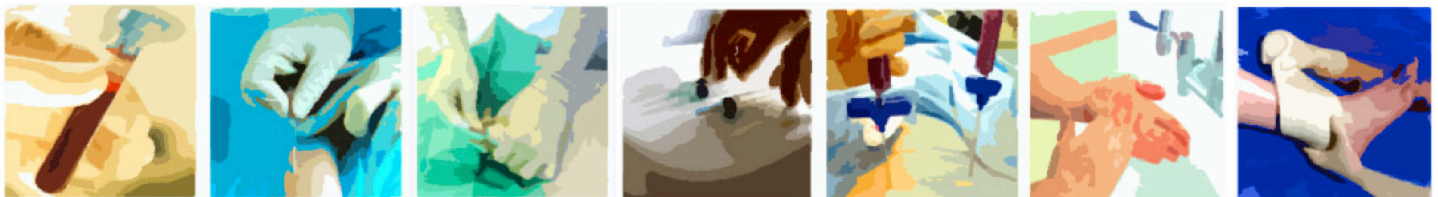


ANTT Guidelines

The ANTT Clinical Guideline for the Preparation & Administration of Peripheral and Central Intravenous Medications (IV Therapy)

The flowchart details the ANTT process for IV therapy preparation and administration. It is divided into three main stages: Preparation, Administration, and Disposal.
Preparation (Steps 1-6): 1. Clean hands with alcohol hand rub or soap & water. 2. Clean tray according to local policy, creating a general aseptic field. 3. Gather equipment, place around tray. 4. Clean hands with alcohol hand rub or soap & water. 5. Apply non-sterile gloves (use aseptic gloves if you must touch key parts). 6. Open equipment, protect IV selection protecting key parts using non-touch technique (NTT).
Administration (Steps 7-12): 7. Scrub key parts (Use NTT see tip 2, disinfectant wipe, allow to dry). 8. Administer drugs using NTT. 9. Dispose of sharps & equipment. 10. Clean tray according to local policy. 11. Dispose of gloves then immediately... 12. Clean hands with alcohol hand rub or soap & water.
Principles of ANTT: Protect key-parts & sites at all times by: Risk assessment, Effective hand cleaning, A non-touch technique, Using appropriate infective precautions.
Additional notes: 'Prep patient, expose IV access' and 'Check medications' are listed under Preparation. A decision point asks: 'If IV port is exposed and gloves are not contaminated' (proceed to 7) or 'If IV port is not exposed and/or gloves are contaminated, clean hands & re-glove' (proceed to 1).
Source: www.antt.org.uk

Rationale and supporting evidence





ASAP The Association for
Safe Aseptic Practice

ANTT[®]
Aseptic Non Touch Technique

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Published by The Association for Safe Aseptic Practice (ASAP)

Glossary

Please note: Historically, the terms below have been defined variously and often ambiguously in the medical literature. The definitions given here by The ASAP are intended to provide a related set of definitions that will support best practice by being accurate, achievable and logical.

Aseptic/Asepsis - Free from pathogenic organisms

Sterile - Free from microorganisms

Clean - Free from visible marks and stains

Asepsis / Aseptic technique

Describes the infection prevention aim and method adopted by health care professionals when undertaking invasive clinical procedures. Regardless of setting, or patient diagnosis, the aim is always to prevent the transfer of pathogenic microorganisms from the healthcare worker, procedure equipment or the immediate working environment into and onto the patient. In ANTT, it is achieved by ensuring Key-Parts and Key-Sites remain **aseptic** by a concept termed **Key-Part and Key-Site-Protection**.

Aseptic Non Touch Technique (ANTT)

A specific type of aseptic technique with a unique theory and practice framework (NICE 2012).

Aseptic field (Traditionally termed 'Sterile' field)

A designated aseptic working space that contains and protects the procedure equipment from direct and indirect environmental contact-contamination by microorganisms. See aseptic field types below.

Critical Aseptic Field

The main aseptic field that **ensures** asepsis during procedures by providing essential & primary protection from the procedure environment. Critical Aseptic Fields require 'Critical Management' (See below)*.

General Aseptic Field

The main aseptic field that **promotes** asepsis during procedures by providing basic protection from the procedure environment. General Aseptic Fields are used when the procedure Key-Parts are easily and primarily protected by Micro Critical Aseptic Fields (caps and covers). Therefore, General Aseptic Fields only require 'General Aseptic Field Management' (See below)**.

Micro Critical Aseptic Field (MCAF)

A small Critical Aseptic Field used to protect a Key-Part, e.g. a syringe cap or needle cover.

***Critical Aseptic Field Management ('Critical Management', 'Critically Managed', 'Managed Critically')**

Only sterilized or aseptic equipment may come into contact with a Critical Aseptic Field. Sterilized gloves are required to maintain aseptic continuity.

****General Aseptic Field Management ('General Management', 'Generally Managed', 'Managed Generally')**

Required equipment and covering which may not be technically aseptic are permitted in a General Aseptic Field because all Key-Parts are fully protected by Critical Micro Aseptic Fields.

Clean Technique

Describes the action and process of rendering an object or person free from visible marks and stains. (NB: ANTT does not recognize or use this term to describe or define aseptic technique.

Decontamination

A general term that refers to one or more of the processes below:

Cleaning: reduces the bio burden and removes foreign material. In healthcare it is typically performed with water, soap or detergent and material such as paper towels or impregnated wipes.

Disinfection: the destruction of pathogenic microorganisms, usually by thermal or chemical means.

Sterilization: A process by which all viable forms of microorganisms (including spores) are destroyed (APIC 2009).

