR vaccinations are required.

Suspected mumps should be reported promptly to the local HPU.

1.4.14 Norovirus

Norovirus is the most common cause of infectious gastroenteritis (diarrhoea and vomiting) in England and Wales. Infections can occur at any age because immunity is not long lasting.

The disease was historically known as 'winter vomiting disease' due to its seasonality and typical symptoms. It is also known as small round structured virus (SRSV) or Norwalk-like virus.

Clinical features

- Vomiting, diarrhoea, fever. Some people may also have a raised temperature, headaches and aching limbs.
- Symptoms usually begin around 12-48 hours after becoming infected. The illness is self-limiting and the symptoms will last for 12-60 hours. Most people make a full recovery within 1-2 days, however some people (usually the very young or elderly) may become very dehydrated and require hospital treatment.
- The infective dose is extremely low making norovirus highly infectious. Infectivity lasts for 48 hours after the resolution of symptoms. Excretion of virus can last for longer than 48 hours. It is important that affected individuals are kept in isolation for 48 hours after resolution of symptoms

Reservoir
Gastrointestinal tract of man

Transmission

- Person to person by the faecal oral route; risk of infection from aerosols of projectile vomit.
- Environmental contamination, especially of toilets; gloves should be used by cleaners.
- Contaminated food and water, especially bivalve molluscs (shell fish).

Incubation period
Usually 24--48 hours

Diagnosis
Stool culture, ensure to write ‘test for norovirus part of prison outbreak’ on the virology form.

Prevention
Outbreaks of norovirus gastroenteritis are common in closed environments such as prisons.

- The prison outbreak plan must be implemented at the start of the outbreak.
- Information for staff and prisoners can be displayed **(Appendix 7, 8 and 9)**

1.4.15 Pertussis (whooping cough)

Causative organism
Pertussis infection is caused by a bacterium called Bordetella pertussis that is found in the back of the throat of an infected person.

Clinical features

- An irritating cough gradually becomes outbursts of coughing (paroxysms), usually within one to two weeks, and often lasts for two to three months.
- Not all have the characteristic 'whoop', particularly in young infants. Cough spasms may be followed by a periods of vomiting.
- Symptoms may initially be similar to a common cold, progressing to coughing and choking spells.
- Severe complications and deaths occur mostly in infants under six months of age.
- Serious illness is less common in older children and adults, however, they have the potential to transmit infection to vulnerable babies.

Reservoir
Humans

Transmission
Transmission is by droplet spread from an infectious case.

Incubation period
The incubation period is 7--10 days.

Infectious period
A case is highly infectious during the early stage of the illness, before the typical cough; infectiousness then decreases and the case is not normally infectious three weeks after the onset of the paroxysmal cough. However, infectivity may persist up to six weeks.

Prevention
Acellular pertussis vaccination (see Section 2).

HPA guidelines for the public health management of pertussis. Health Protection Agency. February 2011.
www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/WhoopingCough/

1.4.16 Pneumococcal Disease

Causative organism
Pneumococcal disease is the term used to describe infections caused by the bacterium Streptococcus pneumoniae (also called the pneumococcus).

Clinical features

- The organism may spread locally into the sinuses or middle ear cavity, causing sinusitis or otitis media (middle ear infection), particularly in children.
- It may also affect the lungs to cause pneumonia.
- It can cause systemic (invasive) infections including bacteraemic pneumonia, bacteraemia and meningitis.
- The pneumococcus is also the commonest cause of community-acquired pneumonia.
- In children, the pneumococcus is the most common bacterial cause of otitis media.

Transmission
Transmission requires extensive close contact with cases or carriers and is usually by droplet spread, but may also be via direct oral contact or articles soiled by respiratory discharges.

Incubation period
The incubation period for exogenous infection is around 1--3 days. In endogenously acquired invasive disease in asymptomatic carriers, infection also occurs with an incubation period of several weeks.

Prevention
There are two types of pneumococcal vaccine:

- Pneumococcal polysaccharide vaccine (PPV)
- Pneumococcal conjugate vaccine (PCV)

Persons aged over 65 years and those in certain risk groups should receive the pneumococcal vaccination (see chapter 2).

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www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Pneumococcal/

1.4.17 Rashes in pregnancy

If a pregnant woman develops a rash or is in direct contact with a potentially infectious rash, a doctor should investigate. The greatest risk to pregnant women from such infections comes from their own child/children, rather than the workplace.

- Chickenpox can affect the pregnancy if a woman has not already had the infection. Exposure should be reported to the midwife or GP/prison doctor at any stage of exposure. The doctor/antenatal carer will arrange a blood test to check for immunity. Shingles is caused by the same virus as chickenpox. Therefore, anyone who has not had chickenpox is potentially vulnerable to the infection if they have close contact with a case of shingles.
- Rubella (German measles). If a pregnant woman comes into contact with rubella she should inform her midwife, GP/prison doctor immediately to ensure investigation. The infection may affect the developing baby if the woman is not immune and is exposed early in pregnancy.
- Slapped cheek disease (parvovirus B19) can occasionally affect an unborn child. If exposed early in pregnancy (before 20 weeks) the midwife, GP/prison doctor should be informed as this must be investigated promptly.
- Measles during pregnancy can result in early delivery or even loss of the baby. If a pregnant woman is exposed, she should immediately inform her midwife, GP/prison doctor to ensure investigation.
- All female staff under the age of 25 working with young children should have evidence of two doses of MMR vaccine.

Guidance on viral rash in pregnancy. Health Protection Agency. January 2011.
www.hpa.org.uk/cdph/issues/CDPHVol5/No1/rash_illness_guidelines.pdf

1.4.18 Scabies

Causative organism

Scabies is an inflammatory disease of the skin caused by the mite *Sarcoptes scabei.*

Clinical features

- A characteristic itchy rash occurs as the result of an allergic reaction to the presence of the mite under the skin.
- It may take up to six weeks from the beginning of the infection for this rash to appear. This is why scabies can spread so readily and why treatment of all close and intimate contacts needs to be done at the same time as treatment of the person with confirmed infection.
- People who are immunosupressed can have a very severe form of scabies with an atypical crusting rash that is more difficult to treat (crusted or Norweigan scabies). Atypical scabies is extremely infectious and may be transmitted by environmental contact with skin scales.

Source: DermNetNZ

Transmission

Scabies is transmitted by skin-to-skin contact with someone with scabies, usually among family members, people who are living in close proximity to each other, and sexual contact.

Treatment

- Scabies treatments are effective and outbreaks of infection can be stopped if treatment is planned and coordinated thoroughly and appropriate lotions are applied correctly to the right people at the same time.
- Usual lotions include: Malathion aqueous liquid – Derbac-M, Permethrin – Lyclear dermal cream.

Before treatment:

- Always confirm the diagnosis before commencing treatment.
- If an outbreak is suspected, contact the HPU for advice before treatment.

Planning treatment

- If only one prisoner requires treatment this can be carried out as soon as the prescription has arrived.

Two or more prisoners or an outbreak situation:

- Set a date for everyone identified as a close contact to treat themselves or to be assisted with treatment.

- A second treatment may need to take place one week after the first treatment.
- Ensure that the approach is coordinated.
- Order adequate amounts of the lotion.
- Issue lotion to the affected prisoners and those who have been identified as contacts, e.g. cell mates. Staff requiring treatment should visit their GP. Close contacts of infected prisoners, e.g. relatives and visitors who have had prolonged skin-to-skin contact must also be encouraged to treat themselves.

Prisoners with scabies **do not** require isolation.

On treatment day (first and second treatment)

- Treatment should be applied to cool dry skin, not after a shower. The lotion may evaporate or be absorbed too quickly into warm skin and not work properly. If a shower is necessary allow the skin time to cool before applying the lotion.
- The lotion should be applied thoroughly all over the body including the hands, armpits, genital area, soles of feet and the head avoiding face and eyes etc.
- Finger-nails should be cut short and underneath the nails thoroughly cleaned. The lotion should then be applied under the nails (it may be easier to do this with a cotton bud or similar).
- Lotion must be left on for the recommended time period.
- Lotion must be reapplied after washing any part of the body, including the hands.

After the recommended time period, the lotion can be washed off. Clothing and bedlinen should be changed and sent to the prison laundry as infected linen.

After treatment

- The treatment will kill the scabies mites, but they remain in the skin. Therefore the rash and itching may persist for several weeks after the treatment. The presence of the rash or continued itching after treatment does not necessarily mean the treatment has failed.
- Monitoring of prisoners and staff should continue after treatment to ensure that no new cases of scabies occur.

Apparent treatment failure may be due to inadequate contact tracing or inadequate or incorrect application of the treatment.

1.4.19 Sexually Transmitted Infections

	Common symptoms	Complications	Treatment	Restrictions
Gonorrhoea	Men • Discharge from urethra • pain on passing urine. Women • Vaginal discharge. • Bleeding on sexual contact / irregular bleeding • Abdominal pain	Men • Epididymitis (swollen painful testicle) Women • Possible infertility	Antibiotics	None
Chlamydia				None
Non Specific Urethritis (NSU)				None
Herpes	Painful genital ulcers	May recur	Aciclovir (anti viral tablets)	None
Genital Warts	Development of “warty spots”	May recur	Local applications of podophyllin paint, warticon cream, liquid nitrogen, trichloroacetic acid (or a combination of these)	None
Syphilis	• Painless ulcer – around genitals or mouth. • Rash over body –palms of hands and soles of feet • May have no symptoms.	Serious heart and nervous disease if untreated	Antibiotics	None
Hepatitis B	• Tiredness and aching, • Jaundice, • Flu like symptoms.	Long term liver damage	• Interferon or • Highly active anti retroviral therapy (not always appropriate) • Preventable by immunisation	Yes – if remains infectious.
HIV	• May have none initially • Flu like illness	Immune system failure leading to AIDS	Highly active antiviral therapy	None

1.4.20 Staphylococcal Infections

Causative organism
Staphylococcus aureus is a bacterium that is commonly found on human skin and mucosa (lining of mouth, nose etc). The bacterium lives completely harmlessly on the skin and in the nose of about one third of normal healthy people. This is called colonisation or carriage.
Staphylococcus aureus can cause actual infection and disease, particularly if there is an opportunity for the bacteria to enter the body e.g. via a cut or an abrasion.

Clinical features
Staphylococcus aureus causes abscesses and boils. The bacterium can infect accidental wounds such as grazes and deliberate wounds such as those made when inserting an intravenous drip or during surgery. These are called local infections. It may then spread further into the body and cause serious infections such as bacteraemia (blood poisoning). *Staphylococcus aureus* can also cause food poisoning.

Meticillin resistant staphylococcus aureus (MRSA)
MRSA is a type of *Staphylococcus aureus* that is resistant to meticillin (a type of penicillin) and usually to some of the other antibiotics that are normally used to treat *Staphylococcus aureus* infections.

Most people with MRSA do not suffer any ill effects. However, if it infects a wound, particularly deep surgical wounds, the infection can be particularly difficult to treat because it is resistant to most of the antibiotics used for such infections. Such infections are more likely to occur in people who are already unwell.

Transmission
Staphylococcus aureus bacteria including MRSA, are most commonly spread via hands, equipment, and sometimes the environment. It is important that healthcare workers clean their hands before and after performing healthcare interventions. Equipment should also be cleaned after use i.e. blood pressure cuffs.

MRSA infections occur more frequently in hospitals. Vulnerable or debilitated patients, such as patients in intensive care units, and patients on surgical wards, are particularly susceptible. However, MRSA infections can occur in the community and cases of MRSA have occurred within the prison setting. MRSA does not normally affect staff (unless they are suffering from a severe skin condition or debilitating disease). In general, healthy people are at a low risk of infection with MRSA.

Diagnosis

- A swab taken from the nose, perineum, abscess or broken skin.
- Blood cultures taken if someone is particularly unwell.
- Urine sample if someone has symptoms of a urinary tract infection.
- Sputum specimen if an individual has a productive cough

Prevention and management of MRSA

Because MRSA can be harder to treat if it causes an infection, good basic hygiene is important to prevent the spread of MRSA, just as it is important to prevent the spread of all other germs.

- General hygiene precautions should be carried out on a prisoner with MRSA as with anyone (see Standard Precautions, Section 3).
- Prisoners with MRSA do not normally require isolation and can join others in communal areas. If they have a wound, ensure that it is covered with an appropriate dressing.
- Clothing and bedding of prisoners with MRSA can be handled as normal linen (see Section 3).
- Healthcare staff should carry out any clinical activity on other prisoners first before attending the prisoner with MRSA.
- Healthcare staff with eczema or psoriasis should not perform clinical procedures on prisoners with MRSA.

Panton-Valentine Leukocidin (PVL) producing *Staphylococcus aureus*[1]

Panton-Valentine Leukocidin (PVL) is a toxin produced by some strains of *Staphylococcus aureus* and is associated with an increased ability to cause disease. The incidence of PVL-related disease in the UK is low at present. But it is important that healthcare professionals and the public are aware of the infections it can cause and the precautions that should be taken.

PVL can be produced by both meticillin sensitive and meticillin resistant strains of *S. aureus.*

Most of the PVL-positive *S. aureus* strains identified in the UK are sensitive to many antibiotics.

Clinical features

Infections caused by PVL strains of *S. aureus* include:

- Cellulitis (inflammation of layers under the skin)
- Pus-producing skin infections (e.g. abscesses, boils and carbuncles).

They can, however, on very rare occasions, lead to more severe invasive infections, such as:

- Septic arthritis
- Bacteraemia (blood poisoning)
- Necrotising pneumonia (a severe, life-threatening form of pneumonia).

Note: Not all people with PVL *S.aureus* will suffer an infection.

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[1] Guidance on the diagnosis and management of PVL-associated *staphylococcus aureus* infections (PVL-SA) in England. Health Protection Agency August 2008. www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1218699411960

Source: CDC/Bruno Coignard and Jeff Hageman

Transmission

Infection can occur due to:

- Overcrowding, for example in prisons.
- Skin abrasions resulting from close contact sports such as wrestling or rugby.
- Use of contaminated articles such as shared towels or razors.
- Poor hand hygiene.
- Damaged skin from other conditions such as eczema.

PVL-producing strains are more commonly contracted in the community and generally affect previously healthy young children and young adults. This contrasts with the so-called 'hospital-associated MRSA' strains, which do not usually produce PVL and are more commonly associated with wound infections and blood poisoning in elderly or severely ill hospitalised patients.

Treatment

Both types of PVL-producing *S. aureus* can be treated. It is important to diagnose infection early. Infections caused by many antibiotic-sensitive varieties of PVL-producing *S. aureus* are usually successfully treated with antibiotics such as some types of penicillin and erythromycin. PVL-producing MRSA are resistant to antibiotics of the meticillin class (e.g. flucloxacillin) and occasionally other antibiotics such as erythromycin. Effective treatment is available and this should be discussed with the microbiologist.

Prevention

- The risk to prisoners and staff of becoming infected with PVL- positive *S. aureus* is small. But it is always good practice to maintain appropriate hygiene measures, which include proper cleansing and disinfection of cuts and minor wounds. Wounds should be covered with a bandage until healed and individuals should avoid contact with other peoples' bandages and lesions.
- Other simple measures are regular bathing/showering, regular changing of linen and underwear, hand washing, not sharing personal items (e.g. toothbrushes, face cloths and towels).
- In shared facilities (for instance, in gyms), it is good practice to use liquid soap and disposable towels, to place a towel on the bench before sitting, and to ensure the facilities are cleaned frequently and that there is good ventilation to the locker room and showers.
- The infection control measures used to prevent the spread of PVL-positive MRSA are the same as for any type of MRSA infection. Standard infection control measures are effective and the most important first line of defence. In healthcare settings, measures include early diagnosis and treatment of cases, barrier nursing, and sometimes investigation of close contacts.

1.4.21 Streptococcal Infections

Streptococci are part of the normal human body flora and colonise the respiratory tract, gastrointestinal and genitourinary tracts. Several species cause disease, including Group A, Group B, Group C and G streptococci.

1.4.21a Group A streptococcal infection (GAS)

Causative organism
Group A streptococcal infections are caused by *Streptococcus pyogenes*, a bacterium that is commonly found on the skin or in the upper respiratory tract (nose and throat).

Clinical features
The most common presentations of GAS infection are:

- A mild sore throat ('strep throat').
- Skin/soft tissue infections such as impetigo and cellulitis.
- Scarlet fever.

Rare complications of GAS infection include:

- Acute rheumatic fever.
- Post-streptococcal glomerulonephritis (heart and kidney diseases caused by an immune reaction to the bacteria).

GAS can also cause more serious invasive infections (i-GAS) such as:

- Bacteraemia (an infection of the bloodstream).
- Necrotising fasciitis (a severe infection involving death of areas of soft tissue below the skin).
- Streptococcal toxic shock syndrome (rapidly progressive symptoms with low blood pressure and multi-organ failure).

Transmission
GAS infections are largely spread by aerosols produced in the nose and throat of infected people and through direct contamination of wounds. Injecting drug users are at risk of developing GAS infection.

Treatment

- All GAS infections may be treated with antibiotics, such as penicillin, or erythromycin if the patient is allergic to penicillin.
- Early treatment improves the prognosis of invasive disease. In cases of necrotising fasciitis, surgical removal (debridement) of affected tissue is essential as well as rapid treatment with intravenous antibiotics to prevent further spread.

1.4.21b Group B streptococcal infections

Causative organism

Group B streptococci (GBS), also called Streptococcus agalactiae, form part of the normal bacterial flora of the female genital tract and can be part of the normal skin and gut bacteria of men or women. Under certain conditions, GBS can act as an opportunistic pathogen, causing serious disease.

Clinical features

- GBS are mainly associated with disease in newborns, such as meningitis, septicaemia and pneumonia.
- They can also cause septic abortion (loss of a pregnancy as a result of a bacterial infection) and
- Puerperal sepsis (destruction of maternal tissues at or following childbirth as a result of bacterial infection).
- They can also cause non pregnancy-related disease among adults, for example urine or blood stream infections.

Transmission

Neonatal infection may be divided into two types:

- Early Onset Disease (EOD), occurs in the first week of life. The source of the infection is usually the mother's genital flora.
- Late Onset Disease (LOD), occurs between the 7th and 90th day of life. Infection presumed to occurred after the birth, and as such, may have been acquired in hospital, e.g. cross-infection in neonatal units.

GBS infection in older adults is often associated with urinary tract infection (cystitis), or infections of pre-existing wounds or lesions, *e.g.* diabetic foot ulcers.

Treatment

Antibiotic treatment can be used to both treat and help prevent GBS infection.

1.4.22 Tetanus

Causative organism
Tetanus is caused by a neurotoxin produced by Clostridium tetani, an anaerobic spore-forming bacillus. Tetanus spores are widespread in the environment, including in soil, and can survive hostile conditions for long periods of time.

Clinical features
The first symptoms of tetanus are:

- Stiff muscles near the wound (or injection site), followed by;
- Stiffening of other muscles and of the jaw until the person can not open their mouth ('lockjaw').
- This can be followed by frequent and painful spasms that may affect the person's breathing and heart, and could be fatal.
- The illness can progress for about two weeks.

Reservoir

- Intestines of horses and other animals, including humans in which the organism lives as a harmless normal inhabitant.
- Soil or fomites contaminated with animal or human faeces.
- Spores are ubiquitous in the environment.

Transmission
The infection is not passed from person to person. Transmission occurs when spores are introduced into the body, often through:

- A dirty wound
- Trivial unnoticed wounds
- Injecting drug use
- Occasionally through abdominal surgery.

Incubation period
The incubation period of the disease is usually 3--21 days, although it may range from one day to several months, depending on the character, extent and localisation of the wound.

Infectious period
Not directly transmitted from person to person.

Prevention
Tetanus is rare in the UK because of the effectiveness of the immunisation programme. However, the bacteria that cause the disease are always present in soil. They cannot be eradicated from the environment. Consequently, anyone who is not fully protected against tetanus is at risk from the disease, which if it is not treated, can be fatal.

Vaccination
The disease is completely preventable through adequate immunisation.

Immunoglobulin
Tetanus immunoglobulin is a solution that contains antibodies. It provides immediate protection against tetanus and is recommended when an individual has a tetanus prone wound and is not up to date with their vaccinations. It is recommended because it provides immediate protection. Individuals may also be given a dose of vaccine, as their vaccinations are incomplete, to protect them in the future.

Tetanus immunoglobulin may also be recommended for individuals who are fully vaccinated but who have a tetanus-prone wound that is heavily contaminated, i.e. a wound contaminated with manure/soil or an abscess in an injection site. In a highly contaminated wound, toxin production can outpace the capacity of the individual to produce their own antibodies to neutralise the toxins, thus additional 'immediate' antibodies are required.

Tetanus amongst injecting drug users[1]
Before 2003 tetanus amongst injecting drug users was rarely reported in the UK. Only two of the 175 tetanus cases identified in England and Wales from 1984 to 2000 were known to be in injecting drug users. However, since 2003, clusters of cases in injecting drug users have occurred.

Possible sources for tetanus infection in injecting drug users are:

- Contaminated drugs.
- Drug using equipment (such as needles) or contaminated wounds.
- Injection into the muscle or under the skin is also recognised to be particularly associated with tetanus infections in injecting drug users.

It is important that injecting drug users are aware of the symptoms of tetanus. Injecting drug users should be advised to change their drug practices to smoking rather than injecting in order to prevent infection.

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[1] For further information see the Health Protection Agency's advice to injecting drug users: www.hpa.org.uk/infections/topics_az/tetanus/Advice_tetanus_IDUs

1.4.23 Tuberculosis (TB)

Causative organism
TB is an infection of the lungs and/or other organs, usually caused by *Mycobacterium tuberculosis* but occasionally by *M. bovis*, *M. africanum* or *M. canettii.*

Clinical features
The diagnosis of pulmonary TB should be considered in anyone presenting with typical symptoms:

- Cough (often with sputum)
- Haemoptysis (coughing up blood)
- Chest pains
- Fever and night sweats
- Weight loss or loss of appetite
- Prolonged fatigue

TB should also be considered in anyone, particularly high-risk groups, with symptoms. Early diagnosis is important both for treatment of the individual and to reduce the risk of spread to others.

Almost all cases of TB in the UK are acquired through the respiratory route by breathing in infected respiratory droplets from a person with infectious respiratory TB.

The initial infection may:

- Be eliminated
- Remain latent where the individual has no symptoms but the TB bacteria remain in the body (closed TB), or
- Progress to active TB over the following weeks or months.

Latent TB infection may reactivate in later life, particularly if an individual's immune system has become weakened, for example by disease (e.g. HIV), certain medical treatments (e.g. cancer chemotherapy, corticosteroids) or in old age.

Reservoir
Primarily humans, but in some areas cattle, badgers, swine and other mammals.

Transmission
TB is contracted after inhaling bacteria that spread through the air when someone with TB of the lungs coughs or sneezes. The initial infection may be inactivated, or it can spread within the lungs (pulmonary TB) and to other parts of the body (non-pulmonary TB), sometimes many years later.

Pulmonary TB is infectious, particularly when the sputum of a patient has bacteria visible when examined under a microscope (smear positive). Transmission of infection usually requires close and prolonged contact and is more likely to occur in confined and poorly ventilated spaces.

Anyone can get TB. The following groups are at higher risk:

- Those with co-existing HIV infection.
- Ethnic groups from high prevalence countries such as Africa, South Asia, and Eastern Europe.
- Chronic alcohol or drug misusers.
- Homeless and rough sleepers.
- Socially deprived.

Outbreaks of tuberculosis have occurred in prisons in other countries and UK prisons have been implicated in the transmission of TB, e.g. London isoniazid-resistant outbreak.

Incubation period
The incubation period as defined by a test is usually 3--8 weeks. The latent period may be many decades.

Infectious period
This is for as long as there are viable organisms in the sputum. Appropriate chemotherapy results in most patients becoming non-infectious in two weeks. Note that each case should be assessed on an individual basis before the decision is made to de-isolate someone on treatment for pulmonary TB.

Treatment
TB is treatable, but can be fatal if left untreated. A combination of several anti-tuberculosis drugs need to be taken for at least six months. The drugs have a number of side effects and patients may find it difficult to continue with treatment, particularly when they are feeling better. If treatment is not completed, relapse of the disease may occur and drug resistant disease may develop, which is much more difficult to treat.

Contacts of pulmonary TB will normally include prisoners who shared a cell with the affected prisoner during the three-month period before the onset of symptoms. Prisons need to be able to identify such contacts.

Prevention
The Department of Health recommends that all prison staff working directly with prisoners should receive the Bacillus Calmette-Guerin (BCG) vaccination if they are unvaccinated, tuberculin negative and aged under 35 years.

Management of a prisoner with TB
If tuberculosis is suspected, the prisoner should be referred to a consultant with expertise in the management of the disease (a consultant in respiratory medicine or infectious diseases). This will ensure that the prisoner receives appropriate investigation, treatment and care.

It is important that treatment is taken, monitored and completed. Directly observed therapy should be considered if compliance is likely to be a problem. If treatment is unlikely to be completed before release, please discuss follow-up arrangements with the HPU or TB service well in advance of release.

Infection control and isolation

People with smear positive pulmonary TB are considered very infectious. Smear negative pulmonary TB is less infectious, and non-pulmonary TB is not infectious to others. HIV positive prisoners and staff and visitors are most at risk of becoming infected.

- A prisoner with infectious TB who is being treated in prison or any prisoner with suspected TB needs to be isolated in a single room until three separate sputum microscopy tests are negative, or until confirmed pulmonary disease is deemed non-infectious usually two weeks after treatment commences and advice obtained from the HPU.
- As well as standard isolation procedures, the use of special face masks may be needed to prevent airborne transmission in certain circumstances.
- If TB is suspected, sputum specimens should be submitted in plastic bags labelled 'biohazard' and danger of infection stickers attached to request forms.

Multi-drug resistant TB and extensively drug resistant TB (XDR TB)

Multi-drug resistant (MDR) TB describes strains of TB that are resistant to at least isoniazid and rifampicin, two of the first line drugs used in the treatment of TB.

Extensively drug resistant TB (XDR-TB) refers to MDR-TB that is also resistant to any of a group of drugs called fluoroquinolones and at least one of three injectable second line anti-TB drugs (capreomycin, kanamycin or amikacin). Because XDR-TB is resistant to first- and second-line drugs, treatment options are seriously limited. It is therefore vital that TB control is managed properly.

Further information is available from footnotes[12]

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[1] National Institute for Clinical Excellence. 2011 Tuberculosis clinical diagnosis and management of tuberculosis, and measures for its prevention and control. http://www.nice.org.uk/nicemedia/live/13422/53638/53638.pdf

[2] Guidance for Health Protection Units on responding to TB incidents and outbreaks in prisons. Health Protection Agency www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1263812654991

Section 2 Immunisation and Vaccination

2.0 Introduction

This section is based on the recommendations outlined in the prison health performance and quality indicators **(PHPQIs)** which require all prisons to undertake a health assessment to identify the needs of its prisoners. Based on specific needs, prisoners are to be offered appropriate immunisations.

The Immunisation against Infectious diseases **(The Green Book)**[1] (Department of Health) provides comprehensive information on the UK immunisation programme and should be consulted online at all times. The green book is constantly being updated and all of the chapters including updated versions are available on the DH website. It is recommended that all healthcare staff who are involved with immunisation do familiarise themselves with the information on the website.

2.1 UK routine immunisation

To ensure long-term protection through adulthood, the UK immunisation schedule recommends five doses of diphtheria, tetanus and polio for each individual. This is started as routine childhood immunisation through to school leaving booster (**Appendix 10**).

Uptake of childhood immunisation varies across the UK. This means that there are cohorts of individuals who miss out on immunisation and are not immunised at all or are partially immunised. This creates a pool of susceptible individuals at risk of catching some common childhood infections that they should have been protected against. As a result of the above, every effort is taken in the community by primary care providers to ensure the general population is up to date with their immunisations. It is essential that such effort and good practice is adopted within the prison establishments to ensure that individuals not up to date with their immunisations are offered the necessary vaccinations when they come into contact with healthcare.

The Green Book recommends:

1. Individuals who have not completed the routine immunisation are given the remaining doses
2. Individuals who are uncertain about their immunisation status should be considered as unimmunised and should be given the appropriate vaccinations (**see Appendix 11**).

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[1] Green Book:

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_079917

2.1.1 Immunisation in prison:

Each prison/detention service is expected to have an immunisation policy that reflects the needs of its population. This is part of the key public health performance quality indicator (PHPQIs)[1] and can be found under part one of the **public health section .**

Immunisation policy should be available and should be informed by as well as individuals. Individuals who are not up to date with their immunisation status as well as those with underlying health problems such as splenectomy patients or those who are immunosuppressed may need special consideration. See table below.

Table 1: Recommended vaccination schedule for adolescents and adult prisoner

Age group	Recommended vaccines	Schedule
16-25 years	**Diphtheria, tetanus and Polio** No reliable vaccine history	3 doses of low dose Dip/tetanus & IPV **(Revaxis-0.5ml prefilled syringe**) at one month interval plus. See algorithm in appendix 2 for booster doses
	Measles, mumps, rubella No reliable vaccine history or no previous MMR (may have received single measles or combined measles-rubella vaccine)	Two doses of MMR one month apart.
	One dose of MMR as a child	Give single dose of MMR vaccine.
	Meningococcal C vaccine No reliable vaccine history	Single dose of Meningococcal group C conjugate vaccine
25 years and over	**Diphtheria, tetanus and Polio** No reliable vaccine history	3 doses of low dose Dip/tetanus & IPV (Revaxis) at one month interval. For booster doses, see algorithm in **appendix 11**
	Measles, mumps, rubella No reliable vaccine history MMR	Give two doses of MMR a month apart. Individuals born between 1980 and 1990 may not be protected against mumps but likely to be vaccinated against measles and rubella. These individuals may be given one dose of MMR. Refer to **The Green Book** for further details If born before 1970, offer MMR on request
65 years and over	Seasonal Flu vaccine	Annually- October to December
	Pneumococcal vaccine (PPV)	Once in a lifetime (for exceptions see) **Pneumococcal chapter**[2]

[1] http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_097117.pdf

[2] Pneumococcal Chapter: www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_122639.pdf

Pregnant women and those in risk group	Seasonal flu vaccine	Annually : see **Influenza chapter of The Green Book**
All age groups	Hepatitis B **Very rapid* immunisation**	Very rapid immunisation (**Engerix B licensed for prisoners and IDUs**) schedule - 3 doses given at 0, 7 and 21 days, 4th dose at 12 months. **Hepatitis B chapter**[3] **Also refer to relevant policy in your establishment**
	Hepatitis A (for IVDUs or MSMs or during a local outbreak)	For rapid protection, a single dose of Havrix (1ml-prefilled syringe) is preferred The 12 month boosters can be given with **Twinrix Adult**- 1ml prefilled syringe

* Please note that the very rapid immunisation schedule of three doses given at 0, 7 and 21 days is the national recommended schedule for prisoners over 18 years of age. Although not licensed for those aged 16-18 years, this schedule can be used in this age group to maximise compliance and to ensure rapid induction of protection. A standard schedule of 0,1 and 6 months or accelerated schedule of 0,1 and 2 months can be used in situations where the very rapid schedule is not appropriate for example in young offenders below the age of 16 years.
# For BCG requirements see **TB chapter**[4] **of The Green Book**

[3] Hepatitis B Chapter: www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_108820.pdf

[4] Tuberculosis Chapter: www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_116577.pdf

2.2 Identification of prisoners

Prisoners may be identified through reception screening. Questions about their immunisation history should be part of the initial screening. Those identified with gaps should be managed according to the table on pages 78-79. (table 1).

Those who are not certain of their immunisation status must be immunised according to the algorithm in **appendix 11**.

2.2.1 Immunisation of prison staff

In line with good practice, prison staff should up to date with their immunisations according to staff occupational health requirements

2.3 Staff training

All healthcare professionals who are involved in either administrating vaccines or advising on immunisation should receive training in immunisation including the recognition and treatment of anaphylaxis. Training should incorporate all the core topics as described in the HPA core curriculum **Immunisation Training Resources for Healthcare Professionals**[1] and should meet the minimum national standards. See **chapter 5-9 of The Green Book**[2] . Training should reflect the local needs within the prison setting.

2.4 Immunisation procedure

Recommendations on immunisation procedures are based on current available evidence and best practice. Practitioners are advised to always follow the advice in the Green Book, which is based on current expert advice received from Joint Committee on Vaccination and Immunisation (JCVI) which may differ from the manufacturer's advice in the Summary of Product Characteristics (SPC).

Healthcare practitioners providing immunisations are professionally accountable for their actions as defined by their professional bodies and must have specific training in immunisation including the recognition and treatment of anaphylaxis. For full details please refer to part one of the **chapter 3 of the Green Book.**

The HPA has on-line training at **HPA - Multiple Choice Questions for Immunisation Training**[3]

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[1] www.hpa.org.uk/EventsProfessionalTraining/InfectionsTraining/InfectionsTrainingResources/ImmunisationTrainingResources/

[2] Green Book:

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_079917

[3] Multiple Choice Questions for Immunisation Training: www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1210060152869

Section 3 Infection Prevention and Control

3.1 Standard Precautions (replaces Universal Precautions)

Standard precautions are the basic level of infection control precautions that are to be used, as a minimum, in the care of all patients/prisoners.1 Compliance with standard precautions reduces the risk of transmission of blood-borne and other pathogens from both recognised and unrecognised sources.

Standard principles of standard precautions include:

- Hand hygiene and skin care
- Personal protective equipment
- Safe handling of sharps (including sharps injury management)[2]

Hand hygiene is a major component of standard precautions and one of the most effective methods to prevent transmission of pathogens especially associated with healthcare. In addition to hand hygiene, the use of **personal protective equipment** should be guided by **risk assessment** and the extent of contact anticipated with blood and body fluids, or pathogens.[1]

This is especially relevant in prison settings because risk of exposure to blood and body fluids does not solely occur within healthcare. Other prison staff are also at risk of exposure via prisoners using blood and body fluids as weapons, self harm and illicit use of sharps (tattooing, injecting drug users).

Another key consideration to control the spread of pathogens is to avoid transmission. Among control measures, **respiratory hygiene/cough etiquette** was developed during the severe acute respiratory syndrome (SARS) outbreak and during the H1N1 (2009) 'swine' flu pandemic.

Engagement by the healthcare professional and the prison team with a prisoner who is affected with a particular infection is essential in educating them about the spread of the infection.

Health promotion within the prison environment is a shared responsibility. All members of staff should follow recommended infection prevention and control measures to reduce the risk of cross infection.[1] Provision of adequate staff and supplies, together with leadership and education of all staff, are essential. Everyone involved in providing care within the prison environment should know and apply the standard principles of hand hygiene, the use of protective clothing and the safe disposal of sharps. Each member of staff is accountable for his/her actions and must follow safe practices.

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[1] World Health Organisation (2007) Standard precautions in health care – aide memoire. www.who.int/csr/resources/publications/EPR_AM2_E7.pdf

[2] Weston D (2008) Infection Prevention and Control – Theory and practice for healthcare professionals. John Wiley & Sons Ltd: England

3.2 Hand hygiene

The importance of compliance with hand hygiene practices within the healthcare environment is underlined in national and international guidelines. This section explains the differences in hand hygiene products and discusses the implications for the wider prison environment. DH guidance on uniforms and work wear **(see section 18)** recommends that staff who have direct contact with patients should wear short sleeved tops. This guidance has been interpreted as **bare below the elbows for staff delivering clinical care** and has been widely adopted by many healthcare organisations to improve hand hygiene practices.

The term "hand hygiene" includes hand washing with either plain or antiseptic* containing soap and water, and use of alcohol-based products (gels, rinses, foams) that do not require the use of water. In the absence of visible soiling of hands, alcohol-based products (that conform to BS EN1500) for hand disinfection can be used.

*antiseptic soaps are not recommended for routine hand hygiene

Hand hygiene at the point of care[3] - alcohol based products enable staff to quickly and effectively clean their hands before and after contact with prisoners/patients. Ensuring that alcohol-based products are available at the point of care is critical to increasing the likelihood that staff will clean their hands at the right time, and more often. Hand washing with soap and water is essential when hands are visibly soiled (including contact with blood and body fluids), when a prisoner/patient has vomiting and diarrhoea, or when working where there is an outbreak of diarrhoeal disease, e.g. norovirus.[4] A number of microorganisms that cause these infections (diarrhoea and/or vomiting) are not susceptible to inactivation by alcohol.

Use of alcohol-based products in a prison/place of detention environment - STAFF ONLY

When choosing an alcohol-based product for use by staff within a prison environment, discussion and liaison with the Security Department and any other relevant departments is essential to the risk assessment process. For example, alcohol-based products would not be suitable in thoroughfare areas, outside cell doors. However, dispensers can be placed in healthcare clinic rooms/wing offices (attached to the wall) because these are areas where prisoners are not left unattended. Personal dispensers for staff only may be an acceptable alternative. Those with a clip rather than the extendable string would be most suitable in prisons.

[3] WHO 'My five moments of hand hygiene'
www.who.int/gpsc/tools/faqs/five_moments/en/index.html

[4] National Patient Safety Agency – Clean Your Hands Campaign
www.npsa.nhs.uk/cleanyourhands/about-us/multimodal-strategy

Hand hygiene for prisoners/ patients

It is essential that all prisoners/patients have access to hand hygiene facilities to maintain personal hygiene however the use of alcohol hand gel for this group is NOT recommended. Alternatives to soap and water may include the used of wipes or foams that do not contain alcohol however any decision on the use of alternatives hand hygiene methods must be assessed by the healthcare team with the an Infection Prevention and Control advisor and the Security Department.

When should you clean your hands?

- Before and after each work shift or work break.
- Before putting on, and after removing protective clothing, including gloves.
- After using the toilet, blowing your nose or covering a sneeze.
- Whenever hands become visibly soiled.
- Before preparing or serving food.
- Before eating, drinking or handling food and before and after smoking.
- Healthcare staff should remove jewellery that impedes effective hand hygiene practices, e.g. watches, bracelets or rings.
- Before and after physical contact with each patient.
- After handling contaminated items such as dressings, bedpans, urinals, clinical specimens and urine drainage bags.

Artificial nails

Artificial nails harbour microorganisms and make effective hand hygiene more difficult. Studies have shown HCWs who wear artificial nails are more likely to harbour gram-negative pathogens on their fingertips than those who have natural nails, both before and after hand washing (World Health Organisation 2009). [5]

Hand washing facilities

Hand washing facilities should be adequate and conveniently located. Hand-wash basins must be accessible in all clinical/treatment rooms. They should have elbow/foot-operated or infrared-operated mixer taps.

- Use wall-mounted liquid soap dispensers with disposable soap cartridges/bottles. Keep them clean and replenished. (Do not refill empty cartridges/bottles.)
- Place wall-mounted disposable paper towels next to the basins. Soft disposable towels will help to avoid skin abrasions.
- Position foot-operated pedal bins near the hand wash basin. Make sure they are the right size for the amount of waste generated.

See hand washing (posters page 86)

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5 WHO (2009) WHO Guidelines on Hand Hygiene in Health Care.
http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf

Hands that are visibly soiled, or potentially grossly contaminated with dirt or organic material (blood/body fluids including faeces) must be washed with liquid soap and water. How to wash your hands may seem obvious: however, there are three integral stages. A common mistake is to apply soap directly onto dry hands.

1. Preparation

Before washing hands, all wrist and hand jewellery should be removed. Cuts and abrasions must be covered with waterproof dressings. Fingernails should be kept short, clean and free from nail polish. Hands should be made wet by placing them under tepid running water before applying liquid soap.

2. Washing and rinsing

The hand wash solution must come into contact with all of the surfaces of the hand. The hands must be rubbed together vigorously for a minimum of 15–30 seconds, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers. Hands should be rinsed thoroughly.

3. Drying

Wet hands can more readily acquire and spread microorganisms—the proper drying of hands is an integral part of routine hand washing. Careful hand drying is a critical factor determining the level of bacterial transfer associated with touch contact after hand cleansing[5]. In a healthcare setting, good quality disposable paper towels are the method of choice because communal towels are a source of cross-contamination. Store paper towels in a wall-mounted dispenser next to the washbasin and throw them away in a pedal operated domestic waste bin. Do not use your hands to lift the lid or they will become re-contaminated.

Surgical hand washing

Surgical hand washing destroys transient organisms and reduces resident flora before surgical or invasive procedures. An aqueous antiseptic solution is applied for two minutes. Preparations currently available are 4% chlorhexidine-detergent, 0.75% povidone/iodine solution-detergent and alcohol based scrubs. This is required only before minor surgery and invasive surgical procedures.

Using hand rubs (alcohol based products) (see diagram page 7)

Hands should be free from dirt and organic material. The hand rub solution must come into contact with all surfaces of the hand. The hands must be rubbed together vigorously, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers, until the solution has evaporated and hands are dry. Some alcohol-based products contain emollients to prevent drying of the skin, this can build up on the hands and make them feel sticky—hand washing removes this.

Location of alcohol-based hand rubs/gels/foams

- Dispensers should be wall-mounted within treatment rooms/clinics where healthcare is delivered.
- Individual staff pocket alcohol gels can be used but liaise with the prison security department as part of the risk assessment process.
- It is recommended that wall-mounted alcohol dispensers are placed at staff points on prison wings where prisoners are not left unsupervised.

Hand care

An emollient hand cream should be applied regularly to protect skin from the drying effects of regular hand decontamination. Clinical staff should be aware of the potentially damaging effects of hand decontamination products. They should be encouraged to use an emollient hand cream regularly, for example, after washing hands before a break or going off duty, and when on duty to maintain the integrity of the skin. Communal dispensers of handcream should not be used.