Key-Part (Active)

Active Key-Parts are the critical parts of the procedure equipment that come into contact with Key-Sites, any liquid infusion, or with any other active Key-Parts connected to the patient via a medical device. If contaminated during a procedure, Key-Parts provide a route for the transmission of pathogens onto or into the patient, and present a significant infection risk.

Key-Parts (Inactive)

When Key-Parts such as closed IV ports are not active it is not practical to maintain them as aseptic. Inactive Key-Parts must be rendered aseptic prior to re-use by effective cleaning and disinfection.

Key-Site

Open wounds and insertion and puncture sites for invasive medical devices.

Key-Part/Site Protection

The protection of Key-Parts and/or Key-Sites from pathogenic microorganisms. During clinical procedures this is achieved by a range of methods including non touch technique, aseptic field management, basic infection precautions such as hand cleaning and glove usage etc. as defined in ANTT. In between clinical procedures, wounds and medical devices may have Sustained Key-Part Protection from medical equipment or supplies. E.g. A wound care dressing, a passive IV hub cap protector.

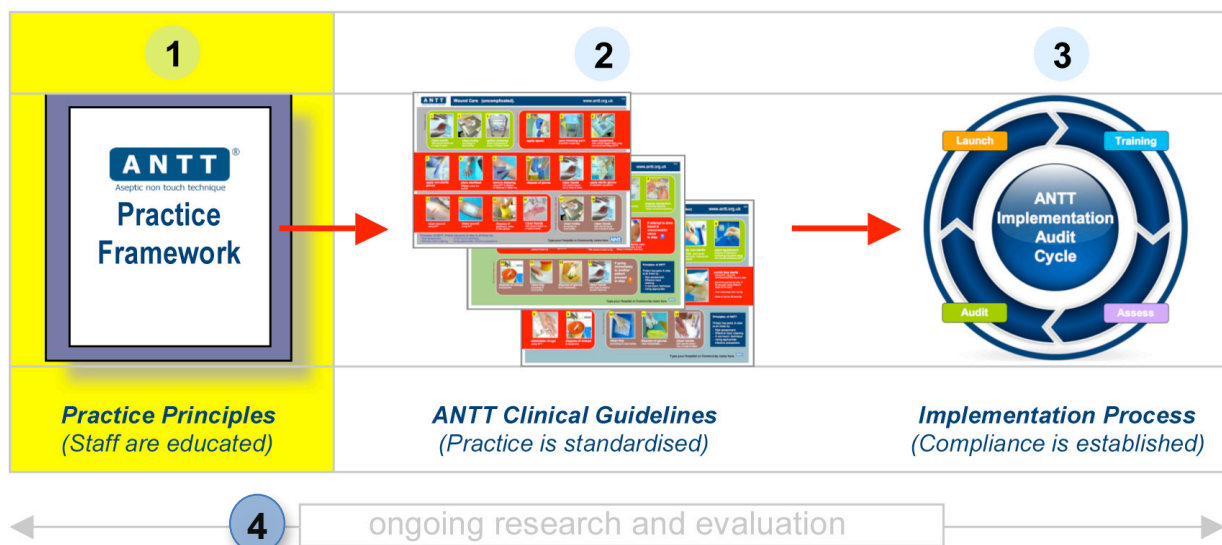
Sterile Technique

A historical term used interchangeably for aseptic technique. (NB: ANTT does not recognize or use this term because due to the ever presence of microorganisms in air, it is virtually impossible to achieve in even the most specialist health care environment).

The ANTT Model for establishing safe aseptic technique

ANTT is a contemporary and unique Theoretical and Clinical Practice Framework for aseptic technique for all clinical procedures...*'from surgery to community care'*. It is endorsed or referenced as a best practice example of standardized aseptic technique by a number of organizations including, Epic2 (Pratt et al 2007), The National Institute for Clinical Excellence (NICE 2012), The Australian Guidelines for the Prevention and Control of Infection in Healthcare (ACSQH 2010) the Royal College of Nursing (RCN) Infusion Standards 2010, The American Vascular Access Society (AVA), the Health Protection Surveillance Centre – Ireland (2011).

The ANTT Clinical Practice Framework set out here forms the first part of a four part model for improving standards of aseptic technique. As a result of widespread international demand and adoption, the standardization of aseptic technique with ANTT has become a major global initiative organized by the Association for Safe Aseptic Practice (ASAP).



The ANTT Clinical Practice Framework is based upon a set of principles, safeguards and rules for aseptic technique. The Framework applies to all clinical procedures...*'From Surgery to Community Care'*. It is used to educate and train clinical staff in a standardized and systematic approach to aseptic technique – called the 'ANTT-Approach'.



Aseptic technique can be further standardized by using ANTT Clinical Guidelines to 'prescribe out' variability in practice for a range of common clinical procedures. The guidelines translate the ANTT foundation principles into practice via simple practice prompts which are displayed in clinical areas. The guidelines are designed by experts in each core competency and peer-reviewed nationally. The infection control steps in each guideline are risk evaluated and sequenced to ensure an efficient, logical and safe order. They provide health care organizations with a method to standardized aseptic practice according to evidence based practice and international infection control guidance, and a method to monitor performance. Each guideline is supported by a comprehensive technical rational and evidence base document.



Compliance to the guidelines is established across large health care organizations by the ANTT 'Executive Board to Ward' Implementation Audit Cycle.

ANTT Risk Assessment (To determine Surgical or Standard-ANTT)

During any invasive clinical procedure the aim of aseptic technique is to protect the patient from infection. In ANTT, this is achieved by ensuring the asepsis of Key-Parts and Key-Sites by protecting them from operator and environmental contamination.