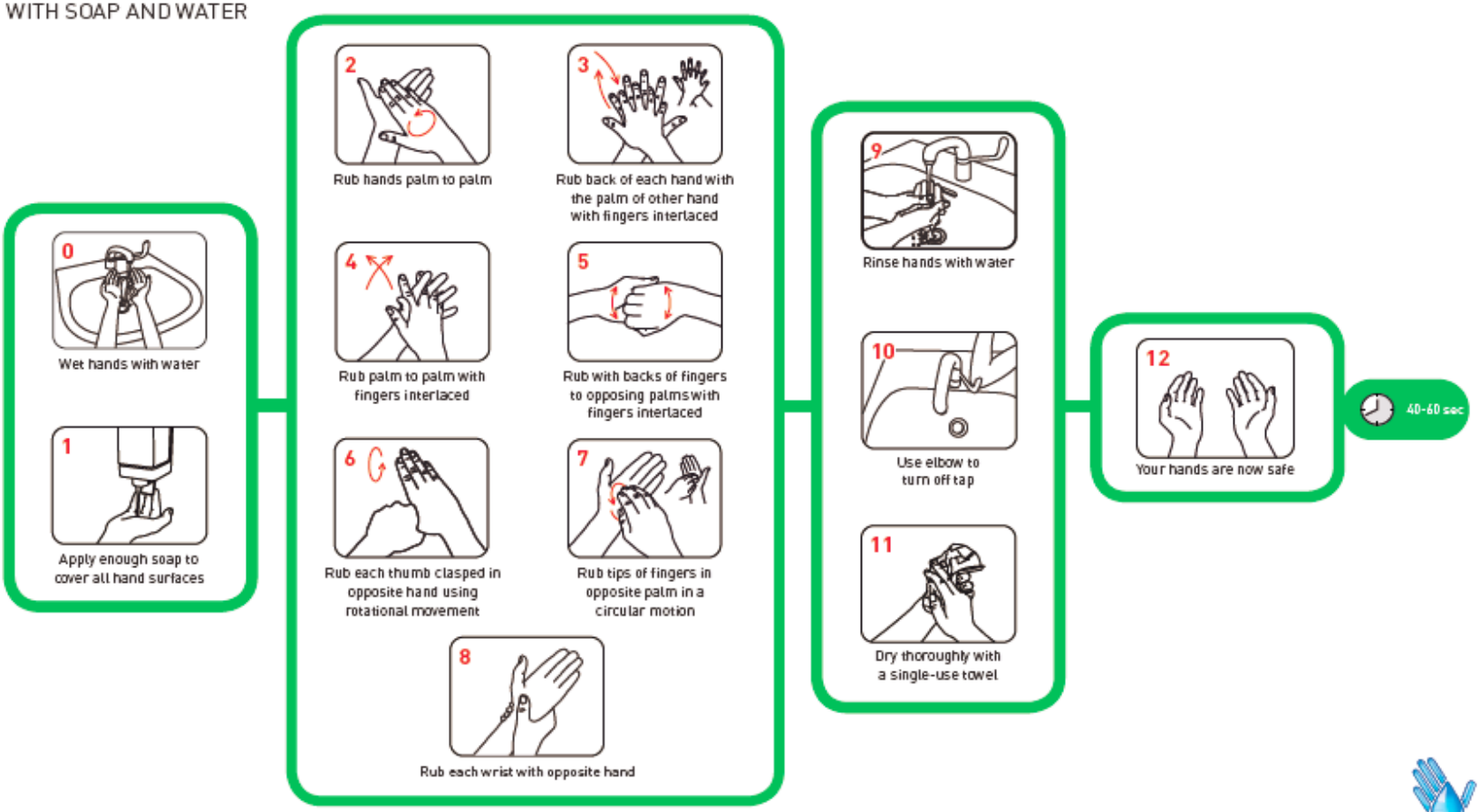
How to handwash

HAND CLEANING **TECHNIQUES**

NHS National Patient Safety Agency

How to handwash?

WITH SOAP AND WATER



www.npsa.nhs.uk/cleanyourhands

Adapted from World Health Organization *Guidelines on Hand Hygiene in Health Care*

cleanyourhands® campaign

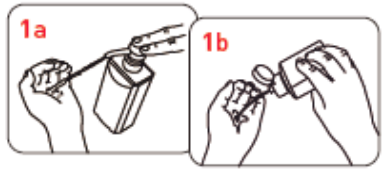
How to handrub

HAND CLEANING TECHNIQUES

NHS National Patient Safety Agency

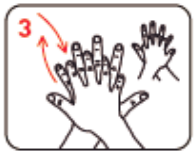
How to handrub?

WITH ALCOHOL HANDRUB



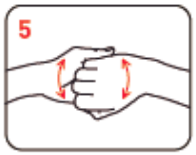
Apply a small amount (about 3ml) of the product in a cupped hand, covering all surfaces

Rub hands palm to palm



Rub back of each hand with the palm of other hand with fingers interlaced

Rub palm to palm with fingers interlaced



Rub with backs of fingers to opposing palms with fingers interlaced

Rub each thumb clasped in opposite hand using rotational movement

Rub tips of fingers in opposite palm in a circular motion

Rub each wrist with opposite hand

Once dry, your hands are safe

20-30 sec

www.npsa.nhs.uk/cleanyourhands

Adapted from World Health Organization *Guidelines on Hand Hygiene in Health Care*

cleanyourhands® campaign

3.3 Personal protective equipment

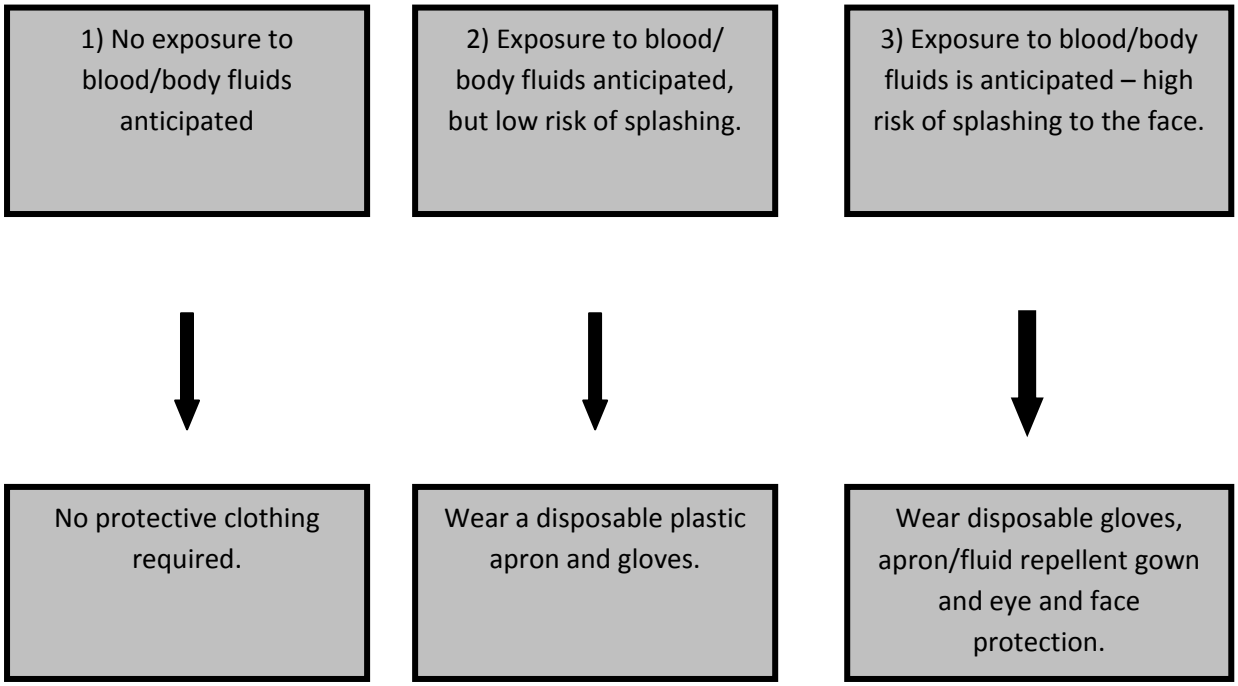
Personal protective equipment (PPE) should be available to all staff working in a prison. Selection of protective equipment must be based on an assessment of the risk of transmission of infection between the patient/prisoner and carer/prison staff member and prisoner.

Assessment of Risk

Regulation three of the Management of Health and Safety at Work Regulations 1999[1] (MHSAWR) requires that:

Every employer shall make a suitable and sufficient assessment of:

> (a) the risks to the health and safety of his employees to which they are exposed whilst they are at work; and
>
> (b) the risks to health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking.



[1] UK Government (1999 The Management of Health and Safety at Work Regulations www.opsi.gov.uk/si/si1999/19993242.htm

Types of Protective Clothing

3.3.1 Disposable Gloves

Gloves are intended to serve two purposes:

1. To protect the hands from becoming contaminated with dirt and microorganisms.
2. To prevent the transfer of organisms already present on the hands.

Gloves must be worn for invasive procedures, contact with sterile sites and non-intact skin or mucous membranes, and all activities that have been assessed as carrying a risk of exposure to blood, body fluids, secretions or excretions, or to sharp or contaminated instruments. **Gloves are not a replacement for hand hygiene.**

Gloves that conform to European Community (EC) standards must be available for all prison staff as well as healthcare workers. **DO NOT USE** - powdered latex gloves/ polythene/ vinyl gloves when undertaking healthcare-associated activities.

Gloves are single-use items

This means they must be put on immediately before an episode of patient/prisoner contact or treatment and removed as soon as the activity is completed.
Gloves must be changed between different care and treatment activities for the same patient and between caring and dealing with different patients/prisoners.

Glove choice

Glove Type	Appropriate Use
Powder-Free Low Protein Latex Gloves (non-sterile)	For dealing with blood and/or body fluids. To be worn when contact with blood is anticipated, e.g. venepuncture
Latex-Free Gloves (non-sterile) e.g. nitrile	For staff identified as having latex allergy – this should be confirmed by the Occupational Health Department and/or Consultant Dermatologist
Powder-Free Vinyl Gloves (non-sterile)	For use in situations where contact with blood and/or body fluids is not anticipated. Do not allow good manual dexterity so should not be worn for tasks which require precision.
Household Rubber Gloves	For domestic use or for manual pre-cleaning of equipment prior to disinfection or sterilisation.
Polythene	For use in catering departments only.

Gloves should **never** be cleaned between patients as they may be damaged by the soap solution/hand rub solution. If punctured unknowingly, this may cause body fluid to remain in direct contact with skin for prolonged periods.

Sterile gloves
Sterile gloves are used when hands are likely to come into contact with normally sterile sites of the body, e.g. during any surgical procedure/aseptic procedure.

Remember: Hands must always be cleaned after removing gloves either by hand washing or using an alcohol-based hand rub (on visibly clean hands).

3.3.2 Aprons

A disposable plastic apron must be worn when there is a risk that clothing may be exposed to blood, body fluids, secretions or excretions (with the exception of sweat). Plastic aprons should be worn as single-use items for one procedure or episode of patient care; they should then be discarded and disposed of as clinical waste. Aprons should be changed between patients and between clean and dirty tasks with the same patient.

Full body fluid-repellent gowns should be available for use by all staff. They must be worn when extensive splashing or exposure to blood and/or body fluids is anticipated.

3.3.3 Eye and facial protection

Staff should protect their eyes against foreign bodies, splashes and droplets by wearing plastic goggles or protective glasses. Some surgical masks come with an integral visor providing full-face protection. Body fluid splash accidents may be anticipated in both the prison environment (injuries, blood/body fluids used as a weapon) and in healthcare during invasive procedures encountered in dentistry, surgery, midwifery, and podiatry and in the cleaning of instruments. If reusable goggles/protective glasses are used, they should be washed after each patient/task using a general purpose detergent, rinsed and stored dry. Eye protection should be compatible with the facemask used.

Surgical masks

Masks are worn to protect the oral/nasal mucosa. The use of masks as an infection control measure is limited to specific situations/areas such as:

3. Dentists and their assistants should wear fluid-resistant, single-use surgical masks during patient/client treatment to protect the oral/nasal mucosa from droplets or splashing of blood/body fluids.
4. Where there is a risk of splashes or droplets of blood/body fluids into the face/mouth/eyes.

Masks should be changed between patients. Masks should not be carried or worn around the neck and must not be reused. They should be disposed of immediately after use into a clinical waste bag.

3.3.4 Respiratory protective equipment

Respirators

Disposable FFP3 respirators are used to reduce exposure to airborne disease, for example, when caring for a patient who has multi-drug resistant pulmonary TB or when undertaking an aerosol generating procedure (for example, intubation) on a patient with H1N1 influenza procedures. Each prison should have a local TB and influenza policy and should have details of the type of respirator that should be used.

FFP3 respirators must conform to the European Standard EN149:2001 and must seal tightly against the skin of the face to prevent air entering at the sides.

Fitting the respirator correctly is critically important for it to provide proper protection. Every user should be fit tested and trained in the use of the respirator. In addition to the initial fit test carried out by a trained fitter, a fit check should be carried out each time a respirator is worn. A good fit can only be achieved if the area where the respirator seals against the skin is clean shaven. Beards, long moustaches and stubble may cause leaks around the respirator. Other types of respiratory protective equipment (eg powered hoods and helmets) are available and should be considered if a good fit cannot be achieved with disposable respirators. A powered respirator might be the only type suitable for some healthcare

workers, for example someone who, perhaps for cultural reasons, prefers not to remove their beard.

3.3.4 Removal of Personal Protective Equipment

PPE should be removed in an order that minimises the potential for cross-contamination. Before leaving the side room or cohorted area, gloves, gown and eye protection should be removed (in that order, where worn) and disposed of as clinical (also known as infectious) waste. After leaving the area, the respirator (or surgical mask) can be removed and disposed of as clinical waste.

Guidance on the order of removal of PPE is as follows

1. Gloves
   - Grasp the outside of the glove with the opposite gloved hand; peel off.
   - Hold the removed glove in gloved hand.
   - Slide the fingers of the ungloved hand under the remaining glove at the wrist.
   - Peel the second glove off over the first glove and discard appropriately.
2. Gown or apron
   - Unfasten or break ties.
   - Pull gown or apron away from the neck and shoulders, touching the inside of the gown only.
   - Turn the gown or apron inside out, fold or roll into a bundle and discard.
3. Eye protection
   - To remove, handle by headband or earpieces and discard appropriately.
4. Respirator or surgical mask
   - Untie or break bottom ties, followed by top ties or elastic, and remove by handling ties only and discard appropriately.

To minimise cross-contamination, the order outlined above should be applied even if not all items of PPE have been used. Clean hands thoroughly immediately after removing all PPE.

3.4 Prevention and management of occupational exposure to blood-borne viruses, including human bites and prevention of sharps injuries

All body fluids should be regarded as potentially infectious. However, vomit, saliva, urine and faeces are normally considered to be a low risk unless they are visibly blood-stained.

Injuries where a person's broken skin or eyes, mouth or other mucous membranes are exposed to other person's blood or body fluids carry a risk of infection with viruses such a hepatitis B and C. Although these infections are potentially serious, prompt action can help prevent complications.

3.4.1 Occupational health and risk assessment

All staff who work within a prison environment should be fully immunised according to the relevant occupational health policy (HMPS, HCO, private healthcare provider). Those at risk of blood/body fluid exposure through sharps or splashes should have a full course of hepatitis B vaccine and antibody titres (levels) should be checked one to four months after the completion of a primary course of vaccine. See the Department of Health's Immunisation against Infectious Disease (the Green Book[1]) and HMPS PSO 3845.[2]

Risk assessment
Apart from the overall duty to carry out risk assessment of hazards in the workplace, the Control of Substances Hazardous to Health (COSHH) regulations place a specific duty in relation to biological agents that include microorganisms. The assessment should include:

- Risks to health.
- How to prevent exposure to biological agents.
- Steps needed to achieve adequate control of exposure.

Care should be taken to avoid accidental needle-stick injury because exposure to contaminated blood may be associated with transmission of blood-borne viruses (BBVs). During **cell searches,** or searching of other areas, specialist puncture-proof gloves and arm protection must be available. Advice on the appropriate equipment should be sought via the prison Health and Safety Officer. Disposable gloves can be worn under specialist puncture-proof gloves in case of strike through with body fluids.

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[1] DH (2006) Immunisation against Infectious Disease.
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_116622.pdf

[2] HMPS(1999) PSO 3845 Blood Borne and Related Disease.
www.hmprisonservice.gov.uk/resourcecentre/psispsos/listpsos/index.asp?startrow=51

3.4.2 Sharps

The word **sharps** is a generic term that includes needles, scalpels, stitch cutters, glass ampoules and sharp instruments that are contaminated with blood or body fluid.

Within a **prison environment,** general household items can be modified into “sharps” and used in self-harm, tattooing, injecting or as a weapon. All sharps must be handled and disposed of safely to reduce the risk of exposure to blood-borne viruses. Always take extreme care when using or disposing of sharps.

In **healthcare departments** sharps includes medical equipment such as needles, stitch cutters, scalpels etc.

3.4.3 Safe use and disposal of sharps in healthcare settings

Before use:

- Ensure that sharps disposal box is correctly assembled.
- Ensure that the label on the box is filled in upon assembly.
- Ensure appropriate colour sharps box lid for use based on medicinal contamination and how the waste should be treated and disposed of i.e. purple lid for cytostatic/cytotoxic medication.
- Sharps boxes are type approved for solids and should not be used for quantities of liquid waste.
- Sharps boxes must comply with UN 3291 and BS7320 standards.
- Boxes must be available in different sizes. Tamper-proof sharps containers are also available.
- Boxes must be available at all locations where sharps are used.
- Boxes must never be placed on the floor.
- Boxes must be placed on a level surface or wall-mounted below shoulder height.
- Boxes must never be left in areas where prisoners may be unattended.
- Boxes must be taken to where they are being used. Small portable containers are useful in circumstances where an injection is required outside of the healthcare department.
- Assess, in terms of risk, the most appropriate size of sharps container for the local prison environment.

- Safer devices must be used as appropriate. Single use retractable lancets should be used for all capillary blood sampling. Safer venepuncture needles are also available.

During use:
Practitioners must be competent in procedures using sharps.

- The person using the sharp is responsible for disposing of it.
- Never pass sharps from hand to hand.
- Wear appropriate personal protective equipment (gloves at a minimum).
- Assemble devices with care.
- Do not disassemble devices (e.g. venepuncture set)—dispose of as a complete unit.
- Use forceps or other commercial instruments where disassembly is unavoidable.
- Do not re-sheath used needles. There are limited circumstances where re-sheathing is unavoidable, e.g. in dentistry. Where it is necessary to re-sheath, use the one-handed method or a commercial re-sheathing device.
- Close sharps box opening (temporary closure device) between uses.
- Never move an open sharps box.
- Use the handle to carry.

After use:

- Disposal of sharps is the responsibility of the user.
- Be vigilant during emergency procedures.
- Dispose of sharps immediately after use.
- Do not leave full sharps boxes for disposal by other staff.
- Fill sharps boxes only to the ‘fill’ line and never overfill.
- Shut and lock box when full for disposal.
- Never use tape to seal sharps boxes.
- Label box with source such as clinic/wing/department and describe waste content.
- Dispose of sharps boxes as clinical waste for incineration only.
- Never place sharps boxes in clinical waste bags.

- Sharps containers must never be left unsupervised. They must be locked in the treatment room/clinic when not in use.
- Never try and retrieve items from a sharps container.
- Place damaged sharps containers inside a larger container—lock and label prior to disposal. Do not place inside clinical waste bag.

3.4.4 Risks of transmission of blood-borne viruses following a significant injury/exposure

Transmission of BBVs may result from contamination of mucous membranes of the eyes or the mouth, or of broken skin, with infected blood or other infectious material. The transmission risks after a **mucocutaneous** exposure (splash injury) are lower than those after a **percutaneous** exposure (sharps injury).

The risk of acquiring HIV after a single mucocutaneous exposure is less than 1 in 2000. Mucocutaneous exposures occur more frequently than percutaneous exposure; the majority of both types of exposure are preventable.[12]

BBVs are potentially transmissible by a human bite through mucous membrane exposure. The risk is from the infected biter to the bitee, if the bite breaks the skin of the person bitten. There is no evidence that BBVs can be transmitted by blood contamination of intact skin, inhalation or by faecal-oral contamination.

The risk of infection following a percutaneous injury, especially deep penetrating injuries involving a hollow-bore needle or a device visibly contaminated with blood has been estimated at[1]:

- **1 in 3 when a source patient is infected with HBV and is `e' antigen positive***
- **1 in 30 when the patient is infected with HCV**
- **1 in 300 when the patient is infected with HIV[23]**

*all staff should receive hepatitis B vaccination at the pre-employment stage

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[1] HPA (2008) Eye of the Needle: UK surveillance of significant exposures to BBV in healthcare workers. www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1227688128096

[2] DH (1998) Guidance for Clinical Health Care Workers: Protection Against Infection with Blood-borne Viruses Recommendations of the Expert Advisory Group on AIDS, and the Advisory Group on Hepatitis www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002766

[3] HIV Post Exposure Prophylaxis Guidance from the UK Chief Medical Officers Expert Advisory Group on Aids
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_089997.pdf

3.4.5 Management of blood/body fluid injuries and exposures

The following information within this guidance pertains only to the immediate action needed following these type of injuries. Explanatory notes on post-exposure prophylaxis; testing of source and recipient; counselling etc. are available from local Occupational Health Departments and should be available for all staff in each wing/department/team. Some information is provided in this document on what to expect following a blood/ body fluid injury/ exposure.

Any staff working in a prison who have regular contact with prisoners should receive a full course of hepatitis B vaccine. New staff or any existing staff who know they are not already protected should contact the relevant Occupational Health Department to arrange vaccination and testing without delay.

Generally, staff in a prison do not perform Exposure Prone Procedures (EPPs)[1] with the exception of the dental department (who are usually under community healthcare organisation contract and should have their own policies and procedures).

A blood/body fluid injury/exposure incident includes:

- Inoculation of blood by a needle or other 'sharp'.
- Contamination of broken skin with blood.
- Blood splashes to mucous membrane, e.g. eyes or mouth.
- Swallowing a person's blood, e.g. after mouth-to-mouth resuscitation.
- Contamination where the individual has an open wound, and clothes have been soaked by blood.
- Bites (where the skin is broken).

Where to report a body fluid exposure injury will depend on local arrangements, protocols and policies. Following a blood and/or body fluid exposure, the injured person should seek **medical assessment ideally within one hour** of the injury:

- During working hours (0900–1700 Monday to Friday), report to Occupational Health (OH) Department. If there is no OH service, then report to the local Accident and Emergency department.
- Out of working hours (Monday to Friday, weekends and Bank Holidays), attend the Accident and Emergency department.

The incident should be reported to the OH department, who will advise on any follow up. An incident form (Prison/HCO depending on the member of staff affected) should be completed as soon as possible following the immediate first aid assessment.

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[1] HPA Website – Blood-borne viruses and Occupational Exposure
www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733758763

First Aid following a blood/body fluid exposure

1) Encourage bleeding where skin is punctured or broken.

Do not suck the wound.

↓

2) Wash thoroughly with mild liquid soap under running warm water.

Do not use a scrubbing brush.

↓

3) If eyes are involved, wash immediately with water for 5-10 minutes (use tap water or sterile water if available).

If the mouth is contaminated, rinse with plenty of water.

↓

4) Any cuts/punctures should be covered with a waterproof plaster.

↓

5) Where there is considerable contamination of unbroken skin, remove contaminated clothing and wash all affected areas with copious amounts of water.

↓

6) Remember to seek advice as prophylactic treatment (if required) needs to be given within one hour.

The priority is to seek advice/ medical attention immediately ideally <u>within one hour of the injury occurring</u>

↓

7) Ensure that your manager or immediate senior is informed immediately of the incident.

Out of hours inform the duty manager/senior officer on call for your work site. The person who has received the injury should complete an incident form as per local guidelines.

3.4.6 What happens when someone has received a blood/body fluid exposure/ injury?

This is a short summary of what to expect following an injury/exposure. It does not replace local policies if in place.

An urgent risk assessment should be done by occupational Health or the local accident and emergency department to investigate the extent of the injury and exposure. Following this risk assessment, a decision will be made regarding any further actions (vaccination, further testing) for the person who is injured. Blood may need to be taken from the exposed person and stored in a secure archive.

Testing of the source patient/prisoner does not change the immediate first aid and actions as detailed above following a blood/body fluid injury/exposure.

In some instances it will not be possible to identify the source prisoner/patient. If the source is identifiable and available for testing, a blood specimen can be obtained following informed consent, and this must be recorded their medical record. Testing of the source patient/prisoner includes hepatitis B and C, and HIV if appropriate.

Informed consent should only be obtained by an appropriately-trained clinician. To obtain consent the clinician must be trained to discuss the implication of the blood test and results, prior to obtaining consent from the source patient/prisoner. If the patient/prisoner refuses consent, his/her details must not be shared and the injury will be treated as an unknown source injury. If informed consent is granted, the blood specimen can be tested on an urgent basis in consultation with the local pathology laboratory.

Hepatitis B Prophylaxis
A booster dose of hepatitis B vaccine may be needed and possibly hepatitis B immunoglobulin.[1] As previously stated, all staff who work in a prison environment with prisoners should be fully vaccinated against hepatitis B.

Hepatitis C Virus
Currently there is no vaccination or post exposure prophylaxis against hepatitis C. If the source patient/prisoner is found or known to be hepatitis C positive, then the exposed individual must be followed up by Occupational Health. Treatment in the early stages of Hepatitis C has been shown to be very successful. The care of the individual should be provided by a specialist Hepatologist/Gastroenterologist or Infectious Disease Physician. The source patient should also be referred to an appropriate specialist.

Human Immunodeficiency Virus (HIV)
For significant high-risk injuries, post exposure prophylaxis (PEP) with anti-retroviral medicines may be indicated. This decision is made by the clinician risk assessing the injury. The medicines that are used cause side effects and it is up to the assessing clinician to decide if they are necessary.

3.4.7 Human bite (bites that break the skin)

Bites from humans can be relatively common in some settings and these can become infected. Injuries may also occur during fights where teeth break the skin. Most of these human bites occur on the fingers or hands. Where the bite breaks the skin the wounds may be contaminated with pathogens, even if there are no clinical signs of infection. Bacteria that often contaminate human bites include streptococci, *Staphylococcus aureus*, *Haemophilus* spp and *Bacteroides* spp and other anaerobes. Transmission of viruses (e.g. hepatitis B, hepatitis C, HIV) following human bites is much less common.

People whose work or other activities put them at increased risk of human bites should be risk assessed by the occupational health department and offered hepatitis B vaccination and have their tetanus vaccination status reviewed. They should be made aware of immediate action following a bite (see first aid box above). In all cases, an accident/incident report should be completed. Each organisation should ensure that it has appropriate arrangements in place for the reporting and recording of untoward incidents.[1]

If a bite has broken the skin the assailant will also require follow up due to the risk of blood contamination of the mouth.

[1] HPA North West (2009) Inoculation Injury in the Community Setting: Guidance for healthcare professionals
www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1204100459909

3.5 Cleaning and disinfection of medical equipment and the environment (decontamination)

All equipment used in the delivery of healthcare must be fit for purpose and be decontaminated strictly according to the manufacturer's instructions. The aim of decontaminating medical equipment is to prevent potentially pathogenic microorganisms reaching a susceptible person in sufficient numbers to cause infection.

The re-use of single-use medical devices/equipment is associated with significant risk (including infection) and is in **breach of the law**. Potential risks include that of cross-infection through inadequate decontamination and mechanical damage due to exposure of the device to heat or chemical decontamination agents.

All staff should be aware of their roles and responsibilities with regard to cleaning and decontamination of equipment. Staff undertaking the cleaning of equipment must be trained in the correct cleaning and decontamination procedures as determined by the local employer. Similarly, all staff undertaking cleaning duties should have access to the appropriate cleaning materials and products at all times.

3.5.1 Definitions:

Definitions	
Cleaning	A process which removes substantial amounts of any material that is not part of the item including dust, soil, large amounts of microorganisms and the organic matter (e.g. faeces, blood) that protects them. Cleaning is the prerequisite to disinfection and sterilisation e.g. general (neutral-based) purpose detergent, detergent based wipes.[1]
Disinfection	Any process whereby the potential of an item to cause infection is removed by reducing the number of microorganisms present. Such a process may not necessarily eliminate all microorganisms but can reduce them to a level where they are no longer able to initiate infection. The main way of disinfecting is using either heat or chemicals e.g. NaDCC.[1]
Sterilization	A process used to render an object free from all living organisms with a **high degree of quality assurance** e.g. process decontamination for surgical instruments.[1]
Single Use	This symbol means the medical device is intended for use once only, on an individual patient for a single procedure, and then should be discarded. It should not be re-processed or re-used on the same patient or on another patient.
Single Patient Use	The medical device can be used for more than one episode of use on one patient only. The device will need to be decontaminated between each use. The manufacturer must state how the device should be decontaminated and how many times, or for how long, the device can be used prior to disposal.
Re-usable	The medical device can be used for repeated episodes of use on different patients, but will need to be decontaminated appropriately between each episode of use, according to the manufacturer's instructions.

[1] Hoffman P, Bradley C and Ayliffe G (2004) Disinfection in healthcare. Blackwell Publishing. Oxford

3.5.2 Legal requirements and risk assessment

The use of medical devices is covered by the following statutory requirements:

European Council – Medical Devices Directive 93/42/EEC implemented into UK law as the **Medical Devices Regulations, 2002.**

Risk assessment:
The decontamination of surgical instruments within the prison environment is not recommended. All reprocessing of surgical instruments should be done by an accredited Sterile Supply/Services Department.
It is recommended that the common types of instruments used within a prison environment should be single-use and not re-usable, e.g. forceps, scissors, clip removers, vaginal speculum, proctoscope, suture kits, and podiatry kits.

3.5.3 Classification of infection risk associated with the decontamination of medical devices, adapted from the Microbiology Advisory Committee (2010)[1]

Risk	Application of item	Recommendation
High	• In close contact with a break in the skin or mucous membrane. • Introduced into sterile body areas. E.g. instruments used in surgical procedures. (Single use/disposable equipment is recommended for prison environments)	Sterilization
Intermediate	• In contact with mucous membranes. • Contaminated with particularly virulent or readily transmissible organisms (body fluids). • Prior to use on immunocompromised patients. E.g. vaginal speculum, thermometers.	Sterilization or disinfection required. Cleaning may be acceptable in some agreed evidence-based situations but NOT for a vaginal speculum.
Low	• In contact with healthy skin. • Not in contact with patient. E.g. saturation monitor probe, mattresses, surfaces, commodes.	Cleaning

3.5.4 Decontamination of reusable instruments

Detailed guidance on the decontamination of reusable instruments is available from:

- www.spaceforhealth.nhs.uk/.
- Surgical instrumentation:

HTM 2010: Sterilization, NHS Estates HMSO 1994-1997.

HTM 2030: Washer-disinfectors, NHS Estates HMSO, 1997.

HTM 2031: Clean steam for sterilization, NHS Estates HMSO, 1997.

- Dentistry:

HTM 01-05 Decontamination in primary care dental practices.[1]

3.5.5 Cleaning agents for equipment (not reusable surgical instruments)

General Purpose Detergent (GPD) – general purpose detergent and/or detergent-based wipes are used for routine cleaning. GDP is good for the physical removal of soiling, gross contamination.

Alcohol hard surface wipes – provides disinfection after a detergent clean, only use on visibly clean surfaces.

Chlorine-based disinfectants
NaDCC sodium dichloroisocyanurate compound is the chlorine disinfectant of choice because it is supplied as a defined content and in pre-measured doses. It is also stable in storage unlike liquid hypochlorites.

Environmental and equipment cleaning

[1] DH (2009) Decontamination Health Technical Memorandum 01-05: Decontamination in primary care dental practices www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_109363

Dilution to 1,000 parts per million (ppm) available chlorine. Some chlorine products are available that include detergent, enabling easier dilution and cleaning. If a non-detergent chlorine-based solution is used, a detergent clean must always be undertaken first.

Blood Spillages
Dilution of 10,000ppm (see body fluid spill section). Ensure that the manufacturer's instructions are followed to obtain correct concentration of solution.

3.5.6 A-Z decontamination of equipment used in healthcare

EQUIPMENT	CLEANING METHOD
Baths	Clean between users. Clean bath surface, grab rails and taps with hot water, General Purpose Detergent (GDP) and paper towels, or detergent-based wipes. Rinse.
Bath water additives	Antiseptic solutions should not be routinely added to bath water. When antiseptic bathing is prescribed, the agent should be used like liquid soap where the skin must be wet and then the solution applied directly to the skin.
Bedpans & urinals	Single-use disposable is recommended. If reusable, then heat disinfection in a washer-disinfector (e.g. 80°C for 1 min, see HTM 2030). Store dry. Washer-disinfectors must be regularly maintained and validated.
Beds, backrests, bed cradles and mattresses	Clean between users with hot water and GPD, or detergent-based wipes. If soiling is evident then immediately clean as above and then wipe over with chlorine based disinfectant to a dilution of 1,000ppm. Mattresses should be enclosed in a waterproof cover and routinely inspected for damage.
Breast pumps	For single patient use only; wash with detergent and rinse.
Bowls - patient Washing	Clean between each use with hot water and GPD, or detergent-based wipes, using disposable paper towels. Store dry and inverted. Single-use (pulp-based) bowls are available.
Cardiac monitors, defibrillators and ECG equipment	The electrodes that stick to the patient's chest are single use. The wires and machines should be surface cleaned with GPD or detergent-based wipes.
Commode armrests and seats	In a prison environment, a prisoner ideally has one dedicated for their own use. Therefore, if no soiling is evident, regularly clean with hot water and GPD, and dry using paper disposable towels. If soiling is evident, or there is an outbreak of diarrhoea, or the previous user had diarrhoea, or between users, clean with detergent-based chlorine disinfectant. Otherwise clean with hot water and GPD, or general purpose wipes. Wipe over with a chlorine-based disinfectant (**Always use separate wipes for armrests and seats.**
Drip/feeding pump stands	GPD or detergent-based wipe after each use.
Ear pieces from auroscopes	Use single-use tips and discard after a single use. For reusable tips, wash and autoclave between patient use.
Examination couches	Surface must be in good repair. Surface clean with hot water and GPD, or general purpose wipes, at start and finish of each session or if it becomes soiled. Cover with disposable paper roll and change between each client use.
Hoist (patient)	Sling must either be single patient use or laundered between patients, examine material and clips for wear or damage before each use. GPD or

	detergent-based wipes to clean the hoist frame.
Nebulisers	The mask/mouth piece, nebulisation pot and tubing are single patient use. The mask and pot should be cleaned with GPD and hot water and dried thoroughly between uses. Always use sterile water for refilling. Nebuliser units (machine) are usually dedicated for that person's use for the duration of the treatment. Staff should maintain a register of use (giving patient details and date of use) for each nebuliser including a record of the decontamination process detailing the date, time, cleaning method used, items replaced, and the signature and name of the member of staff responsible. Always follow the manufacturer's instructions. Dispose of single patient use items when patient is discharged/finished treatment or it is grossly soiled.
Splints, walking frames and crutches	Clean with GPD or detergent-based wipes.
Stethoscope	Clean with GPD or detergent-based wipe.
Suction equipment	Suction units with disposable components are recommended. After each use (or every 24 hours if in frequent use) the disposable components should be disposed of as clinical waste. Non-disposable bottles – it is recommended to change to disposable units. Tubing should be disposable. Filters - these should be replaced when wet and at appropriate intervals in keeping with the manufacturer's instructions.
Thermometers (electronic, oral and rectal)	Use a single-use sleeve on probe between each use. Clean with GPD or detergent-based wipe.
Trolley (dressing, patient), theatre tables	Clean with GPD/detergent-based wipe, dry thoroughly. Surface disinfect with an alcohol-based wipe.
Urinals	See above for bedpans.
Urine jugs	Single use recommended.
Weighing scales Baby Adult	Line with disposable paper. Wash with GPD and hot water or detergent-based wipe at the end of each session or if the scales become soiled. Wash with GPD and hot water or detergent-based wipes after use. Disposable paper can be placed where the feet are placed allowing cleaning at the end of a session.
Work surfaces	**General Cleaning:** Use GPD and hot water, or general purpose wipes. If the surface is to be used to lay a dressing pack, after cleaning wipe again with an alcohol-based wipe. **Contaminated surfaces:**Clean with GPD and hot water, or general purpose wipes, and then wipe with chlorine solution to a dilution to 1,000ppm.

Adapted from Essex HPU Prison Infection Control Guidelines and Microbiology Advisory Committee (2010)[1]

[1] MRHA (2010) Sterilization, Disinfection and Cleaning of Medical Equipment: Guidance on Decontamination from the Microbiology Advisory Committee to Department of Health www.mhra.gov.uk/Publications/Safetyguidance/Otherdevicesafetyguidance/CON007438

3.5.7 The healthcare environment and hygiene

As detailed previously, cleaning is the process that physically removes contamination with organic material such as blood and body fluids, along with dirt and dust. Cleaning does not necessarily destroy microorganisms from the item that is being cleaned. However, providing and maintaining a clean and appropriate environment facilitates the prevention and control of infections (DH 201).[1]

The environment means the totality of a patient/prisoner's surroundings when in care premises. A clutter-free environment and the adoption of local 'clean as you go' policies will provide the foundation for delivering high-quality care in a clean, safe place. [2]

Registered healthcare providers need to ensure [1]:

- They have systems to manage and monitor the healthcare environment with a regular audit programme.
- Provision and maintainenace of a clean and appropriate environment in managed premises.
- There is a designated lead for cleaning that includes all aspects to contract negotiations, service planning for delivery in the healthcare environment and where healthcare is delivered is suitable for purpose, kept clean and maintained in good physical repair.
- The nurse or other person in charge of any patient area has direct responsibility for ensuring that cleanliness standards are maintained throughout the shift.
- The cleaning arrangements detail the standards of cleanliness required in each part of the premises and that a schedule of cleaning frequency is available on request.
- There are effective arrangements for the appropriate cleaning of equipment that is used at the point of care.
- Clear definitions of specific roles and responsibilities for cleaning.
- Clear, agreed and available cleaning routines.
- Sufficient resources dedicated to keeping the environment clean and fit for purpose.
- Consultation with Infection Control Teams or equivalent local expertise on cleaning protocols when internal or external contracts are being prepared.
- Availability of details of how staff can request additional cleaning, both urgently and routinely.
- Availability of:
    - Disposable plastic apron
    - Disposable paper towels
    - Clinical waste bag
    - Absorbent disinfectant granules
    - Disposable scoop and scraper
    - A chlorine-based solution or tablets that can be made up to 10,000 parts per million e.g. NaDCC Sodium Dichloroisocyanurate compound and a disposable

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[1] (DH) 2010 The Health and Social Care Act 2008: Code of Practice for health and adult social care on the prevention and control of infections and related guidance www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_110288

[2] www.clean-safe-care.nhs.uk/Documents/High_Impact_Intervention_No_8.pdf

container to make up the solution. The storage of this product is governed under COSHH (lockable cupboard). Chlorine-based disinfectants should be used in a well ventilated area.
  - Instructions on use

The kit should be replaced immediately after use.

3.5.8 Body fluid spills

Blood and body fluid spills must be dealt with quickly and effectively. Specialist body fluid spill kits are available to purchase. These can be stored in locked safe areas throughout a prison environment enabling easy access and timely clear up. Posters and simple training can also be provided on the use of the body fluid spill kits.

Note: Blood and body fluid spills that occur out with the prison establishment, e.g. within transportation, should also be dealt with quickly and effectively. Prisoner transport is a service that is usually provided by independent contractors and the provider should have a policy and training in place for their own staff. The staff should have access to the appropriate equipment to allow them to deal with a blood and body fluid spill effectively.

Body fluid spill kits should be kept in designated places throughout the prison establishment. The body fluid spill kit should contain:

- Non-sterile, powder-free, latex gloves or nitrile gloves

IMPORTANT NOTE

Chlorine-based disinfectants/absorbent granules such as NaDCC should not be used on urine or vomit spills. NEVER mix chlorine-based disinfectants with any other cleaning/disinfectants.

Cleaning up a blood or a blood stained body fluid spill

1. Prevent access to the area containing the spillage until it has been safely dealt with.
2. Obtain spill kit.
3. Put on apron and gloves.
4. Make up disinfectant solution as per product instructions to a dilution of 10,000ppm available chlorine, place on a stable surface until ready to use (this allows time for the tablets to dissolve).
5. Apply disinfectant granules to the spill; this congeals the spill to enable easier cleaning of the area.
6. Use the scoop and scraper to pick up the congealed body fluid and place into the clinical waste bag.
7. Using the disposable paper towels and disinfectant solution clean area thoroughly and dry afterwards. Detergent and warm water can also be used afterwards.
8. Ensure all equipment used is disposed of in the clinical waste bag and then finally remove gloves and apron and place in the clinical waste bag.

9. Wash hands.
10. Ensure that the clinical waste bag is placed in the appropriate disposal bin/container immediately after use.

Cleaning up vomit or urine spills

Chlorine-based disinfectants will give off highly toxic gas if mixed with acidic substances.

Ideally chlorine-based products should not be used on vomit and urine due to the slight risk of chlorine gas being released.

To clean up vomit or urine spills, follow the same process as above but replace chlorine-based disinfectant granules with a non-chlorine based product, e.g. Vernagel, or use paper towels to absorb as much of the spillage as possible.

Always clean areas with detergent and warm water.

A chlorine-based disinfectant can be used to disinfect the area but only after the urine/vomit has been cleaned up with first. This is essential if a viral gastrointestinal outbreak such as norovirus is suspected/confirmed.

Body fluid spills on carpets and upholstery with or without visible blood

1. Always wear protective clothing (disposable gloves, apron).
2. Soak up spill either with paper towels or use an absorbent powder e.g. Vernagel (chlorine-based granules may bleach the area).
3. Clean area with cold water.
4. Clean area thoroughly with detergent and hot water or use a steam cleaner if available.
5. Allow to dry.
6. Remove protective clothing and dispose into clinical waste.
7. Wash hands.

3.6 Safe handling and disposal of healthcare waste

Waste legislation in England has been updated in line with that in Europe. The old clinical waste classification system using groups A to E should no longer be used because they do not reflect the appropriate segregation for treatment or disposal.

The disposal of healthcare waste 2011 is detailed the Safe management of healthcare waste manual 2011.[1] (HTM 07:01) Each prison should have a waste policy. The responsibility for ensuring such policy is in place lies with the Governor. The prison is responsible for ensuring that contracts are in place for collection and safe disposal of waste from their premises. paying particular attention to clinical, infectious or hazardous waste streams. Consultation between the prison, healthcare provider and the waste management provider is essential to ensure appropriate documentation is generated when necessary, i.e. consignment notes. The prison is also responsible for training and monitoring the performance of their staff and waste contractors.

This guidance contains an outline of waste definitions and should not to be used as a substitute for a prison waste policy. Each healthcare department should, with the prison, have an agreed process for the disposal of healthcare associated waste, usually via an external contractor who is prison establishment approved.

3.6.1 Definitions of healthcare waste

Waste regulation requires the classification of waste on the basis of hazard characteristics and point of production.