Different clinical procedures present different levels of complexity. Therefore, in order to be efficient as well as safe, any practice framework for aseptic technique must define what type of aseptic technique and precautions are required for simple and complex procedures, and how to decide between the two approaches. To this end, the ANTT practice framework defines a Standard-ANTT and Surgical-ANTT approach to practice. It is important to note that while the two approaches differ to cater for different levels of procedure complexity, they still adhere to the same fundamental principles of ANTT.

Healthcare workers (HCWs) are taught to decide correctly between Standard and Surgical-ANTT, by a simple and logical set of rules and a risk assessment. (See the ANTT Clinical Practice Framework).

ANTT Risk Assessment applied to Intravenous Medications Preparation and Administration

IV therapy is typically managed safely and most efficiently using Standard-ANTT. The rationale for this is outlined below:

Standard or Surgical ANTT?

To determine the need for Standard or Surgical-ANTT for IV Therapy, the HCW first asks...

‘To maintain asepsis of Key-Parts and/or Key Sites, does the main aseptic field require Critical Management?’

(i.e. Only sterilized and aseptic equipment can come into contact with the aseptic field).

To answer this question, the HCW considers that IV therapy typically involves a small number of small Key-Parts. The Key-Parts can easily be protected using Micro Critical Aseptic Fields (MCAF). Therefore the main aseptic field is managed as a General Aseptic Field as it does not require critical management. This represents a Standard-ANTT approach to practice.

Glove Choice assessment

To then determine the need for non-sterilised or sterilised gloves the HCW asks...

‘Can I perform this procedure without touching Key-Parts or Key-Sites directly?’

Typically, central or peripheral access IV therapy does not require the direct touching of Key-Parts. Therefore non-sterile gloves are the glove of choice.

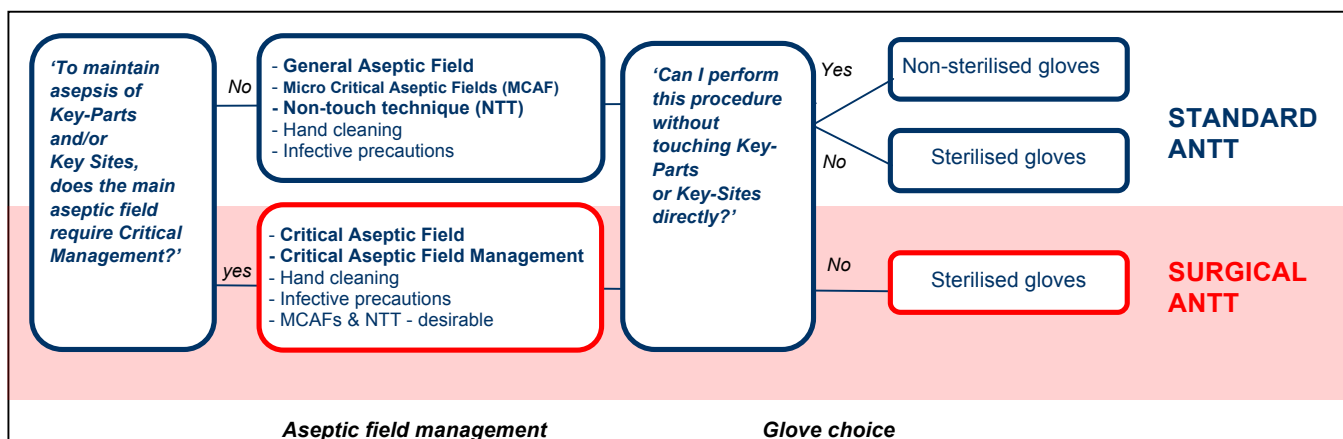


Fig. An overview of the ANTT Risk Assessment and subsequent equipment and technique choices

Prep patient, expose IV access.
*Check medications

Preparation zone



1 Clean hands
with alcohol hand rub or soap & water



2 Clean tray
according to local policy - or using a general aseptic field. Whilst it dries...



3 Gather equipment
place around tray



4 Clean hands
with alcohol hand rub or soap & water



5 Apply non sterile gloves and plastic apron
(use sterile gloves if you must touch key-parts)



6 Open equipment,
prepare IV/injections protecting key-parts using non-touch technique (NTT)

Patient zone

If IV port is not exposed and/or gloves are contaminated, clean hands & re-glove



6a



6b



6c



6d



7

scrub key parts

- Using NTT, use a 2% chlorhexidine/0.9% alcohol wipe.
- Scrub the port tip for total of 20 seconds using different areas of the wipe.
- Then wipe away from the tip.
- Allow to dry for 30 seconds.



8 Administer drugs
using NTT



9 Dispose of sharps & equipment

Decontamination zone



10 Clean tray
according to local policy



11 Dispose of gloves
then immediately...



12 Clean hands
with alcohol hand rub or soap & water

Type your Hospital or Community name here





Step 1 Clean hands with alcohol hand rub or soap and water



Action

1. Clean hands at this stage.¹
2. Using effective hand cleaning technique (Appendices 1, 2) with either alcohol hand rub or soap and water.²
3. Ensure hands are dry before re-gloving. If soap and water are used, pat hands dry with a paper towel.³

Rationale

1. This hand clean is placed here to help break any potential transmission of infection from the clinical ward environment to the clean preparation area/room.
2. Effective hand cleaning is vital to reduce the risk of contaminating Key-Parts and Key-sites. The same technique of hand cleaning (covering all surfaces of the hand) should be used when both soap and water or alcohol gel is being used.
3. Wet hands more easily transport bacteria. Pat drying prevents skin degradation and damage.

Notes

- ANTT always aims to minimise hand-cleaning frequency in order to increase compliance; this is always a risk-assessed balance between clinical effectiveness and staff compliance.
- Soap & water and alcohol hand rub are interchangeable at any stage and should be chosen according to the clinical situation.

Evidence

¹ ICNA (IPS) Hand Decontamination Guidelines (2002):

'Hands readily pick up and transfer microorganisms and should be decontaminated between any activity that will result in more than superficial contact. Expert consensus groups agree that effective hand decontamination results in significant reduction in the carriage of potential pathogens on hands'

Epic2 Guidelines (2007):

'Current evidence-based guidelines conclude that in both outbreak and non-outbreak situations contaminated hands are responsible for cross-transmission of microorganisms and that effective hand decontamination can significantly reduce both cross-transmission and cross-infection rates for the majority of HCAI in all healthcare settings'

Department of Health, Winning Ways (2003):

Action Area Four *'Each clinical team will demonstrate consistently high levels of compliance with hand washing and hand disinfection protocols'*

² WHO Guidelines on Hand Hygiene in Health Care (2009):

'Use an alcohol-based hand rub as the preferred means for routine hand antisepsis.'

WHO Guidelines on Hand Hygiene in Health Care (2009):

The choice of cleaning agent depends upon the clinical circumstances. *'To achieve a high rate of hand hygiene adherence, healthcare workers need education, clear guidelines, some understanding of infectious disease risk, and acceptable hand hygiene products'* Part II, 1, B *'If exposure to potential spore-forming pathogens is strongly suspected or proven, including outbreaks of clostridium Difficile, hand washing with soap and water is the preferred means'*

ICNA (IPS) Hand Decontamination Guidelines (2002):

'A good technique covering all surfaces of the hands at the right time is more important than the agent used or the length of time taken to perform it'

³ WHO Guidelines on Hand Hygiene in Health Care (2009):

Part II, 2, B *'Rinse hands with water and dry thoroughly with a single-use towel. Dry hands thoroughly using a method that does not re-contaminate hands'*

WHO Guidelines on Hand Hygiene in Health Care (2009):

11.1.5 *'Because wet hands can more easily acquire and spread microorganisms, the proper drying of hands is an integral part of routine handwashing'*



Step 2 Clean tray according to local policy creating a general aseptic field



Action

1. Use a large plastic or metal tray as an aseptic field.¹
2. Clean the tray with 70% alcohol or alcoholic 2% chlorhexidine solution/wipes.²
3. Allow surface to dry before use.³

Rationale

1. Whilst disposable trays can be used in ANTT, they should be stored safely, be of sufficient size to protect Key-Parts and safely contain equipment. Plastic or metal trays can be cleaned (i.e. controlled) and provide a sufficiently large, robust and controlled working area. The high sides minimize the risks of dropping equipment and they minimize spills. NB: Small paper trays have none of the above qualities.
2. Effective cleaning will render the tray aseptic.
3. It's not aseptic until it's dry; while wet the alcoholic solution is disinfecting the surface, interruption of this process could reduce the effectiveness of the cleaning product. Typically, drying time is 30 seconds. It is important to confirm the length of time a particular product needs to produce an acceptable bactericidal effect. The product mentioned below (3) was tested and noted to be effective at 30 seconds – other manufacturers may have different times to effectiveness (for example, the EN 1276 test uses a contact time of 5 minutes).

Notes

- Equipment surface decontamination should be risk assessed in the light of specific infection risks within a given population or location and appropriate cleaning products and techniques used as per local policies and procedures.

Evidence

¹ [Australian Guidelines for the Prevention and Control of Infection in Healthcare \(2010\)](#)
“aseptic fields are important in providing a controlled aseptic working space to help promote or ensure the integrity of asepsis during clinical procedures”

² [Guideline for Disinfection and Sterilization in Healthcare Facilities \(2008\)](#):
'Medical equipment surfaces can become contaminated with infectious agents and contribute to the spread of healthcare associated infections'

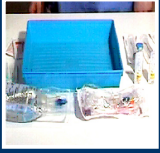
[ICNA \(IPS\) Asepsis: Preventing Healthcare Associated Infection \(2003\)](#):
Principles of asepsis *'Prepare the area, including decontamination of the surface to be used with detergent and water followed by drying. They can then be disinfected using a wipe containing 70% alcohol'*

³ [Hospital Infection Research Laboratory \(2006\)](#):***
Allowing the surface to dry ensures the disinfectant agent has been given enough time to kill micro-organisms. When tested in accordance with EN 1276* a solution of 70% isopropyl alcohol (IPA) in a PDI® branded wipe (Sani-Cloth 70®) gave a >5 log₁₀ (99.999%) reduction all four of the test organisms** after 30 seconds, under *clean (0.03% albumin)* and *dirty (0.3% albumin)* conditions.

*** 70% IPA as a surface cleaner for medical devices has demonstrated effectiveness at 30 seconds post application

* European test standard maintained by the European Committee for Standardization

** *Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Enterococcus hirae*



Step 3 Gather equipment and place around tray



Action

1. Gather equipment and place at hand.¹

Rationale

1. Hands are potentially contaminated when gathering equipment from storage cupboards etc. (Cupboard handles are high risk vectors of infection). It's important therefore to gather all equipment before the next hand clean. Gathering equipment at this point allows the tray time to dry and saves a little time.