Wastes produced by healthcare

Examples of waste produced in the healthcare sector (also relevant in a prison environment)	
Hazardous waste	**Non-hazardous waste**
Infectious waste (see below)	Domestic waste (black-bag or municipal waste)
Fluorescent tubes	Food waste
Laboratory chemicals	Offensive/hygiene waste
Cleaning chemicals	Packaging waste
Oils	Furniture

[1] DH (2011) Health Technical Memorandum 07-01: Safe management of healthcare waste www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_126348.pdf

Hazardous waste definitions

Definitions	
Clinical waste	**The Controlled Waste Regulations define clinical waste as:** **(a) Any waste which consists wholly or partly of human or animal tissue, blood or other bodily fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, syringes, needles or other sharp instruments, being waste which unless rendered safe may prove hazardous to any person coming into contact with it:** **and** **(b) Any other waste arising from medical, nursing, dental, veterinary, pharmaceutical or similar practice, investigation, treatment, care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any person coming into contact with it.** **Broadly, clinical waste can be divided into three categories of materials:** **• Waste which poses a risk of infection.** **• Waste which poses a chemical hazard** **• Medicinal waste.**
Infectious Waste	**The Hazardous Waste Regulations define as:** **H9: Infectious substances containing viable microorganisms, or their toxins, which are known or reliably believed to cause disease in man or other living organisms. (Traditionally known as "clinical waste".)**
Medicinal Waste	**Classified into two categories:** **(f) cytotoxic and cytostatic medicines (classified as Hazardous Waste)** **(g) other medicines.** **Failure to segregate cytotoxic and/or cytostatic medicines from other medicines will mean that the entire medicinal waste stream will need to be classified as hazardous. Cytotoxic and cytostatic classifications can be found in the safe management of healthcare waste (HPM 078:01)[1] and speak to the prison pharmacist regarding which types of cytotoxic/ cytostatic waste is generated.**
Offensive/Hygiene	**Non-infectious (human waste and sanitary protection) waste such as nappies, incontinence pads etc, which does not require specialist treatment or disposal, but which may cause offence to those coming into contact with it.**

Waste Segregation

Segregation of waste at the point of production into suitable colour-coded packaging is vital to good waste management. See HTM 07:01 waste minimisation, segregation, colour coding and storage – figures 10 and 11 for colour-code tables.

The main change in colour-coding that affects healthcare is the change from yellow bags/sharps bins to orange bag/sharps bins for most of the waste that is generated in a healthcare setting (see table below).

Yellow bags will only be used in high-risk settings such as an infectious diseases hospital/ward.

Purple and yellow striped bags and purple-topped sharps bins are for cytotoxic/cytostatic waste. The bags are for IV tubing etc contaminated with the drugs.

3.6.2 Colour coding key to segregating waste taken from HTM 07:01

Colour	Description
Yellow	**Waste which requires disposal by incineration** Indicative treatment/disposal required is **incineration** in a suitably permitted or licensed facility.
Orange	**Waste which may be "treated"** Indicative treatment/disposal required is to be "rendered safe" in a suitably permitted or licensed facility, **usually alternative treatment plants (ATPs). However this waste may also be disposed of by incineration**.
Purple	**Cytotoxic and cytostatic waste** Indicative treatment/disposal required is **incineration** in a suitably permitted or licensed facility.
Yellow/black	**Offensive/hygiene waste*** Indicative treatment/disposal required is **landfill** or municipal **incineration/energy from waste** at a suitably permitted or licensed facility.
Red	**Anatomical waste for incineration**[1] Indicative treatment/disposal required is **incineration** in a suitably permitted facility.
Black	**Domestic (municipal) waste** Minimum treatment/disposal required is **landfill**, municipal **incineration/energy from waste** or other municipal **waste treatment process** at a suitably permitted or licensed facility. Recyclable components should be removed through segregation. Clear/opaque receptacles may also be used for domestic waste.
Blue	**Medicinal waste for incineration**[1] Indicative treatment/disposal required is **incineration** in a suitably permitted facility.
white	**Amalgam waste** For **recovery**

* The use of yellow/black for offensive/hygiene waste was chosen as these colours have historically been universally used for the sanitary/offensive/hygiene waste stream.

1. The colours "red" and "blue" are new to the colour-coding system in this edition. Care should be taken when ordering red containers to ensure that they can be clearly differentiated from orange. The colour-coding could be agreed as part of a contract specification.

3.6.3 Handling of healthcare waste

- Waste should be segregated at the point of origin.
- Personal protective clothing should be worn when handling waste.
- Waste should be:
    - Correctly bagged in appropriate colour-coded bags which must be UN-approved and comply with BS EN ISO 7765:2004 and BS EN ISO 6383:2004.
- Double bagged where:
    - The exterior of the bag is contaminated.
    - The original bag is split, damaged or leaking.
- Kept in a rigid-sided, fire retardant holder or container with a foot operated lid, and, so far as is reasonably practicable, out of the reach of children and unauthorised personnel.
- Only filled to ¾ full.
- Securely sealed and labelled with coded tags at the point of use to identify their source.
- Waste should not be:
    - Decanted into other bags, regardless of volume
    - Contaminated on the outside
    - Re-used
    - Sharps must be disposed of into approved sharps containers that meet BS 7320/UN 3291.
- Sharps containers should **NEVER** be placed into any waste bag.

3.6.4 Disposal of healthcare waste

Waste should be placed in an appropriate bag.

The bag should be removed and securely fastened as frequently as necessary or when ¾ full. The container label should clearly identify the waste type(s) present within and be labelled with its place its place of origin (for example, prison details) and identifying the individual waste producer and placed in the designated waste collection point.

Provide the relevant paperwork (ie waste transfer note / consignment note) to accompany the waste when it leaves the premises.

Disposal of sharps (see section 3.4.2)

Disposal of Aerosol Cans/Glass/Bottles/Broken Crockery/Dry Cell

Batteries

Consult your waste management provider regarding the disposal of these items.

3.6.5 Storage of healthcare waste

Waste should be removed from point of generation as frequently as circumstances demand, and at least weekly. Between collections, waste should be:

- Stored in correctly colour coded bags, with bags of each colour-code kept separate.
- Situated in a centrally designated area of adequate size related to the frequency of collection.
- Sited on a well-drained, impervious hard standing floor, which is provided with wash-down facilities in an area that is well lit and ventilated.
- Kept secure from unauthorised persons, members of the public, entry by animals and free from infestations.
- Accessible to collection vehicles.

3.6.6 Legislation

- Health & Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1999
- Environmental Protection Act 1990
- Environmental Protection (Duty of Care) Regulations 1991
- Controlled Waste Regulations 2002
- The Waste Incineration (England and Wales) Regulation 2002
- The Pollution Prevention and Control (England and Wales) Regulation (2000) The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 Control of Substances Hazardous to Health Regulations (COSHH) 2002
- The Landfill (England and Wales) Regulation 2002- as amended 2005.
- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009.
- The Hazardous Waste (England and Wales) Regulations 2005 – as amended 2009.
- The List of Waste (England) Regulations 2005

Current guidance documents

- Environmental Agency - Hazardous Waste – Technical Guidance WM2 (version 2.3 updated April 2011)
- DH – Environment and Sustainability - Health Technical Memorandum 07-01: Safe Management of Healthcare Waste manual 2nd edition 2011.
- The National Institute for Occupational Safety and Health (NIOSH) Alert– Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care. September 2004
- Health care waste management and minimisation 2000

3.6.7 Waste Packaging and Colour Coding

HTM 07-01 Safe management of healthcare waste.

Waste receptacle	Waste types	Example contents	Indicative treatment/ disposal
"Over-stickers" with the radioactive waste symbol may be used on yellow packaging	Healthcare waste contaminated with radioactive material	Dressings, tubing etc from treatment involving low level radioactive isotopes	Appropriately licensed incineration facility
	Infectious waste contaminated with cytotoxic and/or cytostatic medicinal products	Dressings/tubing from cytotoxic and/or cytostatic treatment	Incineration
SHARPS	Sharps contaminated with cytotoxic and cytostatic medicinal products[1]	Sharps used to administer cytotoxic products	Incineration
	Infectious and other waste requiring incineration including anatomical waste, diagnostic specimens, reagent or test vials, and kits containing chemicals	Anatomical waste from theatres	Incineration
SHARPS	Partially discharged sharps not contaminated with cyto products[1]	Syringe body with residue medicinal product	Incineration
Solid Liquid	Medicines in original packaging	Waste in original packaging with original closures	Incineration
Solid Liquid	Medicines NOT in original packaging	Waste tablets not in foil pack or bottle	Hazardous waste incineration
	Infectious waste, potentially infectious waste and autoclaved laboratory waste	Soiled dressings	Licensed/permitted treatment facility
SHARPS	(i) Sharps not contaminated with medicinal products[2] Or (ii) Fully discharged sharps contaminated with medicinal products other than cytotoxic and cytostatic medicines	Sharps from phlebotomy	Suitably authorised incineration or alternative treatment facility[1]
	Offensive/hygiene waste	Human hygiene waste and non-infectious disposable equipment, bedding and plaster casts	Deep landfill

Waste receptacle	Waste types	Example contents	Indicative treatment/ disposal
Black bag or clear bag is acceptable	Domestic waste	General refuse,[3] including confectionery products, flowers, etc	Landfill
	Amalgam waste	Dental amalgam waste	Recovery

3.7 Management of linen

Clothing and bed linen used by patients/prisoners is a possible infection risk.[1] This is especially relevant in healthcare areas where wounds may be exposed and catheter and enteral feeding tubes may be managed. Used linen can be heavily contaminated with bacteria from the intestinal tract and the skin (the organisms found are also common environmental contaminants). Used linen that has been in contact with a prisoner who is infected with specific pathogens such as *Shigella sp. Salmonella sp.* or *clostridium difficile* is a potential hazard if there are excretions or secretions present.[1] The risk of acquiring an infection from linen, even if it is contaminated with blood, body fluids or excreta from infected patients, is low if it is handled with appropriate PPE (disposable gloves/apron) and sealed in an impermeable bag.

Bed Linen
Clean linen must be stored in a clean and dry area and not on the floor.
Clean and used linen must be kept in distinctly separate areas.

Used Linen
All linen within healthcare areas must be changed daily or more frequently if soiled.

Soiled / infected linen

1. Place linen soiled with body fluids in a leak-proof, water soluble bag and then placed in a clearly identifiable impermeable outer bag for transport and storage.

2. Arrange prompt laundering.

3. Used linen – the washing process should have a disinfection cycle in which the temperature of the load is either maintained at 65°C for not less than 10 minutes or 71°C for not less than three minutes. With both of these options mixing times must be added to ensure heat penetration and assure this disinfection. For machines of

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[1] Ayliffe GAJ et al (2000) Control of hospital infection – a practical handbook. 4th Edition. London. Arnold.

conventional design and a low degree of loading (less than 0.056 Kg/L), 4 minutes should be added to these times to allow for adequate mixing time. For machines with a heavy degree of loading, it is necessary to add eight minutes[2].

Sending healthcare laundry to a commercial laundry
Commercial laundries should be consulted regarding their own infection control precautions.

The prison service will need to comply, i.e. colour-coding.
Usually laundry bags are colour-coded in the following way:

Used linen - a white bag

Foul linen - a sealed clear soluble bag within a white or blue bag

Infected linen - a sealed clear soluble bag within a red bag

Note: If the foul or infected linen is excessively wet it may be necessary to place the soluble bag within a clear polythene/plastic bag within a blue or red bag.

Examination couches

- The surface of all couches must be of a washable impermeable fabric.
- The condition of the surface of all couches should be regularly checked to ensure the fabric remains intact.
- The couch should be covered with disposable paper towel, which must be changed between patients
- If the paper towel becomes soiled and the soiling seeps through to the surface of the couch, the couch must be cleaned before use by another patient/prisoner. If contaminated with blood use a chlorine-releasing disinfectant (see blood spills section).
- If the contaminate is another body fluid, general-purpose detergent and warm water/ detergent based wipe is sufficient to decontaminate the surface of the couch
- Pillows are not considered essential as couches should have head-tilts. If pillows are used, they should be sealed within a plastic impermeable cover and covered with disposable paper. If a pillowcase is used it should still be covered in disposable paper towel between patients/prisoners. The pillowcases must be washed weekly or more frequently if they become soiled.
- Blankets/sheets are not considered essential. For modesty, a length of disposable paper towel can be used to cover exposed parts of the body. However, if a procedure is expected to take longer than a regular examination or a significant portion of the body is exposed, i.e. complex wound-dressing, a clean blanket may be required to prevent heat loss. The blanket should be only used for that patient/prisoner and be laundered after every use.

Curtains/blinds

- It is recommended that washable blinds are used.
- Around couches, curtains should only be used if required to protect patients' modesty.

- There should be an environmental cleaning schedule, which should include blinds and bed curtains.

Cotton hand towels (terry towels)

- There is no place for cotton hand towels in areas where healthcare is delivered. Hands should be dried on disposable paper towels.
- If used to protect the patient whilst performing a procedure, e.g. ear syringing (instead of the correctly designed receptacle), each patient should be provided with a clean towel (or disposable paper towel) that is placed in the laundry immediately after use.

3.8 Packaging and safe handling of specimens

Clinical specimens include any substance, solid or liquid, removed from the patient for the purpose of analysis.

All staff who take/test/handle clinical specimens must be trained in safe systems for collection, handling and storage and transportation of specimens for the prevention and control infection.

All specimens should be regarded as potentially infectious, the same as exposure to blood/body fluid, and all staff involved in the procedure must adhere to standard infection control precautions to minimise exposure when obtaining, handling and transporting specimens.

The collection, storage and transportation of specimens are governed by legislation relating to both transportation and health and safety at work.

The following legislation applies:

- Health and Safety at Work Act, 1974
- Management of Health and Safety at Work Regulations, 1999
- Control of Substances Hazardous to Health Regulations (COSHH), 2002
- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations, 2009[1]

Laboratory reports are essential to confirm diagnosis of infectious diseases and to ensure that patients receive appropriate treatment and care.

Within the prison, specimens (usually urine) are also tested for controlled drugs by prison officers (Prison Rules 1999 updated 2010). Accurate laboratory reports are only be possible if specimens are collected properly and if accurate patient details are provided with the

[1] HSE (2009) Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations www.hse.gov.uk/cdg/manual/index.htm

request. Everyone involved in obtaining, testing and handling specimens to laboratory must be appropriately trained according to their role.

Healthcare staff must request specific investigations to be carried out when patients have clinical signs and symptoms of infections only, to avoid unnecessary investigations. Specimens may also be taken during an outbreak of infectious disease or from someone who is asymptomatic as part of an investigation into an infectious disease (e.g. *E. Coli* O157).

3.8.1 General recommendations

Everyone involved in collecting, handling and transporting specimens should be educated about standard infection control precautions and trained in:

- Hand hygiene
- The use of personal protective equipment
- The safe use and disposal of sharps

Adequate supplies of liquid soap, alcohol hand rub, paper towels, protective clothing and sharps containers should be made available wherever care is delivered. In addition, staff should be familiar with the infection control policies for safe handling of clinical waste, body fluid spillage, and the prevention and management of exposure to bloodborne viruses.

3.8.2 Specimen collection

Wear appropriate personal protective equipment (PPE), e.g. gloves and aprons, when taking specimens or additional PPE based on an assessment of the risk associated with the procedure.

The person taking the specimen must ensure that the following principles are followed:

- Effective hand hygiene is performed before and after collection of the specimen, even if gloves are worn.
- Appropriate protective clothing is worn when collecting the specimen, i.e. non-sterile gloves, apron and, where splashing is possible or expected, goggles or visor.
- Collect fresh material only from the site of the suspected infection, avoiding contact with the surrounding areas.
- Prior to collecting swabs from dry wounds or from the nose or other sites, moisten the swab with sterile normal saline. If none is available use a small amount of the transport medium supplied with the swab instead.
- All swabs for culture should be done with swabs with transport medium.
- The specimen is taken at the correct time of day.
- The correct specimen container is used.

- The specimen container is sealed well to prevent leakage.
- When taking blood samples always use the vacuum blood collection system (Vacutainer) and not a needle and syringe to avoid the risk of a needlestick injury. Use retractable safety devices whenever possible.
- Do not overfill containers, especially faecal containers, but ensure that there is adequate volume of specimen to avoid a false negative result.
- The container is labelled with the patient's name, date of birth, hospital or NHS number, and the date and time the sample was obtained.
- The appropriate request form is fully completed with details of the patient's relevant medical history, investigation required and dates of any antibiotic treatment received.
- The correct name is on both the specimen container and request form.
- The specimen container is placed in an approved specimen bag containing absorbent material and sealed, with the request form in the separate pouch attached.
- The specimen is stored correctly and transported to the laboratory promptly.
- The patient's confidentiality is maintained at all times.
- Ensure that staff competencies have been assessed before undertaking procedures.

NB. In the event of a suspected outbreak of infection it is important for specimens to be collected promptly and for the request form to be marked as 'Possible Outbreak'.

HPUs now use reference numbers to identify specific outbreaks. The prison will be advised by the HPU about this.

In a suspected gastrointestinal outbreak, stool specimens should be sent as soon as the outbreak is suspected, i.e. the second episode of diarrhoea.

3.8.3 Storage of specimens

For accurate results to be obtained, specimens should be received by the laboratory as soon as possible. If for microbiological investigation, urine and sputum specimens should ideally be examined in the laboratory within two hours of collection, and stool samples within 12 hours. Where this is not possible, urine and sputum specimens must be stored within a designated refrigerator, but only for a maximum of 24 hours, at 4–8°C. This will help prevent bacteria and contaminants from multiplying and giving misleading results.

Samples taken for blood culture must not be refrigerated. They must be transported to the laboratory as soon as possible for incubation at 37°C.

If any clinical specimens are to be stored in a refrigerator, it is essential that:

- There is a refrigerator dedicated for the purpose of specimen storage only.
- The temperature in the refrigerator is kept between 4–8°C and a member of staff is allocated to check and record the fridge temperature at least weekly using the appropriate documentation.
- The specimen refrigerator is not accessible to the general prison population.
- The specimen refrigerator is cleaned on a weekly basis, defrosted regularly (if not self-defrosting), and cleaned and disinfected after any spillage or leakage.

3.8.4 Specimen transport

Specimens must be transported in accordance with the Carriage of Dangerous Goods Regulations, 2004, updated in 2009.

Ensure that the specimen is placed in a sealed plastic specimen bag with the form placed in the second compartment to avoid accidental contamination of the form.

The plastic bag should then be placed in the dedicated refrigerator.

Specimens for transport to the laboratory must be placed in a dedicated, rigid, robust, leak-proof container with a tight fitting lid, and then be placed in a rigid container in a designated secure collection area until ready for collection. Managers must ensure that appropriate rigid containers are available in healthcare areas for transport of specimens to the local laboratory.

The container must be identified with both a biohazard sticker and contact telephone number in case the box is lost. Clinical staff must not transport specimens unless such a container is used.

Containers designated for the transportation of clinical specimens must never be used for any other items.

The containers must be cleaned and disinfected weekly and after any visible spillage.

3.9 Isolation precautions

There are times when it is necessary for a prisoner with a known or suspected infection to be accommodated in a single occupancy room/cell to prevent cross infection.

When to place a prisoner/patient under isolation precautions

A patient reports he/she has symptoms of an infectious disease, for example (this list is not exhaustive):

- **A rash of unknown origin +/- a temperature and feeling unwell.**
- **Pyrexia (fever above 38 °C) of unknown origin.**
- **Diarrhoea and/or vomiting not associated with drug / alcohol detoxification +/- a temperature.**
- **Productive cough with one or more other symptoms of blood-stained sputum, night sweats, weight loss, fatigue.**
- **Unexplained jaundice.**

When someone is deemed to require isolation for infection control purposes, **standard precautions** must still be adhered to by all healthcare and prison staff. This means in a single cell with toilet facilities. Examples of the types of infections/conditions that require a single cell/room are detailed in **Section 1 Communicable Diseases**.

Within the prison environment a risk assessment may be required regarding the most appropriate placement of the prisoner. Not all infections will necessitate an admission to the inpatient healthcare department. Once the decision to isolate a prisoner/patient has been made, this must be carefully explained to them (the nature of the infection, the mode of spread and its significance/implications for the person). Regular review of the need for isolation should be made to ensure appropriate care of the prisoner/patient, e.g. measles isolation is required for four days after onset of rash.

There are four types of isolation; the main differences relate to the PPE used and the limitations on movement out of the cell/room for the prisoner/patient. The type of isolation varies between infections (some have more than one route of spread).

3.9.1 Types of isolation

Types of isolation	
Contact Precautions	Standard precautions, dedicated toilet facilities and the use of PPE, for example. aprons and gloves (eye and face protection may be required). The patient may leave the cell to use the showers after the other patients/prisoners have used the facilities (this risk assessment will depend on the infection and a risk assessment by the healthcare team that is communicated to the prison team). With infections such as MDR-TB a FFP3 respirator is required for staff entering the room and if the patient/prisoner has to leave the room. Patients with other vaccine preventable infections, such as measles and chickenpox, require isolation until a defined period has passed. The patient should not leave the room and the door must remain closed, but staff entering are not required to wear a mask. See communicable disease section.*
Protective Isolation	This is defined in the literature as a protective environment designed for allogeneic stem cell transplant patients to minimize fungal spore counts in the air and reduce the risk of invasive environmental fungal infections. These patients would be cared for in a hospital environment. There are no published reports that support the benefit of placing solid organ transplants or other immunocompromised patients in a protective environment.