Evidence

- ¹ICNA (IPS) Asepsis: Preventing Healthcare Associated Infection (2003):
'The core steps that must be taken during an aseptic technique, for whatever procedure, including preparation to ensure: that all appropriate sterile items are available, and that the setting is prepared'
'Additional steps may be included in the aseptic technique depending on many factors including the procedure and the setting. A risk assessment prior to the procedure will define the requirements'



Step 4 Clean hands with alcohol hand rub or soap and water



Action

1. Clean hands at this stage.¹
2. Using effective hand cleaning technique (Appendices 1, 2) with either alcohol hand rub or soap and water.²
3. Ensure hands are dry before re-gloving. If soap and water are used, pat hands dry with a paper towel.³

Rationale

1. This hand clean occurs immediately before assembly of equipment and the preparation of flushes. This way, hands are optimally clean prior to glove application and non-touch technique Key-Part manipulation.
2. Effective hand cleaning is vital to reduce the risk of contaminating Key-Parts and Key-Sites. The same technique of hand cleaning (covering all surfaces of the hand) should be used when both soap and water or alcohol gel is being used.
3. Wet hands more easily transport bacteria. Pat drying prevents skin degradation and damage.⁴

Notes

- ANTT always aims to minimise hand-cleaning frequency in order to increase compliance; this is always a risk-assessed balance between clinical effectiveness and staff compliance.
- Soap & water and alcohol hand rub are interchangeable at any stage and should be chosen according to the clinical situation.

Evidence

¹ICNA (IPS) Hand Decontamination Guidelines (2002):

'Hands readily pick up and transfer microorganisms and should be decontaminated between any activity that will result in more than superficial contact. Expert consensus groups agree that effective hand decontamination results in significant reduction in the carriage of potential pathogens on hands'

Epic2 Guidelines (2007):

'Current evidence-based guidelines conclude that in both outbreak and non-outbreak situations contaminated hands are responsible for cross-transmission of microorganisms and that effective hand decontamination can significantly reduce both cross-transmission and cross-infection rates for the majority of HCAI in all healthcare settings'

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ICNA (IPS) Hand Decontamination Guidelines (2002):

'A good technique covering all surfaces of the hands at the right time is more important than the agent used or the length of time taken to perform it'

³WHO Guidelines on Hand Hygiene in Health Care (2009):

Part II, 2, B 'Rinse hands with water and dry thoroughly with a single-use towel. Dry hands thoroughly using a method that does not re-contaminate hands'

⁴WHO Guidelines on Hand Hygiene in Health Care (2009):

11.1.5 'Because wet hands can more easily acquire and spread microorganisms, the proper drying of hands is an integral part of routine handwashing'



Step 5

Apply non-sterile gloves and a plastic apron (Use sterile gloves if you must touch Key-Parts)



Action

1. *Risk assessment: '**Can I perform this procedure without touching the Key-Parts?**' If YES, put on non-sterile gloves. If NO, put on sterile gloves.¹
2. Apply appropriately chosen gloves (Appendix 3).²
3. Apply a plastic apron.³

Rationale

1. Risk assessment will ensure the correct choice of glove type. (See notes below).
2. Gloves protect the user from exposure to drugs and blood products (complies with COSHH regulations and universal precautions). In the event the HCW unknowingly touches a Key-part, non-sterile gloves also act as a safety net as gloves will typically be cleaner than skin.

Notes

1. In IV therapy Key-Parts rarely, if ever, require touching directly with gloved hands. The value of sterilized gloves is therefore questionable and non-sterile gloves will nearly always be the logical and efficient glove choice.
2. In ANTT, Key-Parts are not touched unless absolutely essential to do so – even when wearing sterile gloves – as once sterile gloves have been opened to air, worn or have come into contact with non-Key-Parts (syringes etc) they are no longer sterile.

Evidence

¹[NICE Prevention of HCAI in Primary and Community Care \(2003\):](#)

'Selection of protective equipment must be based on an assessment of the risk of transmission of micro organisms to the patient, and the risk of contamination of the healthcare practitioners' clothing and skin by patients' blood, body fluids, secretions or excretions'

[Epic2 Guidelines \(2007\):](#)

'The healthcare worker must make a choice between the use of sterile or non-sterile gloves, based on contact with susceptible sites or clinical devices'

'Appropriate ANTT does not necessarily require sterile gloves; a new pair of disposable non-sterile gloves can be used in conjunction with a non-touch technique, e.g., in changing catheter site dressings'

²[RCN Standards for Infusion Therapy \(2010\):](#)

'Following hand antisepsis, clean gloves and an aseptic technique or sterile gloves should be used performing site care for central venous access devices'

³[RCN Standards for Infusion Therapy \(2010\):](#)

2.3.2 *'disposable plastic aprons should be worn during the performance of infusion procedures'*

[Epic2 Guidelines \(2007\):](#)

SP27 *'Disposable plastic aprons must be worn when close contact with the patient, materials or equipment are anticipated and when there is a risk that clothing may become contaminated with pathogenic microorganisms or blood, body fluids, secretions or excretions'*



Step 6 Open equipment, Prepare IV infusions protecting Key-Parts Using non-touch technique (NTT)



Action

1. Use a non-touch technique at all times.¹
2. Identify Key-Parts and remove equipment from packaging carefully.²
3. Assemble equipment and arrange in an organised manner in the aseptic field.³
4. Ensure Key-Parts are protected at all times. NB: Key-Parts must not come into contact with the aseptic field/tray (e.g. prepared syringes can be capped or re-inserted into their original packaging).⁴
5. Handle and touch non-Key-Parts with confidence.

Rationale

1. Key-Parts should NEVER be touched so as to avoid contact transfer of microorganisms (it is well known that hand decontamination compliance is often poor).⁵
2. Prevents contamination of Key-Parts.
3. An organised aseptic field decreases chance of inadvertently contaminating Key-Parts.
4. Exposed Key-Parts increases risk of inadvertent contamination.
5. Encouraging staff to worry less about the non Key-Parts and more about the Key-Parts will improve confidence and technique.

Notes

- A non-touch-technique is the most important aspect of aseptic technique as even if other aspects have been compromised a non-touch technique can still ensure the ultimate aseptic delivery of IV drugs.
- Throughout the procedure Key-Parts should be protected when they are not in use. This can be achieved by using single use dedicated IV bungs or the reintroducing syringes into their original packaging. (The inside of syringe packets provides an excellent 'Critical Micro Aseptic Fields to protect Key-Parts). This is something that needs to be decided locally and standardised for a common approach.

Evidence

¹ [Epic2 Guidelines \(2007\):](#)

CVAD3 'An aseptic non-touch technique must be used for catheter site care and for accessing the [IV] system'

² [ANTT v2 \(2010\):](#)

'If contaminated, Key-Parts provide a direct route for transmission of pathogens between the procedure and the patient'

³ [ICNA \(IPS\) Asepsis: Preventing Healthcare Associated Infection \(2003\):](#)

'The core steps that must be taken during an aseptic technique, for whatever procedure, including preparation to ensure: that all appropriate sterile items are available, and that the setting is prepared'

⁴ [ICNA \(IPS\) Asepsis: Preventing Healthcare Associated Infection \(2003\):](#)

'Aseptic technique reduces the risk of contamination to vulnerable sites thus helping to prevent HAIs'

⁵ [WHO Guidelines on Hand Hygiene in Health Care \(2009\):](#)

18.2 'The inability over two decades to motivate healthcare worker compliance with hand cleansing suggests that modifying hand hygiene behaviour is a complex task'



Step 6a-6d
If the IV port is exposed and gloves are not contaminated proceed to Step 7

If the IV port is not exposed and/or gloves are contaminated, clean hands & re-glove (6a-6d)



Action

1. If gloves are contaminated due to preparing the patient or exposing the line access remove them (Appendix 4).¹
2. Clean hands with alcohol hand rub or soap and water using effective cleaning technique.²
3. Re-glove.³

Rationale

1-3. To re-establish asepsis of your gloved hands prior to administration of medications.

Evidence

¹ WHO Guidelines on Hand Hygiene in Health Care (2009):

Part II, 6, D 'When wearing gloves, change or remove gloves during patient care if moving from a contaminated body site to either another body site (including non-intact skin, mucous membrane or medical device) within the same patient or environment'

WHO Guidelines on Hand Hygiene in Health Care (2009):

Part II, 6, A 'The use of gloves does not replace the need for hand hygiene by either hand rubbing or hand washing'

² ICNA (IPS) Hand Decontamination Guidelines (2002):

'Hands readily pick up and transfer microorganisms and should be decontaminated between any activity that will result in more than superficial contact. Expert consensus groups agree that effective hand decontamination results in significant reduction in the carriage of potential pathogens on hands'

WHO Guidelines on Hand Hygiene in Health Care (2009):

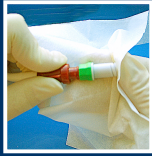
'Despite a paucity of appropriate randomized controlled trials, there is substantial evidence that hand antisepsis reduces the transmission of health care-associated pathogens and the incidence of HCAI'

³ WHO Guidelines on Hand Hygiene in Health Care (2009):

'The dynamics of hand contamination are similar on gloved versus ungloved hands; gloves reduce hand contamination, but do not fully protect from acquisition of bacteria during patient care. Therefore, the glove surface is contaminated, making cross-transmission through contaminated gloved hands likely'

Epic2 Guidelines (2007):

CVAD6 'Following hand antisepsis, clean gloves and [an] ANTT, or sterile gloves should be used when changing the insertion site dressing, line manipulation or intravenous drug administration'



Step 7 Scrub Key-Parts for 15 seconds using 2% chlorhexidine & 70% alcohol wipe



Action

1. Use a large sized single use wipe, approximately 8 cm square containing 70% alcohol and 2% chlorhexidine.¹
2. Scrub the port tip (Not the port sides) for 15 seconds using different areas of the wipe ensuring to create friction.²
3. Then clean away from the tip.
4. Allow port to dry for 30 seconds.³

Rationale

1. A large size wipe will help ensure non-touch technique and protect the port. It also enables the HCW to use different Parts of the wipe which will enable any de-bulking of organisms on the tip. 70% alcohol and 2% chlorhexidine has been found to be the most effective cleaning agent of such devices.
2. This technique provides the required level of friction to kill and remove organisms. Using different areas of the wipe moves the dirt away from the port rather than just moving it around.
3. Cleaning away from the tip will:
 - a) Help move any organisms away from the tip, and
 - b) Promote aseptic handling generally by providing an aseptic IV lumen.
4. Cleaning the rest of the line will promote general asepsis and safe handling.

Notes

- In many ANTT audits, failure to clean the IV port effectively is a very common and a critical failure in aseptic technique.
- Two common failures frequently observed are the cleaning of the outside surfaces of the line and the port, and then the port tip. This is obviously the wrong way round. Postage stamp sized alcohol wipes are often used which, apart from not containing the correct solution, are far too small for effective cleaning.