***Note: Non-immune staff members should not care for patients with vaccine-preventable airborne diseases such as measles and chickenpox.**

A stock of PPE close to the isolation room/cell will be required to store gloves, aprons, masks, eye protection, clinical waste bags, equipment cleaning wipes (this will depend on the type of infection that is suspected/confirmed).

On discharge from an isolation room/cell, all fabrics should be sent to the laundry as infected (usually double bagged, first is usually bag dissolvable) and the whole room—starting with high surfaces—should be thoroughly cleaned with a general purpose detergent followed by chlorine-based disinfectant (NaDCC) diluted to 1,000ppm. Some chlorine products include detergent and therefore allow a one-step cleaning and disinfecting process. Always follow the manufacturer's instructions.

3.9.2 Transfer of a prisoner/patient with a suspected/known infection

If a prisoner/patient is to be transferred outside of the prison establishment (court/hospital attendance/another prison) with a suspected or known infection this must be risk assessed.

The prison and healthcare team need to do a joint risk assessment and if needed seek external advice (from the HPU, for example) to allow an informed decision on whether it is safe to do the transfer. **Due to the wider public health risks associated with some infections, the prisoner/patient may need to be placed on medical hold and have the transfer delayed until it is safe to do so.**

The outcome of the review should be communicated to the receiving court/establishment so as to minimise anxiety, especially if the outcome of the risk assessment is that it is safe for the prisoner to be transferred.

Some general points to remember:

(a) Staff/officers must be aware of any current communicable/infection risk of the prisoner being transferred.

(b) Facilities for staff/officers to clean their hands must be available. Transport staff should be able to access hand washing facilities at pick up/drop off points. There should also be an alcohol-based hand disinfectant available that can be easily used during transportation see section 10.1.

(c) PPE should be available to staff/officers to protect themselves, where the risk of exposure to blood and body fluids is anticipated/ known.

(d) Where there is an exposure to blood and body fluids the staff/officer should wear appropriate PPE and follow instructions on management of blood and body fluids see section 12.8 of the manual.

(e) There should be an appropriate area for disposal of PPE after use.

(f) If contamination of the vehicle has occurred it should be cleaned and disinfected as soon as possible prior to being brought back into service.

(g) Any staff/officer who believes they have been exposed to a communicable disease should report the suspected exposure to their occupational health advisor and should follow their advice.

3.9.3 Dirty protests

A dirty protest is where a prisoner has chosen to either defecate or urinate in a cell or a room without using the facilities provided. This can mean the prisoner has covered themselves, and the floor/ walls and ceiling with faeces. **Prison Service Order (PSO) 1700 provides full details of measures required during a dirty protest.**[1] Anyone who enters the cell or are required to clean the affected area must be supplied with single-use personal protective equipment:

4. Disposable overalls that are impermeable to fluids (a disposable apron may also be worn) to prevent contamination by particles or splashes.
5. Disposable gloves.
6. Plastic overshoes.
7. Activated charcoal face mask.
8. Eye protection face shield/goggles.

If a person has been required to enter the cell, they must be provided with the opportunity to shower directly afterwards.

3.9.4 Isolation—key points

ENTERING AND LEAVING AN ISOLATION ROOM

Everyone who enters and leaves the room must:

1. **Roll sleeves up** (if clothing/ uniform is not short sleeved) remove watches, hand/wrist jewellery.
2. **Clean hands** either by washing with liquid soap and water or use alcohol-based hand rub on visibly clean hands.
3. **Wear the appropriate personal protective equipment** when assisting with personal care e.g. gloves, aprons. In some circumstances masks/respirators and eye protection may be required.
4. For **dirty protests**, see page 10, PSO 1700.
5. **Remember** gloves have to be changed between patient care activities.
6. On **leaving the cell/room remove all personal protective equipment** and dispose of as clinical waste.
7. **Clean hands** either by washing or using an alcohol-based hand rub (on visibly clean hands).

[1] http://pso.hmprisonservice.gov.uk/pso1700/default.htm

OTHER KEY POINTS TO ISOLATION

1. **Dressings and other disposable items** must be disposed of as healthcare waste.

2. If **urinals or bedpans** are required – contents should be emptied down the toilet and flushed away. If a bedpan washer is not available, disposable urinals/bedpans (made out of pulp) should be used. Once emptied these can be placed into a macerator (if available) or clinical waste.

3. **Linen** must be placed into a soluble bag and then into a linen bag and closed promptly, half full bags should never be left lying about. The linen bag must be highlighted as infected. The linen that is contained in the soluble bag can be placed straight into an industrial washing machine. All linen should be washed at as hot a temperature as possible.

4. **Crockery and cutlery** – disposable items are not required. General purpose detergent and hot water is sufficient in the kitchen sink or by a dishwasher.

3.10 Aseptic and clean technique

3.10.1 Aseptic technique

Aseptic technique is vital to reduce the risk of healthcare associated infection (and associated morbidity and mortality) caused by invasive procedures. An aseptic technique should be used during any invasive procedure which breaches the body's natural defences, i.e. the skin or mucous membranes, or when handling equipment which enters a normally sterile body cavity, such as a urinary catheter.

Aseptic technique refers to practices that help to reduce the risk of post-procedural infections in patients by decreasing the likelihood that microorganisms will enter the body during a clinical procedure. Some of these practices also reduce the healthcare worker's risk of exposure to potentially infectious blood and tissue during clinical procedures.

The aim of aseptic technique is to protect the patient from infection and to reduce the healthcare worker's risk of exposure to potentially infectious body fluids.

General recommendations

The key principles of asepsis must be observed when undertaking any invasive clinical procedure.

The key principles of asepsis are:

- Keep exposure of the susceptible site to a minimum.
- Ensure an appropriate hand decontamination technique prior to the procedure and the correct use of sterile gloves.
- Staff must be "bare below the elbows" – no hand or wrist jewellery, long sleeves or artificial nails.
- Staff must not wear neckties or necklaces and long hair must be tied back to avoid anything dangling onto the sterile field.
- Cover uniform or clothing with a disposable plastic apron.
- All fluids and materials used must be sterile.
- Sterile packs should be checked for evidence of damage or moisture penetration and for expiry date.
- Contaminated or non-sterile items must not be placed on the sterile field.
- Single use items must never be re-used.
- Activity should be reduced in the immediate vicinity of the area in which the procedure is to be performed, e.g. concurrent consultation in clinic room.

Aseptic technique can be applied in any clinical setting. However, in a shared care environment such as a wing clinic, there may be a risk of transmission of infection from other patients. Therefore, ideally aseptic procedures should be carried out in a designated "clean" treatment room, rather than a room where contaminated procedures have been carried out, for example leg ulcer dressings, unless the environment is first cleaned and disinfected with a chlorine-based agent.

Procedures that require aseptic technique include:

- Wounds healing by primary intention (before the skin has healed) e.g. surgical wounds
- Urinary catheterisation
- Suturing
- Any other medical invasive procedures i.e. minor surgery
- Insertion of intravenous lines
- Dressing intravenous lines
- Nail surgery
- Intrauterine Contraceptive Device insertion

Skin preparation before minor surgical procedures: The site should be washed with soap and water (this can be done by the patient or by staff). Shaving is **not** recommended because it causes small nicks and abrasions to the skin where bacteria can grow and multiply.[1] Hair around the site may be clipped short if it might interfere with the procedure.

The site should then be decontaminated with a single-use application of alcoholic Chlorhexidine gluconate solution, e.g. ChloraPrep (2% Chlorhexidine gluconate in 70% Isopropyl alcohol). Povidone iodine 10% alcoholic solution may be used for patients with chlorhexidine sensitivity. Allow antiseptic to dry before commencing the procedure.

Alcohol-based antiseptics should **not** be used for cleansing the vagina, cervix, or other mucous membranes because they will irritate these tissues; use 2% aqueous Chlorhexidine gluconate or 10% aqueous Povidone iodine as an antiseptic for mucous membranes.

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[1] NICE (2008) Surgical site infection. Prevention and treatment of surgical site infection. www.nice.org.uk/CG74

Aseptic technique procedure

(adapted from Richmond & Twickenham PCT Policy)

Procedure	Rationale
Review patient's care plan and gather equipment required. Ensure there is an appropriate place to undertake the procedure. Clean empty clinic/treatment room.	To ensure the right procedure is undertaken by an appropriately trained person. To reduce the risk of disturbance and contamination of the site and interruption to the aseptic field.
Place all equipment required on a clean, flat surface (bottom of dressing trolley).	To prevent unnecessary movement and potential cross contamination of the wound/procedure site and aseptic field.
Verbally check the identity of the patient. Check with prison team if not able to confirm identity.	To confirm identity, ensuring the right patient receives the correct procedure.
Explain the procedure to the patient, obtain verbal consent and check his/her understanding.	To ensure that the patient understands the procedure and provides his/her consent (NMC 20081).
Position the patient so they are comfortable with dignity and privacy so that the procedure can be performed without exposing the patient unduly. (Note: Due to safety considerations, a prison officer may have to be present during procedure. They are bound by confidentiality rules as set out by HMPS policy.)	To gain optimal position for the patient with comfort and dignity.
Wash hands with soap and water or decontaminate visibly clean hands with alcohol-based gel. If a dressing is to be done in a cell, wash hands before leaving clinic room and then use alcohol-based gel at bedside.	Reduce the risk of transfer of transient microorganisms onto the healthcare workers hands.
Put on single-use apron.	To protect clothing and prevent transfer of transient organisms to a susceptible site.
Open the sterile pack (pack must be undamaged, intact and dry prior to use) and using the corners of the paper, create a sterile field. A hand may be placed in the sterile, disposable bag in order to arrange the contents of the dressing pack.	To prevent organisms capable of causing an infection being introduced to the site.

[1] NMC (2008) The Code: Standards of conduct, performance and ethics for nurses and midwives www.nmc-uk.org/Nurses-and-midwives/The-code/The-code-in-full

If a dressing is present, loosen and remove using the inside of the waste disposal bag.*	To remove contaminated dressing, minimizing risk of contamination.
Wash hands with soap and water/decontaminate visibly clean hands with alcohol-gel.	Reduce the risk of transfer of transient organisms on the healthcare workers hands.
Put on sterile gloves in a manner which prevents the outer surface of the sterile glove being touched by a non-sterile item i.e. touching only the inside wrist end.	To prevent organisms capable of causing an infection being introduced to the site.
Use aseptic principle to ensure that only sterile items are used to keep exposure of the susceptible site to a minimum. E.g. IUCDs can be inserted without being handled by the clinician if they are loaded into the inserter within their sterile packaging, thereby reducing the risk of contamination.	To prevent the introduction of viable microorganisms that could cause a healthcare acquired infection. Only sterile items are free of potentially harmful microorganisms. Once a sterile item comes into contact with a non-sterile object or person or with dust or other airborne particles, the item is no longer sterile.
Place soft clinical waste into an appropriate bag. Sharps must be disposed of at point of use into an appropriate rigid sharps box.	To prevent cross infection. To prevent sharps injuries.
On completion of the procedure remove gloves and dispose of waste.	As per disposal of waste guideline.
Wash hands with soap and water or decontaminate visibly clean hands with alcohol gel.	To remove any contamination that may have occurred during the procedure or during glove removal.
Record all care in the patient's medical records.	As per local policy.

*Removing the old dressing can be achieved by using the bag technique. This means using the clean bag from the dressing pack like a glove to remove the old dressing.

1 Place your hand inside the bag and carefully grasp the old dressing. If the dressing is large you may need to use two hands inside the bag, one in each corner.

2 Carefully turn the bag inside out to contain the old dressing.

3 The bag is then used for the remaining waste.

3.10.2 Clean technique

A clean technique differs from an aseptic technique in that the use of sterile equipment and the environment are not as crucial as would be required for asepsis. The non-touch technique is incorporated as part of a clean procedure, i.e. the ends of sterile connections should not be touched or other items that could contaminate a susceptible site.

Clean, single-use gloves are worn rather than sterile gloves.

A clean technique is appropriate for superficial chronic wounds, e.g. leg ulcers or pressure sores. Clean non-sterile gloves should be worn and these wounds may be irrigated or bathed using tap water. Normal hand hygiene procedures and the use of clean equipment prevent the introduction of microorganisms that would cause an infection.

A risk assessment should be made to ensure that this technique is appropriate for the procedure.

Indications for using a clean technique

A clean technique should be used for the following:

- Dressings of wounds by secondary intention, e.g. pressure sores, leg ulcers, stoma sites
- Removal of sutures
- Removal of drains
- Endotracheal suction
- Management of tracheostomy sites
- Management of enteral feeding lines

Clean technique procedure

(adapted from Richmond & Twickenham PCT Policy)

Procedure	Rationale
Review patients care plan or plan of care and gather equipment required. Ensure there is an appropriate place to undertake the procedure. Clean empty clinic/treatment room.	To ensure the right procedure is undertaken by an appropriately trained person. To reduce the risk of disturbance and contamination of the site.
Place all equipment required on a clean, flat surface.	To prevent unnecessary movement and potential cross contamination.
Verbally check the identity of the patient. Check with prison team if not able to confirm identity.	To confirm identity.

Explain the procedure to the patient, obtain consent and check understanding.	To enable patient to make an informed decision about their own health care.
Position the patient so they are comfortable with dignity and privacy so that the procedure can be performed without exposing the patient unduly. (Note: Due to safety considerations, a prison officer may have to be present during procedure. They are bound by confidentiality rules as set out by HMPS policy.)	To gain the optimal position for the patient with comfort and dignity.
Wash hands with soap and water or decontaminate visibly clean hands with alcohol gel.	Reduce the risk of transfer of transient organisms on the healthcare worker's hands.
Put on single-use apron.	To protect clothing and prevent transfer of transient organisms to a susceptible site.
Open wound care pack (if required) onto a clean surface.	To prevent organisms capable of causing an infection being introduced to the site.
Put on gloves.	To protect hands and prevent cross infection to the healthcare worker.
Undertake indicated procedure and keep exposure of the susceptible site to a minimum.	To prevent the introduction of new microorganisms to the area.
Apply dressing, if required.	To protect susceptible site.
On completion of the procedure, dispose of waste.	As per clinical waste policy. If a bucket is used for leg ulcers, dispose of water down the 'dirty' sink (not the hand wash basin) and decontaminate bucket as described below.*
Wash hands with soap and water or decontaminate visibly clean hands with alcohol gel.	To remove any contamination that may have occurred during the procedure or during glove removal.
Record all care in the patient's medical records.	As per local policy.

*** Decontamination of buckets used to soak leg ulcers:**

- Line the bucket with a clean plastic bag.
- After each use, empty the bucket, dispose of the bag as clinical waste, and then clean the bucket with hot water and detergent.
- Follow this by wiping it with a chlorine-releasing solution of 1,000 parts per million.
- Rinse and dry the bucket thoroughly and store inverted.*

3.10.3 Venepuncture

Venepuncture is one of the most commonly performed invasive procedures and is now routinely undertaken by nursing staff. In order to perform venepuncture safely the nurse must have basic knowledge of the:

- Relevant anatomy and physiology.
- Criteria for choosing both the vein and device to use.
- Potential problems which may be encountered, how to prevent them and necessary interventions.
- Health and safety/risk management of the procedure, as well as the correct disposal equipment.[1]

Venepuncture technique procedure

(adapted from Dougherty and Lister 2008[1])

Equipment

- Clean tray
- Tourniquet
- Vacuum system with appropriate sized needle or winged infusion device
- Appropriate vacuumed blood specimen tubes
- 70% alcohol swabs (can be in combination with Chlorhexidine)
- Low-linting swab
- Sterile plaster
- Non-sterile, well fitting gloves
- Sharps container
- Relevant specimen request forms

Procedure	Rationale
Assemble equipment necessary for procedure.	Ensures that the procedure is undertaken smoothly with no delays.
Explain procedure and check patient understands why they are having blood taken. Informed consent.	To ensure that the patient understands the procedure and provides his/her consent (NMC 2006).
Seat comfortably and consult the patient as to any preferences or problems they may have, e.g. history of fainting, that may mean they need to lie on an examination couch instead.	If patient has had a mastectomy this will influence vein choice. A patient may know what their “best” vein is.
Check identity of the patient with the details of the blood specimen request form.	Ensures that the correct sample is taken from the correct patient.
Identify tests required and associated requirements,	To ensure accuracy of tests undertaken.

1 Dougherty L. and Lister S. (2008) The Royal Marsden Hospital Manual of Clinical Nursing Procedures. (7th Edition) Blackwell Publishing. Oxford

e.g. fasting status, timing of medication.	
Wash hands with soap and water or decontaminate visibly clean hands with alcohol gel.	Reduce the risk of transfer of transient microorganisms on the healthcare worker's hands.
Check all packaging before opening, ensuring it is intact, dry. Assemble equipment onto tray.	To ensure asepsis is maintained.
Assessment of which vein to access: Most venepuncture procedures are a straightforward process for a competent practitioner however for some patients their venous access can be difficult due to previous chemotherapy, intravenous drug use etc. Therefore the practitioner should be trained in the appropriate assessment techniques and use interventions such as applying a warm compress or placing the limb in warm water.	
Wash hands with soap and water or decontaminate visibly clean hands with alcohol gel.	Reduce the risk of transfer of transient microorganisms on the healthcare worker's hands.
Support the chosen arm comfortably, usually on a pillow.	Ensure patient comfort and facilitate venous access.
Reapply the tourniquet.	To dilate the veins.
Put on gloves.	To protect the practitioner from possible contamination.
Clean skin for 30 seconds with an appropriate disinfectant—70% alcohol with or without chlorhexidine. Allow to dry and do not repalpate vein.	To maintain asepsis.
Prepare needle holder and needle and inspect carefully.	To ensure that the equipment is intact and not faulty, e.g. bent needle.
Anchor vein by applying manual traction on the skin a few centimetres below the insertion site.	To facilitate smooth entry into the vein.
Insert needle smoothly at an angle of approx 30$^{o.}$ Once flashback is seen or when puncture into the vein is felt, then the angle can be reduced.	This prevents advancing too far through the vein wall.
Advance needle into vein if possible and then attach vacuum blood collection system.	If multiple blood samples are required follow manufacturer's recommendations on order of sample to prevent transferring additives.
Release tourniquet.	To decrease pressure in the vein.
Use low-linting swab and cover puncture point and remove needle. Only apply pressure once the needle is fully removed.	To prevent pain and damage to the vein.
Activate safety device (if available) and discard the needle directly into a sharps bin. Do not re-sheath.	To prevent needlestick injury.
Apply digital pressure for approx 1 min. Discourage bending the arm if vein accessed was the antecubital fossa.	To prevent haematoma formation.
Gently invert blood tubes and label correctly.	To mix additive and prevent damage to blood cells.
Check puncture site and apply dressing.	To check puncture point has sealed and prevent contamination.
Discuss arrangements for the patient to receive results.	Ensure continuity of care and involvement of the patient in their care.

Remove gloves and dispose of waste correctly, sharps must go into a sharps bin.	Safe disposal and prevention of needlestick injury.
Wash hands with soap and water or decontaminate visibly clean hands with alcohol gel.	To remove any contamination that may have occurred during the procedure or during glove removal.
Ensure safe transport of specimens and update patient records.	Ensures specimens reach intended destination.

3.11 Infection prevention and the deceased

All deaths that occur in custody are managed according to Prison Service Order 2710.[1] This means the police and the Coroner undertake an investigation for all deaths that occur within the prison environment, including expected deaths. The implications for healthcare staff are mainly around communication with the investigation team if the prisoner had a known or suspected infection. Practically, the investigative team should be wearing personal protective equipment due to risks of undiagnosed infections. They need to be advised if any further precautions are required.

After death, the human body does not generally create a serious health hazard. In practice, few of the organisms which may be present pose an infection risk to those that handle the cadaver, and in most cases, standard infection control procedures (standard precautions) will suffice to reduce any possible risk significantly.[2] There are some pathogens that, if present in the recently deceased, pose a more definable threat, but these too are readily manageable with appropriate precautions. See practical risk assessment classification below, though some infections may fall in more than one group.[3]

1. **Infections that pose minimal transmission risk and are preventable with standard precautions.** Usually there is available prophylaxis or treatment for such infections. Examples are chicken pox, influenza, measles, meningitis, mumps, rubella, scarlet fever and whooping cough.

2. **Infections causing severe human illness, but with limited or no transmission risk**. Such infections have intermediate insect and animal vectors rarely met with in the UK. These infections may, however, be transmitted by accidental blood inoculations (sharps/ splash injury). Examples are yellow fever, rabies, malaria and anthrax.

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[1] http://pso.hmprisonservice.gov.uk/PSO_2710_follow_up_to_deaths_in_custody.doc

[2] HPA Website: Mortality Guidelines Management of infection control associated with human cadavers www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Mortality/Guidelines/mortMortalityGuidelines

[3] Bakhshi SS (2001) Code of practice for funeral workers: managing infection risk and body bagging. Communicable Disease and Public Health. (4):4 283-287

3. **Infection hazards that present a risk:**

    a. **Airborne droplets or particles** – tuberculosis (more relevant at the time of post mortem[4]).

    b. **Discharges from body orifices** - typhoid and paratyphoid fevers, amoebic or bacillary dysentery and food poisoning,

    c. **Inoculation risks** - HIV infection, hepatitis B and C infections, leptospirosis and brucellosis.

    d. **Skin lesions** - *Staphylococcus aureus* and *Streptococcus pyogenes*.

    e. **Skin infestations** - body lice and scabies.

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[4] Healing TD, Hoffman PN, Young SE (1995) The infection hazards of human cadavers. Communicable Disease Report: CDR Review. 5(5):R61-8.

3.12 Uniform and dress code (for healthcare staff)

This section details the requirements for staff working in a healthcare environment regarding standards of dress. Uniform and work wear policies need to ensure that clothing worn by staff when carrying out their duties is clean and fit for purpose. Particular consideration should be given to items of attire that may inadvertently come into contact with the person being cared for. Uniform and dress code policies should specifically support good hand hygiene.[1]

The DH first published Uniforms and Work Wear: Guidance on uniform and work wear policies for NHS employers in 2006 and this has recently been updated.[2] Infection control aspects are not always well defined, however, the guidance clearly details the responsibilities of employer and employees.

Three main objectives of a dress code for healthcare workers

1. Patient safety - Effective hygiene and preventing infection are absolutes in all healthcare settings. Although there is no conclusive evidence that uniforms and work wear play a direct role in spreading infection, the clothes that staff wear should facilitate good practice and minimise any risk to patients.

a) Uniforms and work wear should not impede effective hand hygiene, and should not unintentionally come into contact with patients during direct patient care activity.[2]

b) Nothing should be worn that could compromise patient or staff safety during care, for example false nails, rings, earrings other than studs, and necklaces. Local policies may allow a plain ring, such as a wedding ring.[2]

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[1] DH (2010) Health and Social Care Act 2008 : code of Practice on the prevention and control of infections and related guidance.
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_110435.pdf

[2] DH (2010) Uniforms and Workwear: Guidance on uniform and workwear policies for NHS employers.
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_114754.pdf

There is a risk that rings and jewellery can harbour microorganisms that could contaminate a body site with pathogens. Rings with sharp surfaces may puncture gloves. Hand hygiene practices are likely to be performed in a suboptimal way if voluminous rings or rings with sharp edges or surfaces are worn. Jewellery may also be a physical danger to either patients or the healthcare worker during direct patient care, e.g. a necklace may be caught in equipment or bracelets may cause injury during patient handling.[2]

2. Public confidence - Patients and the wider public should have complete confidence in the cleanliness and hygiene of their healthcare environment. The way staff dress is an important influence on people's overall perceptions of the standards of care they experience. Uniforms should be clean at all times, and professional in appearance. In addition, although there is no evidence that wearing uniforms outside work adds to infection risks, public attitudes indicate it is good practice for staff either to change at work, or to cover their uniforms as they travel to and from work. Patients and visitors also like to know who is who in the care team. Uniforms and name badges can help with this identification.[2]

3. Staff comfort - As far as possible, subject to the overriding requirements of patient safety and public confidence, staff should feel comfortable in their uniforms. This includes being able to dress in accordance with their cultural practices. For example, although exposure of the forearm is a necessary part of hand and wrist hygiene during direct patient care activity, the uniform code should allow for covering of the forearm at other times.[2]

Washing of uniforms or work wear

All elements of the washing process contribute to the removal of microorganisms on fabric. Detergents (washing powder or liquid) and agitation release any soiling from the clothes, which is then removed by sheer volume of water during rinsing. Temperature also plays a part. Scientific observations and tests, literature reviews and expert opinion suggest that:

- There is little effective difference between domestic and commercial laundering in terms of removing microorganisms from uniforms and work wear;
- Washing with detergents at 30ºC will remove most gram-positive microorganisms, including all meticillin-resistant *Staphylococcus aureus* (MRSA);
- A 10-minute wash at 60ºC is sufficient to remove almost all microorganisms. In tests, only 0.1% of any *Clostridium difficile* spores remained. The DH advise that this level of contamination on uniforms and work wear is not a cause for concern.

These examples are taken from Uniforms and Work Wear: Guidance on uniform and work wear policies for NHS employers[2] See guidance for full details.

Good Practice	Why?
Wear short-sleeved tops and do not wear white coats during patient care activity.	Cuffs at the wrist become heavily contaminated and are likely to come into contact with patients.
Change immediately if uniform or clothing becomes visibly soiled or contaminated.	Visible soiling may present an infection risk to both the employee and other patients and will be disconcerting for patients.
Wear clear identifiers.	Patients like to know the names and roles of staff who are caring for them.
Wash uniforms and clothing worn at work at the hottest temperature suitable for the fabric (trusts should take this into account before purchasing uniforms that can only be washed at low temperatures or are 'dry clean only').	A wash for 10 minutes at 60ºC removes almost all microorganisms. Washing with detergent at lower temperatures – down to 30ºC – eliminates MRSA and most other microorganisms.
Have clean, short, unvarnished fingernails.	Clean nails are hygienic and look professional. Long nails are harder to keep clean and are a potential hazard.
Tie long hair back off the collar.	Patients prefer to be treated by staff who have short or tidy hair, and are smartly presented.

Poor Practice	Why?
Wear false nails during patient care activity.	False nails harbour micro-organisms and make effective hand hygiene more difficult.
Wear any jewellery, including a wrist-watch, on the hands or wrists during direct patient care activity (local policies may allow a plain ring such as a wedding ring).*	Jewellery and watches can harbour microorganisms and make effective hand hygiene more difficult.

Appendix 1 - Legal Framework

All providers of healthcare, including those within **prisons or places of detention** have to be registered with the **Care Quality Commission (CQC)**[1] under **The Health and Social Care Act 2008 (H&SCA 2008).**[2] Regulations made under this Act set out the statutory registration requirements that providers must meet to register and remain registered.

NHS bodies providing regulated activities, including prison healthcare services, have been required to comply with the full set of registration requirements since 1 April 2010, including the registration requirement for infection control and cleanliness.

It is essential that all providers of healthcare are aware of the CQC regulations and demonstrate compliance with the Code of Practice for the prevention and control of infections and related guidance (2010).1 . It is the CQC's responsibility to ensure compliance with registration requirements set out in the regulations by auditing registered providers against the Code of Practice for health and adult social care on the prevention and control of infections and related guidance 2009. The CQC may use its enforcement powers if registered providers do not comply with the law. The law states that the Code must be taken into account by the CQC when it makes decisions about registration against the cleanliness and infection control requirement. The regulations also say that providers must have regard to the Code when deciding how they will comply with registration requirements. So, by following the Code, registered providers will be able to show that they meet the regulation on cleanliness and infection control. However, they do not by law have to comply with the Code. A registered provider may be able to demonstrate that it meets the registration requirement regulation on cleanliness and infection control in a different way (equivalent or better) from that described in this document.

The PHPQI recommends partnership work with significant agencies. Therefore, it is the governing Governor's responsibility to ensure that a partnership is established with the local Health Protection Unit (HPU) to ensure effective arrangements in the prevention, control and management of communicable diseases. **For contact details of your local HPU visit** www.hpa.org.uk .

Prison establishments must also have written information on communicable disease control policy. This should be made available and be understood by staff and prisoners. It should include, but not be restricted to:

- An action plan in the event of an outbreak of a communicable disease co-written with the local HPU.

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[1] The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance (2010)

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_122604

[2] Prison Health Performance and Quality Indicators
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_097117.pdf

- Arrangements for the notification of all incidents of all reportable diseases to the local HPU, including sharing information, cooperating in establishing an outbreak/incident control team, if required, etc.
- Immunisation policy and practice.
- Protocols for the provision of post-exposure prophylaxis (PEP) following potential exposure to blood-borne viruses (BBV).

Appendix 2 - Infection, its causes and spread

The causes of infection

Numerous microorganisms harmlessly colonise the skin and the mucosal surfaces to form the normal flora of the human body. The presence of microorganisms does not constitute an infection. Colonising microorganisms cause no damage and often provide benefit to the host. It is when there is associated tissue damage that an infectious disease exists. Potential pathogens can also act as colonisers such as *Staphylococcus aureus*.
Basic insight into the characteristics of commonly encountered microorganisms is essential for informing appropriate infection prevention and control practice.

A **pathogen** is an organism capable of invading the body and causing disease. Such an organism is termed **pathogenic**.[1]

An **infectious disease** is an illness caused by a pathogen, which invades body tissues and causes damage. Not all infectious diseases spread from person to person, e.g. Legionnaires' disease.

A **communicable disease** is an infectious disease that is capable of spreading from person to person, e.g. measles, tuberculosis.

Self infection (endogenous infection)

An infection that arises from the person's own body flora e.g. bacteria that colonise the skin get into a break in the skin (wound) and cause an infection such as an abscess caused by *Staphylococcus aureus*.

Cross infection (exogenous infection)

This is an infection that arises from an external source.

Pathogens can be classified into five main groups:

1. **Bacteria** are single celled organisms of approximately one-thousandth to five-thousandth of a millimetre in diameter. Bacteria can replicate independently and some bacteria can form spores that survive in the environment for long periods of time, e.g. *Mycobacterium tuberculosis*, Group A Streptococcus, *Salmonella Enteritidis*. Antibiotics are used to treat bacterial infections; bacteria can develop resistance to antibiotics, e.g. MRSA (meticillin resistant *Staphylococcus aureus*).

2. **Viruses** are smaller than bacteria and cannot replicate independently but grow inside the host's cells. Viruses cannot be treated with antibiotics; there are a few anti-viral drugs available that are active against a limited number of viruses such as influenza. Many common viral infections resolve without treatment, e.g. measles, mumps, and rubella.

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[1] Bannister B, Gillespie S and Jones J (2006) Infection Microbiology and Management. Blackwell Publishing. Oxford. 3rd Edition.

3. **Protozoa** are single cells but larger than bacteria. Free-living and non-pathogenic protozoa include amoebae and paramecium. Examples of medical importance include *Giardia lamblia,* which causes gastroenteritis (symptoms of diarrhoea).

4. **Pathogenic Fungi** can be either moulds or yeasts. Infections caused by moulds or yeasts include ringworm caused by *Trichophtyon rubrum* and thrush, which is a common yeast infection caused by *Candida albicans*.

5. **Metazoa (helminths/worms)** are not always microscopic in size, but pathogenic worms do cause infection and some can spread from person to person. Examples include threadworm and tapeworm.

6. **Prions** are infectious protein particles that cause spongiform encephalopathies brain diseases characterised by dementia, movement disorder, terminal paralysis and coma. An example is variant Creutzfeldt-Jakob disease (vCJD).

Remember:

- We are exposed to potentially harmful organisms all the time.
- We do not become unwell all the time because our immune system is very efficient at dealing with infection threats.
- Intact skin is an excellent barrier to infection.
- Throughout our life span our immune system develops immunity to numerous microorganisms.
- Some people can be more vulnerable to infections due to medications they take or illnesses they have. However, because infections can be passed on even though someone appears well, it is important that high standards of basic hygiene are always maintained.
- There is potential increased risk of the spread of infection when people live in close quarters or residential environments like a prison establishment.

Transmission (spread) of infection

How an infection is spread (transmitted) varies according to the type of microorganism. Some microorganisms may be transmitted by more than one route.

1. Direct or indirect contact, e.g. *Herpes simplex* virus, respiratory syncytial virus, *Staphylococcus aureus*.

2. Respiratory droplets, e.g. influenza virus, mumps, *Bordetella pertussis* (whooping cough).

3. Airborne, e.g. pulmonary tuberculosis, measles, chickenpox.

4. Other infectious agents, such as blood-borne viruses, e.g. hepatitis B and C viruses (HBV, HCV) and HIV are transmitted rarely in healthcare settings, via percutaneous (sharps/ needles) or mucous membrane exposure (blood/ body fluid splashes to eyes/ mouth/ open wounds).

Contact transmission
The most common mode of transmission of infections from person to person, contact transmission is divided into two subgroups: **direct contact and indirect contact**.

Direct contact (person to person) – Direct transmission occurs when microorganisms are transferred from one infected person to another person without a contaminated intermediate object or person. Examples of direct contact include:

- Blood or other body fluids (including blood stained) that enter the body through contact with a mucous membrane or breaks (i.e sexually, bites, cuts, abrasions) in the skin. Sexual contact includes oral, anal and vaginal.
- Mites from a scabies-infested person are transferred to the skin of a caregiver while he/she is having direct skin-to-skin contact.

Indirect contact - Indirect spread of infection is said to occur when an intermediate carrier is involved in the spread of pathogens such as hands, fomites or vectors.

- **Hands -** The hands of healthcare workers are probably the most important vehicles of cross-infection within the healthcare environment. However the hands of staff, prisoners/patients can also carry microbes to other body sites, equipment and staff. Therefore, promotion of hygienic practices throughout the prison for everyone is the key to preventing and controlling infections including the common cold and flu.
- A **fomite** is defined as an object that becomes contaminated with infected organisms and which subsequently transmits those organisms to another person. Examples of potential fomites are instruments, impression trays and suction tips or practically any inanimate article. Within the prison environment this could be via contaminated needles/works, tattooing equipment (blood-borne viruses) or, cell mates sharing bed linen or towels (impetigo, scabies).
- **Vectors** - Crawling and flying insects are examples of vectors and need to be controlled.

Ingestion – Bacteria may be ingested through consuming contaminated water or food, e.g. campylobacter, salmonella, shigella. Viral gastroenteritis such as norovirus occurs via faecal-oral transmission where hands that have been contaminated from the environment or from another person transfer the microorganisms into the mouth. Food hygiene within the prison environment is monitored and regulated by the local authority Environmental Health Team (Food Safety) and all prisons have to comply with food hygiene legislation.

Droplet transmission
Respiratory droplets carrying infectious pathogens can transmit infection when they travel directly from the respiratory tract of an infectious individual to susceptible mucosal surfaces of a recipient, generally over short distances, necessitating facial protection, e.g. influenza virus. Respiratory droplets are generated when an infected person coughs, sneezes or talks or during procedures such as suctioning, endotracheal intubation, cough induction by chest physiotherapy and cardiopulmonary resuscitation. Some infections transmitted by the droplet route may also be transmitted by direct or indirect contact.

Airborne transmission
Airborne transmission occurs by spread of very small particles containing infectious agents that remain infectious over time and distance, e.g. *Mycobacterium tuberculosis.*[2]

Some airborne infections can spread via an external contaminated source, e.g. Legionnaires' disease (severe pneumonia) involves the inhalation of contaminated aerosols from water taps, shower outlets etc. Legionnaires' disease is usually associated with water systems that are poorly maintained.

Vertical transmission
Vertical transmission is when an infection passes from mother to foetus during gestation or birth, e.g. hepatitis B can be transmitted to a baby if immediate post birth measures are not taken such as vaccination of the baby.

Zoonoses (animal to human transmission)
This usually occurs where there is close contact between humans and animals, e.g. via farming/or veterinary work or via recreational activities involving contact with animals or their excretions. *Escherichia coli* O157 infection can occur after contact with animals (ruminants) and their excretions. It can cause severe gastrointestinal infection (bloody diarrhoea and sepsis).

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[2] Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings
www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html

Appendix 3 - List of Reportable Diseases to be notified to Health Protection Units by Prison Healthcare Staff

Outbreaks:

- Acute respiratory infection (viral [including influenza] & bacterial agents)
- Gastro Intestinal (GI) [i.e. diarrhoea and/or vomiting] infection (including
- Norovirus & other viral, bacterial, preformed bacterial toxin & parasitic
- agents and non-biological substances)
- Unexplained skin rashes

Please note that outbreaks should be reported promptly without waiting for laboratory confirmation

Single Infections:

- E. coli of serogroup known to be toxin producing e.g. E. coli 0157
- Hepatitis A (acute)
- Hepatitis B (acute and chronic)
- Hepatitis C (acute and chronic, specify if result is antibody and/or PCR positive)
- Herpes-Zoster
- Invasive Group A Streptococcus disease (I-GAS)
- Legionnaire's Disease (Legionella sp.)
- Listeriosis (Listeria monocytogenes)
- Measles (Measles virus)
- Meningitis (bacterial, viral & other)
- Meningococcal Septicaemia (without meningitis)
- Mumps (Mumps virus)
- Paratyphoid (Salmonella paratyphi)
- Pertussis/ Whooping Cough (Bordetella pertussis)
- Salmonellosis (Salmonella enterica)
- Scarlet Fever
- Seasonal influenza
- Tuberculosis (Mycobacterium tuberculosis complex)
- Typhoid (Salmonella typhi)
- Typhus (Rickettsia prowazekii)
- Varicella (Chickenpox)
- Viral haemorrhagic fevers (Lassa virus, Marburg virus, Ebola virus, Crimean-Congo haemorrhagic fever virus)
- Staphylococcus aureus Panton-Valentine Leukocidin (PVL) producing

Any other major infectious diseases:

- Acute poliomyelitis
- Acute infectious gastroenteritis/ food poisoning
- Anthrax
- Botulism (Clostridium botulinum)
- Cholera (Vibrio cholerae)
- Diphtheria (Corynebacterium diphtheriae)
- Leptospirosis (Leptospira sp.)
- Malaria (Plasmodium falciparum, vivax, ovale, malariae)
- Plague (Yersinia pestis)
- Rabies (Rabies virus)
- Relapsing Fever (Borrelia recurrentis)
- Rubella (Rubella virus)
- Severe Acute Respiratory Syndrome (SARS-associated coronavirus)
- Smallpox (Variola virus)
- Tetanus (Clostridium tetani)
- Trichinosis (Trichinella sp.)
- Typhus (Rickettsia prowazekii)
- Yellow Fever (Yellow Fever virus)

Appendix 4 - Public health legislation and statutory notification of disease 2010

The purpose of notification of certain diseases is to enable the prompt investigation, risk assessment and response to cases of infectious disease and contamination that present a significant risk to human health. Notification has to be timely if public health interventions are to be effective in controlling the further spread of infection or contamination. Notification has the secondary benefit of providing data for use in epidemiological surveillance of infection and contamination.

Notification duties of registered medical practitioners.

Registered medical practitioners (RMP) working in the prison establishment are required to report notifiable diseases. In addition, RMP now have a duty to notify cases of contamination that they believe present, or could present, a significant risk to human health.

Any RMP attending to a prisoner/detainee is required to notify the proper officer, who in many cases will be located at the local HPU in which the prison sits when they have "reasonable grounds for suspecting" that the prisoner/detainee:

- has a notifiable disease as listed in this Appendix 3;
- has an infection not included in the revised list which in the view of the RMP presents, or could present, significant harm to human health (e.g. emerging or new infections);
- is contaminated (such as with chemicals or radiation) in a manner which, in the view of the doctor presents, or could present, significant harm to human health;
- has died with, but not necessarily because of, a notifiable disease, or other infectious disease or contamination that presents, or could present, or that presented or could have presented, significant harm to human health.

RMPs should notify the proper officer on clinical suspicion and not wait for laboratory confirmation or results of other investigations in order to notify a case. This will ensure prompt notification so that public health interventions and control measures can be initiated as soon as possible.

Notifications of infections not included in the list and contamination are expected to be exceptional occurrences. Factors that the RMP may wish to consider in deciding whether to notify a case of infection that is not included in the list or a case of contamination include:

- the risk of transmission or spread to others

  and

- the potential to cause significant harm to human health.

If laboratory test results refute the clinical diagnosis later, the RMP is not required to de-notify the case. However, they should contact the proper officer if they made administrative errors in the notification process. A record of the statutory notification should be recorded in the prisoner records.

The notification by RMPs must include the following information about the prisoner in so far as it is known to them:

- name, date of birth and sex;
- home address and prison/ detention centre address including postcode;
- prison/detention centre telephone number;
- NHS number (if known);
- occupation within the establishment (if the RMP considers it relevant);
- name, address and postcode of place of work or educational establishment (if the RMP considers it relevant);
- ethnicity;
- relevant overseas travel or arrival in the UK from another country;
- contact details of a parent/carer (if the prisoner is a child);
- disease or infection which the prisoner has or is suspected of having or the nature of the prisoners contamination or suspected contamination;
- date of onset of symptoms;
- date of diagnosis.

Appendix 5 - Taken from *multi-agency outbreak plan for the management of outbreaks of communicable diseases and other health protection incidents in England and Wales.*

www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1240899128096

Guidance for the management of Gastro Intestinal (G.I.). Infection Outbreaks in Prisons and other custodial settings

Outbreaks of diarrhoea and vomiting can occur in prisons, as in other institutional settings. Micro-organisms causing illness can be spread:

- from person to person;
- from infected food;
- from contaminated water supplies;
- from other contaminated drinks (milk, fruit juices etc.)
- from a contaminated environment;
- through all these means.

All of the bugs have the propensity to cause diarrhoea and vomiting, but some can cause very serious disease, including high fever or shock. However, most will be mild and self-limiting in nature and can be managed within the prison estate. More serious cases may need care in hospital.

This Appendix provides quick guidance on how to deal with such outbreaks in prisons and other custodial settings.

ON DETECTION OF AN OUTBREAK, PRISONS SHOULD URGENTLY SEEK ADVICE FROM THEIR LOCAL HEALTH PROTECTION UNIT.

ACTIONS TO TAKE IN RESPONSE TO AN OUTBREAK OF G.I. INFECTION*:

The IOCC should be informed of significant outbreaks, especially if they involve closure of part or all of the prison to transfers and/or receptions.