Evidence

¹Epic2 Guidelines (2007):

CVAD44 'When needle-free devices are used, the risk of contamination should be minimized by decontaminating the access port before and after use with a single patient use application of alcoholic chlorhexidine solution (preferably 2% chlorhexidine and 70% isopropyl alcohol)

RCN Standards for Infusion Therapy (2010):

'Injection and access caps/ports (which include injection caps, needle-free caps, catheter hubs or administration ports integral to an administration set) must be decontaminated using aseptic technique prior to accessing'

'To prevent the entry of micro-organisms into the vascular system, the injection access site should be decontaminated with an approved single-use antimicrobial solution, such as chlorhexidine in alcohol (unless contraindicated by manufacturers' recommendations). The solution should be applied with friction and allowed to dry, immediately before and after use'

NICE Prevention of HCAI in Primary and Community Care (2003):

'CVC16. The injection port or catheter hub should be decontaminated with either alcohol or an alcoholic solution of chlorhexidine gluconate before and after it has been used to access the system'

²Kaler and Chinn (2007):

'No microorganisms were recovered from any of the access ports that were disinfected for 15 seconds with either alcohol alone or chlorhexidine & alcohol'

³Hibbard (2005):

Allowing the surface of the injectable ports to dry ensures the disinfectant agent has been given enough time to kill micro-organisms. A drying time of 30 seconds is based on test methodology of comparative antimicrobial activity in antiseptic agents commonly used to disinfect before clinical procedures, and that this timeframe has demonstrated good activity against microorganisms with a solution of 2% chlorhexidine and 70% isopropyl alcohol (IPA)



Step 8 Administer drugs using NTT



Action

1. Wait for the port to dry (This takes 30 seconds).¹
2. Administer infusion/medication using a non-touch technique, protecting all Key-Parts.²

Rationale

1. The port must dry before use otherwise it won't be aseptic. (If organisms have remained, a wet tip will facilitate their transportation into the patient on injection).
2. Key-Parts are the critical elements of a piece of equipment that will come into contact with any liquid infusion, Key-Site or other Key-Part connected to the patient or directly involved with the procedure. Contamination of these parts will directly compromise patient safety by providing a direct route of transmission for micro-organisms between healthcare worker and patient.

Evidence

¹Hibbard (2005):

Allowing the surface of the injectable ports to dry ensures the disinfectant agent has been given enough time to kill micro-organisms. A drying time of 30 seconds is based on test methodology of comparative antimicrobial activity in antiseptic agents commonly used to disinfect before clinical procedures, and that this timeframe has demonstrated good activity against microorganisms with a solution of 2% chlorhexidine and 70% isopropyl alcohol (IPA)

²RCN Standards for Infusion Therapy (2010):

'Aseptic technique must be used and universal precautions must be observed in the administration of medications and solutions'



Step 9 Dispose of sharps & equipment



Action

1. Dispose of sharps into a dedicated sharps bin at the point of use where possible.¹

Rationale

1. This will reduce the possibility of needlestick injury.

Evidence

¹Department of Health Saving Lives: High Impact Intervention No1 (2007):

'Sharps container should be available at point of use and should not be overfilled'

RCN Standards for Infusion Therapy (2010):

'All used disposable sharp items should be disposed of in a non-permeable, puncture-resistant, tamper-proof container'



Step 10 Clean tray according to local policy



Action

1. Clean tray according to local policy.¹
2. Allow surface to dry before storage.²

Rationale

1. To render the tray aseptic and break any chain of infection.
2. Storing 'wet' medical equipment could provide an environment suitable for microbial adhesion and, if stored for longer periods in moist conditions, the development of a bio film.

Notes

- A typical policy for tray cleaning involves using alcohol impregnated wipes for pre and post use. In the event the tray is visibly soiled, a detergent wipe is used or the tray is cleaned with detergent and water and dried.

Evidence

¹ Epic2 Guidelines (2007):

SP4 'Shared equipment used in the clinical environment must be decontaminated appropriately after each use'

ICNA (IPS) Asepsis: Preventing Healthcare Associated Infection (2003):

Principles of asepsis 'Prepare the area, including decontamination of the surface to be used with detergent and water followed by drying. They can then be disinfected using a wipe containing 70% alcohol'

Guideline for disinfection and Sterilization in Healthcare Facilities (2008):

'Medical equipment surfaces can become contaminated with infectious agents and contribute to the spread of healthcare-associated infections. Use of a disinfectant will provide antimicrobial activity that is likely to be achieved with minimal additional cost or work'

² Hospital Infection Research Laboratory (2006):

Allowing the surface to dry ensures the disinfectant agent has been given enough time to kill micro-organisms. When tested in accordance with EN 1276* a solution of 70% isopropyl alcohol (IPA) in a PDI[®] branded wipe (Sani-Cloth 70[®]) gave a >5 log₁₀ (99.999%) reduction all four of the test organisms** after 30 seconds, under *clean* (0.03% albumin) and *dirty* (0.3% albumin) conditions.

*** 70% IPA as a surface cleaner for medical devices has demonstrated effectiveness at 30 seconds post application

* European test standard maintained by the European Committee for Standardization

** *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Enterococcus hirae*



Step 11 Dispose of gloves



Action

1. Remove gloves (Appendix 4).¹

Rationale

1. Gloves must only be used for one patient and one procedure. Removing gloves will reduce the chance of cross infection/chain of infection.

Evidence

¹ WHO Guidelines on Hand Hygiene in Health Care (2009):

Part II, 6, C 'Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient'

Epic2 Guidelines (2007):

SP23 'Gloves must be disposed of as clinical waste and hands decontaminated, ideally by washing with liquid soap and water after the gloves have been removed'



Step 12 Clean hands with alcohol hand rub or soap and water



Action

1. It is essential that the post procedure hand clean is performed immediately after glove removal before contact with the environment.¹
2. Using effective hand cleaning technique (Appendices 1,2) with either alcohol hand rub or soap and water.²
3. Ensure hands are dry before re-gloving. If soap and water are used, pat-dry hands with a paper towel.³

Rationale

1. This hand clean is placed here because the hands will have sweated deep and low lying organisms to the surface of the skin. This will help in breaking any chain of infection.
2. Effective hand cleaning is vital to reduce the risk of contaminating Key-Parts/sites.
3. Bacteria can re establish quickly on moist hands. Pat-drying prevents skin degradation and damage.

Notes

- Soap & water and alcohol hand rub are interchangeable at any stage and should be chosen according to the clinical situation.

Evidence

¹Epic2 Guidelines (2007):

SP6 'Hands must be decontaminated immediately before each and every episode of direct patient contact/care and after any activity or contact that potentially results in hands becoming contaminated'

ICNA (IPS) Hand Decontamination Guidelines (2002):

'Hands readily pick up and transfer microorganisms and should be decontaminated between any activity that will result in more than superficial contact. Expert consensus groups agree that effective hand decontamination results in significant reduction in the carriage of potential pathogens on hands'

Epic2 Guidelines (2007):

'Current evidence-based guidelines conclude that in both outbreak and non-outbreak situations contaminated hands are responsible for cross-transmission of microorganisms and that effective hand decontamination can significantly reduce both cross-transmission and cross-infection rates for the majority of HCAI in all healthcare settings'

Department of Health, Winning Ways (2003):

Action Area Four *'Each clinical team will demonstrate consistently high levels of compliance with hand washing and hand disinfection protocols'*

²ICNA (IPS) Hand Decontamination Guidelines (2002):

'A good technique covering all surfaces of the hands at the right time is more important than the agent used or the length of time taken to perform it. The ideal technique should be quick, reduce hand contamination to the lowest possible level and be free from notable side-effects to the skin'

WHO Guidelines on Hand Hygiene in Health Care (2009):

'Use an alcohol-based hand rub as the preferred means for routine hand antisepsis.'

WHO Guidelines on Hand Hygiene in Health Care (2009):

'To achieve a high rate of hand hygiene adherence, healthcare workers need education, clear guidelines, some understanding of infectious disease risk, and acceptable hand hygiene products' Part II, 1, B 'If exposure to potential spore-forming pathogens is strongly suspected or proven, including outbreaks of clostridium Difficile, hand washing with soap and water is the preferred means'

³ICNA (IPS) Hand Decontamination Guidelines (2002):

'Effective drying of hands after washing is important because wet surfaces transfer micro-organisms more effectively than dry ones'

WHO Guidelines on Hand Hygiene in Health Care (2009):

11.1.5 *'Because wet hands can more easily acquire and spread microorganisms, the proper drying of hands is an integral part of routine handwashing'*

1. Effective hand cleaning technique: For soap and water (WHO, 2009).

Hand Hygiene Technique with Soap and Water

 Duration of the entire procedure: 40-60 seconds

 <p>0</p>	 <p>1</p>	 <p>2</p>
<p>Wet hands with water;</p>	<p>Apply enough soap to cover all hand surfaces;</p>	<p>Rub hands palm to palm;</p>
 <p>3</p>	 <p>4</p>	 <p>5</p>
<p>Right palm over left dorsum with interlaced fingers and vice versa;</p>	<p>Palm to palm with fingers interlaced;</p>	<p>Backs of fingers to opposing palms with fingers interlocked;</p>
 <p>6</p>	 <p>7</p>	 <p>8</p>
<p>Rotational rubbing of left thumb clasped in right palm and vice versa;</p>	<p>Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;</p>	<p>Rinse hands with water;</p>
 <p>9</p>	 <p>10</p>	 <p>11</p>
<p>Dry hands thoroughly with a single use towel;</p>	<p>Use towel to turn off faucet;</p>	<p>Your hands are now safe.</p>

2. Effective hand cleaning technique: For alcohol hand rubs (WHO, 2009).

Hand Hygiene Technique with Alcohol-Based Formulation

⌚ Duration of the entire procedure: 20-30 seconds

1a  Apply a palmful of the product in a cupped hand, covering all surfaces;

1b  Rub hands palm to palm;

2  Rub hands palm to palm;

3  Right palm over left dorsum with interlaced fingers and vice versa;

4  Palm to palm with fingers interlaced;

5  Backs of fingers to opposing palms with fingers interlocked;

6  Rotational rubbing of left thumb clasped in right palm and vice versa;

7  Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8  Once dry, your hands are safe.

3. How to put on non-sterile gloves (WHO, 2009).

When the hand hygiene indication occurs before a contact requiring glove use, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.

I. HOW TO DON GLOVES:



1. Take out a glove from its original box



2. Touch only a restricted surface of the glove corresponding to the wrist (at the top edge of the cuff)



3. Don the first glove



4. Take the second glove with the bare hand and touch only a restricted surface of glove corresponding to the wrist



5. To avoid touching the skin of the forearm with the gloved hand, turn the external surface of the glove to be donned on the folded fingers of the gloved hand, thus permitting to glove the second hand



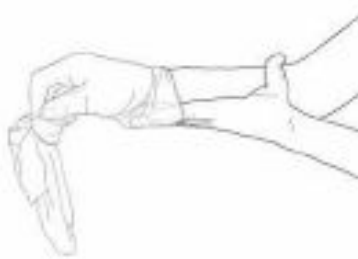
6. Once gloved, hands should not touch anything else that is not defined by indications and conditions for glove use

4. How to remove on non-sterile gloves (WHO, 2009).

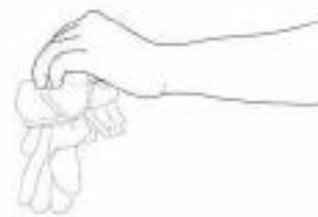
II. HOW TO REMOVE GLOVES:



1. Pinch one glove at the wrist level to remove it, without touching the skin of the forearm, and peel away from the hand, thus allowing the glove to turn inside out



2. Hold the removed glove in the gloved hand and slide the fingers of the ungloved hand inside between the glove and the wrist. Remove the second glove by rolling it down the hand and fold into the first glove



3. Discard the removed gloves

4. Then, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water

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