- Contact the local Health Protection Unit (HPU)on suspicion of an outbreak;
- Details of cases, including date of onset, location within the prison, symptoms of illness and if cell-sharing with another case should be recorded by the prison healthcare team and reported to the local Health Protection Unit (HPU) (A specially designed form for G.I. infection outbreaks is attached to this Appendix);
- The HPU will convene an outbreak control team (OCT), co-chaired by the local consultant in communicable disease control (CCDC) and the governor, to determine and direct appropriate investigations and control measures.
- Stools should be collected from symptomatic cases, especially at the onset of the outbreak, to confirm microbiological diagnosis. Identification of the microorganism responsible for the outbreak is a priority, as some of the action necessary to control the outbreak and stop further spreading, depends on the type of microorganism responsible.**
- On advice of the OCT, it may be advisable to restrict movements within the prison (e.g. from a wing with a large number of cases to one with no or low numbers) or to avoid association activities e.g. education, training, exercise etc.

- On advice of the OCT, it may be advisable to close the prison (or part of the prison) to receptions and transfers for a period of time (usually until the end of the outbreak);
- Prisoners who are ill should be isolated in their cells, usually until free of symptoms for 48hours;
- Cell-mates of prisoners who are ill may be incubating the illness themselves and should be similarly confined;
- If there are no in-cell sanitation facilities, make sure to reserve some toilets facilities for the use of symptomatic prisoners only (e.g. all those with symptoms and up to 48 hours after symptoms have disappeared).
- Place appropriate and clear signage on the toilet areas, such as *"for D&V patients only"* or *"for anybody else"* respectively;
- Where toilet seats present, make sure they are down before flushing
- Make sure cleaner(s) cleaning affected areas does(do) not visit other parts of the prison
- Clean regularly and frequently through out the day all hand held surfaces in affected areas with a bleach containing agent or other appropriate product as advised by the OCT;
- Handwashing is crucial for effective control: ensure that hand-cleaning facilities (liquid soap and warm water, paper towels, pedal-bins for the paper towels) are available and encourage people (both prisoners and staff) to wash hands often and every time they use the toilet and before eating;
- Personal Protective Equipment (PPE): Follow advice of the OCT on use of appropriate PPE such as disposable gloves, and aprons These products should be available in the prison. If not, contact Greenhams and place an urgent order for next day delivery.
- The OCT will declare when the outbreak is over;
- Before resumption of normal regime, deep cleaning (terminal cleaning) may be needed (esp. in norovirus outbreaks). The OCT will provide details advice.

***What follows is specifically designed for D&V (*Norovirus)* outbreaks, which are the most common G.I. infection outbreaks. However the recommended action is applicable to all other G.I. infection outbreaks. Additional & more specific action required by other specific bugs, will be decided by the OCT**

****Once first 2-3 stool samples are available, it is not always necessary to routinely test all other prisoners displaying similar symptoms, as microorganism responsible for outbreak has been identified and further testing would not probably add value to the control and management of the outbreak. Advice on testing strategy (after first few sample results have been obtained) should be sought from the local HPU, which will also convene the Outbreak Control Team (OCT) as appropriate.**

Appendix 6 - INFLUENZA

HPA & Offender Health

DH Gateway ref: 15344

Guidance on responding to cases or outbreaks of Seasonal Flu 2010/11 in prisons and other closed institutions within the criminal justice system in England

HPA Recommendations
Local prisons and other closed institutions within the criminal justice system should agree clear arrangements with their HPU and PCT to ensure the institutions know how to:

- access public health advice and support both in and out of office hours.
- rapidly access viral testing (and processing of swabs) to support the need for timely diagnosis and "low threshold to treat" policy for at risk groups.
- access antiviral medication.

Each outbreak should be risk-assessed and managed on a case-by-case basis.

Background
This winter (we know that influenza A H1N1 (2009) (Swine Flu) is prominent among other circulating flu viruses.

HPA surveillance has indicated an increase in severe illness & deaths due to influenza infection requiring access to critical care services, despite relatively low levels of consultation for influenza like illness in primary care. Many of the severely ill cases & deaths have resulted from infection with influenza A H1N1 (2009). This has prompted the HPA to advise the Department of Health that the use of antivirals for prophylaxis and treatment of influenza according to NICE guidelines is indicated.

This document has been produced jointly by the HPA and Offender Health. It provides clear guidance on how to manage isolated cases/outbreaks of seasonal influenza in prisons and other places of detention, taking into consideration the special circumstances associated with them.

Maintaining the operational effectiveness of prisons is essential to preserving a fully functional criminal justice system and this makes it desirable to minimise the impact of seasonal flu within prisons.

Although there are currently only sporadic reports of cases in prisons, prisons need to remain alert to larger outbreaks of influenza.

Prisons run the risk of significant and potentially more serious outbreaks, with large numbers of cases than the community because:

- large numbers of individuals live in close proximity in relatively crowded conditions, often with high degrees of social mixing during activities;
- the population is constantly turning over with admissions, discharges, transfers,
- access to healthcare facilities within prisons could be limited if demand is high;
- prisoners have a higher prevalence of respiratory illness (including asthma), immunosuppression (e.g. due to HIV infection) and other chronic illnesses than their peers in the community.

A key element of reducing the impact of influenza in the prison sector is by social distancing measures – reducing the contact between exposed and non-exposed people. This will require isolation of those with symptoms where possible, or cohorting groups of people with symptoms.

As with all other settings, there should be "a low threshold for treatment" for people in high risk groups who become symptomatic.

Principles of managing influenza cases in prisons

- Prisoners should receive healthcare equivalent to people in the wider community including access to antiviral treatment, although the means of delivering such healthcare may differ from community models.
- The public health principles guiding action within prisons are the same as those in the wider community i.e.:
    - ensuring care for the ill;
    - preventing transmission where possible;
    - protecting those in at-risk groups.
- Prison officers and healthcare staff should be aware of the symptoms of influenza-like illness (ILI) and of the need to report possible cases promptly;
- Prison officers with ILI should be strongly advised to stay away from work and be managed by their GP if they are in specific risk groups;
- Prisoners with ILI should be diagnosed early and isolated to prevent further spread. Where demand for isolation exceeds capacity, consideration should be given to cohorting, with appropriate risk assessment of suitable cohortees, and the need for prisoner movements in, out and around the prison should be reconsidered with a view to reducing these movements
- Prison officers and healthcare staff who are assessing prisoners with suspected ILI and coming into close contact (< one metre) to provide care should wear appropriate personal protective equipment (PPE), as per national guidance.
- Testing to confirm the presence of the influenza virus should be given high priority when dealing with the first case/few cases in the prison.

- Cellmates of a confirmed case of seasonal flu, who are themselves in at risk groups and who have not been previously vaccinated with current seasonal influenza vaccine, should be offered antiviral prophylaxis provided this can be started within 48 hours from last exposure with oseltamivir or 36 hours for zanamivir.
- No wider PEP (Post Exposure Prophylaxis) to prison contacts should be considered, including contacts in high risk groups. However, seasonal influenza vaccination and a low threshold for treatment are strongly recommended for individuals in these high risk groups.
- Hand and respiratory hygiene infection control measures should be re-emphasized to help minimising the spread of the infection

Actions in relation to a prisoner with suspected seasonal flu

Prisons should be advised that:

- Prisoners with ILI should be promptly assessed and isolated on their own or cohorted with other cases as soon as possible;
- Checking of patient temperature is recommended as ascertainment of high temperature (≥38° C) is a criterion of HPA case definition
- Testing of the first (up to five) clinical cases should be carried out promptly to establish whether seasonal influenza is involved
- Prison officers and healthcare staff who are assessing prisoners with suspected ILI and coming into close contact (<one metre) to provide care should be advised to wear appropriate PPE as per national guidance;
- If a symptomatic case needs to pass through areas where other people are waiting then they should wear a fluid repellent surgical mask;
- Symptomatic care, including paracetamol or ibuprofen, should be offered as clinically indicated
- Contact local HPU for advice and guidance

Actions in relation to prisoners diagnosed with seasonal influenza

Healthcare teams should be advised to:

- Assess if prisoners have any conditions that put them at particular risk of seasonal influenza complications or have a condition that may require zanamivir (instead of oseltamivir) or a dosage adjustment of oseltamivir e.g. pregnancy or serious renal impairment ;
- Initiate treatment with the appropriate antiviral drug (as long as onset of symptoms is within the past 48 hours unless they require hospital treatment when antivirals can be given at any point) via the locally agreed mechanism**.**
- Offer symptomatic care – fluids, antipyretics – as clinically indicated.
- Establish the onset date and time of their symptoms;
- Identify cellmate(s) in at risk groups and, if not previously vaccinated with current seasonal influenza vaccine, offer antiviral prophylaxis as indicated above;
- Isolate or cohort, as appropriate (as described above);
- Report cases to local HPU so that advice on the public health aspects of more complex situations can be given

Actions for prison officer/prison health staff with suspected seasonal influenza

- Tell staff **not** to come to work if they have a flu-like illness.
- If staff become ill at work, they should be isolated until they can be sent home.
- Prison staff with flu-like illnesses should seek medical care in the community using the usual mechanisms (i.e. via their GP if they belong to specific risk groups).
- If there is a large outbreak of influenza in a prison, cases among staff should be reported to the HPU as well as cases among prisoners.

Outbreaks within prisons

If a prison develops a sudden rise in the number of cases of suspected seasonal influenza the HPA, Governing Governor and Primary Care Trust should consider whether a formal outbreak control team meeting is required to consider:

- Whether antiviral prophylaxis is required, who should receive it and how.
- If not already carried out, ensuring that testing for seasonal influenza is carried out.

- Cohorting prisoners and trying to ensure, within the practicable constraints of the service, that staff either deal with prisoners who are symptomatic or asymptomatic but not both;
- Consideration of need to offer vaccination to those not ill if they belong to clinical risk groups whether prisoners or staff;
- Managing hospital admission if required.
- Communication and media issues.

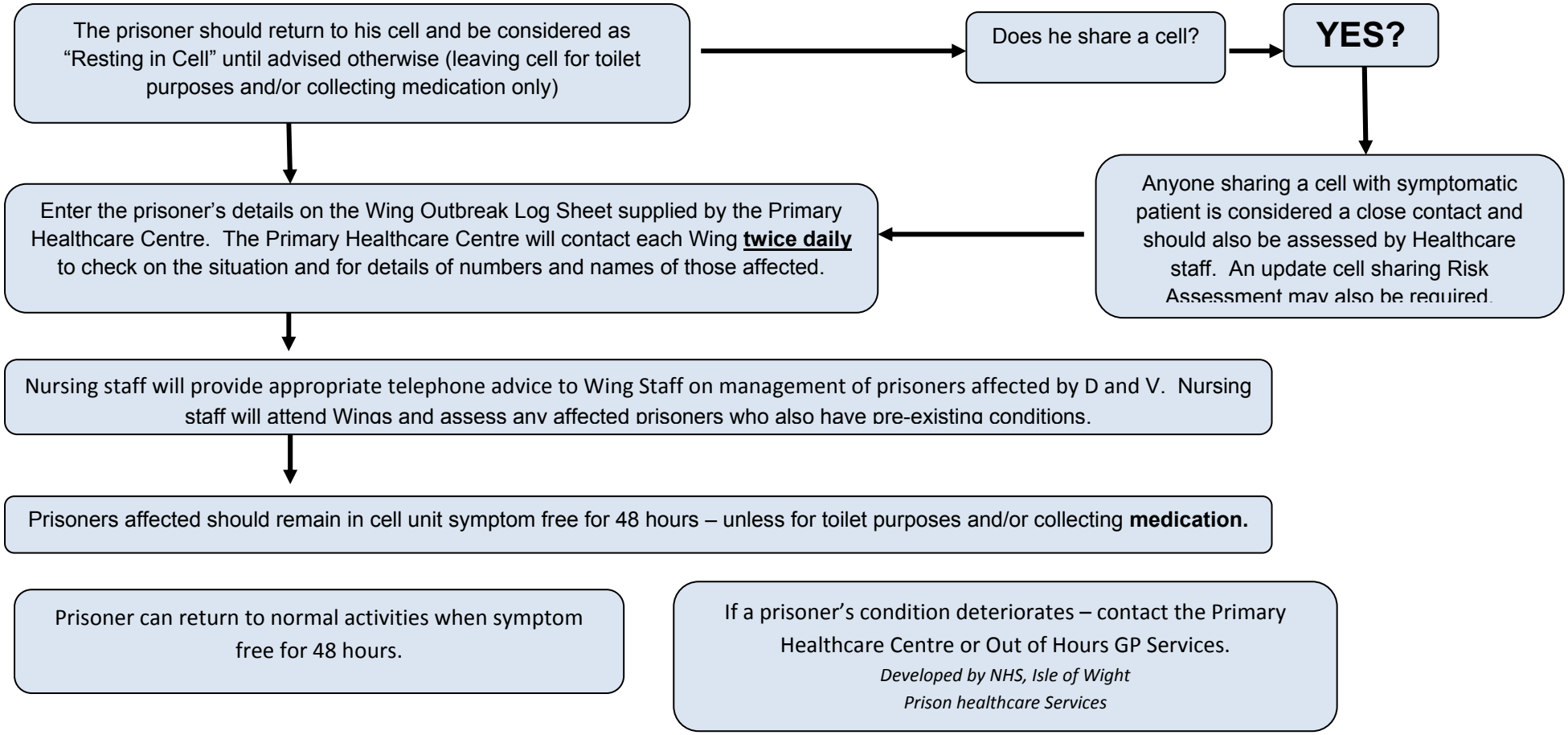
Appendix 7 - Outbreak of Diarrhoea and Vomiting

Health Protection Agency &

Offender Health

17th December 2010

Symptoms If a prisoner complains of diarrhoea and/or vomiting (D and V), please act as below:



Appendix 8 - Diarrhoea and vomiting and Poster 1

ATTENTION

Diarrhoea and Vomiting is affecting some wings in the prison.

You can help limit the spread of infection by regularly cleaning your hands.

Wash your hands with soap and water as often as possible especially before and after visiting any areas affected by diarrhoea and vomiting.

PLEASE CLEAN YOUR HANDS

Appendix 9 - Diarrhoea and vomiting and Poster 2

ATTENTION

Infectious Diarrhoea and Vomiting can be more prevalent during the winter months. Please help us keep the prison free of infection.

1. Please ensure that you are well yourself before entering the prison; do not enter the prison if you have had any diarrhoea, vomiting or tummy upset within the past 48hours.
2. Please clean your hands – use the hand rub upon entering the prison and wash your hands with soap and water before and after visiting affected areas.
3. On leaving the prison, please clean your hands: ideally wash them if possible with soap and water or use the hand rub.

Prevention of infection is maintained by thorough good hand hygiene.

Developed by NHS, Isle of Wight, Prison Healthcare Services

Appendix 10 - The UK's immunisation schedule

Age immunisation is given	Diseases protected against	Name of vaccine
Two months old	Diphtheria, tetanus, pertussis (whooping cough), polio and Haemophilus influenzae type b (Hib) Pneumococcal infection	DTaP/IPV/Hib Pneumococcal conjugate vaccine, (PCV)
Three months old	Diphtheria, tetanus, pertussis, polio and Haemophilus influenzae type b (Hib) Meningitis C	DTaP/IPV/Hib MenC
Four months old	Diphtheria, tetanus, pertussis, polio and Haemophilus influenzae type b (Hib) Meningitis C Pneumococcal infection	DTaP/IPV/Hib MenC PCV
Between 12 and 13 months old- within a month of the first birthday	Haemophilus influenza type b (Hib) Meningitis C , Measles, mumps and rubella Pneumococcal infection	Hib/MenC, MMR PCV
Three years and four months or soon after	Diphtheria, tetanus, pertussis and polio Measles, mumps and rubella	DTaP/IPV or dTaP/IPV MMR
13 to 18 years old	Diphtheria, tetanus, polio	Td/IPV
12 to 13 years old (girls only)	Human papilloma virus (HPV) - increases the risk of cervical cancer	HPV

All prisoners need hepatitis B immunisation. In addition, some babies in high-risk groups are given a BCG immunisation for protection against tuberculosis shortly after they are born.

Higher risk infants may also receive immunisation against Hepatitis B.

Appendix 11 - Vaccination of individual with uncertain or incomplete immunisation status

For World Health Organisation country-by-country vaccination schedules and coverage information, see:
www-nt.who.int/vaccines/globalsummary/Immunization/CountryProfileSelect.cfm

Centre for Infections, Immunisation Department
Last update: April 2010

Health Protection Agency

Vaccination of Individuals with Uncertain or Incomplete Immunisation Status

From 2 months of age up to 1st birthday

DTaP/IPV/Hib* + PCV*
4 week gap
DTaP/IPV/Hib + Men C*
4 week gap
DTaP/IPV/Hib + Men C + PCV

*When **Hib** and/or **Men C** have not been given as part of a **primary** course *give:*
-3 doses of Hib containing vaccine at monthly intervals
-2 doses (minimum) of Men C containing vaccine at monthly intervals
Or
- 3 doses of MenC/Hib combined vaccine

*When **PCV** has not been given as part of a **primary** course *give 2 doses at least 2 months apart*

Please note: *It is not contraindicated to give doses of PCV one month apart; however response is better at an interval of two months. Where children are unlikely or unable to complete this course, then two doses at a one month interval would be better than a single dose.*

Boosters
As per UK schedule

From 1st birthday up to 2nd birthday

DTaP/IPV/Hib# + PCV# + MMR + Men C#
4 week gap
DTaP/IPV/Hib
4 week gap
DTaP/IPV/Hib

#All un- or incompletely immunised children require 1 dose of Hib, Men C and PCV over the age of 1 year

Boosters
As per UK schedule
Additional doses of DTaP/IPV/Hib given under 3 years of age do not count as a booster to the primary course and should be discounted

From 2nd birthday up to 10th birthday

DTaP/IPV/Hib~ + Men C~ + MMR
4 week gap
DTaP/IPV/Hib + MMR
4 week gap
DTaP/IPV/Hib

~All un- or incompletely immunised children require 1 dose of Hib and Men C over the age of 1 year

Boosters
1st dTaP/IPV or DTaP/IPV
1st booster can be given as early as 1 year following completion of primary course to re-establish on routine schedule

2nd Booster – as per U.K schedule

From 10th birthday onwards

Td/IPV + Men C^ + MMR
4 week gap
Td/IPV + MMR
4 week gap
Td/IPV

^1 Men C for 24yrs and under

Boosters
1st Td/IPV
Preferably 5 years following completion of primary course

2nd Td/IPV
Ideally 10yrs (minimum 5 yrs) following 1st booster

MMR - From 1st birthday onwards

- Doses of **MMR/measles** given prior to 12 months of age should not be counted.
- For individuals < 18 months of age a minimum interval of 3 months should be left between 1st and 2nd dose.
- For individuals >18 months of age a minimum of 1 month should be left between 1st and 2nd doses.
- 2 doses of **MMR** should be given irrespective of history of measles, rubella or mumps infection and/or age.

Girls from 12th birthday up to 18th birthday

3 doses of **HPV** at 0, 1-2 and 6 months

-Interrupted courses should continue where left off following the intervals above

- Where significant challenges in scheduling occur a minimum interval of 3 months may be observed between the 2nd and 3rd dose of Cervarix.

- Where the 2nd dose is given **late** and there is a high likelihood that the individual **may not** return to complete the course, a minimum of 1 month can be left between the 2nd and 3rd doses.

General Principles

- Unless reliable vaccine history, individuals should be assumed to be **unimmunised**, and a full course of immunisations planned.
- Individuals coming to UK part way through their immunisation schedule should be transferred onto the UK schedule and immunised as appropriate for age.
- If primary course has been started but not completed, continue where left off - **NO NEED TO REPEAT DOSES OR RESTART COURSE.**
- **MenC/Hib** combined vaccine can be used when Hib alone or Hib/Men C are required.
- More than one dose of **Hib** may be given if DTaP/IPV is also required
- **IPV** should be used to complete a vaccination course which may have been started with OPV.
- **aP** should be used to complete a primary course which may have been started with whole cell.

Note: BCG and Hepatitis B should be given according to local policy and has not been included in this algorithm.

Appendix 12 - Key requirements in the decontamination of reusable surgical instruments

The effective decontamination of reusable surgical instruments is essential in minimising the risk of transmission of infectious agents. In maintaining and developing organisation-wide decontamination standards and practices, the following should be included:[1]

- An effective management control system must be in place to cover all aspects of the decontamination lifecycle.
- Every organisation should have a nominated lead with responsibility for decontamination, either at director level or someone who has line management responsibility to a senior responsible person at that level.
- Documented robust and comprehensive policies and procedures to ensure that decontamination processes are undertaken in a controlled manner to protect the health and safety of patients and staff.
- A procurement policy that ensures that all purchased instruments are compatible with decontamination processes available within the organisation.
- Manual cleaning of devices to be restricted to those items deemed incompatible with automated processes.
- Reprocessing of surgical instruments to be undertaken in dedicated facilities and outside the clinical/patient environment, preferably in central facilities.
- Equipment used to decontaminate surgical instruments and associated equipment must be fit for purpose, validated and tested in accordance with current recommendations.
- Organisations should have systems in place to trace instrument sets and endoscopes through decontamination processes and to the patient (see below; see also HSC 2000/032 and HSC 1999/178).
- A documented training scheme must be in operation with individual training records for all personnel, including management involved in decontamination activities

[1] www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4120906

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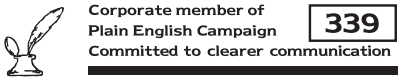

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