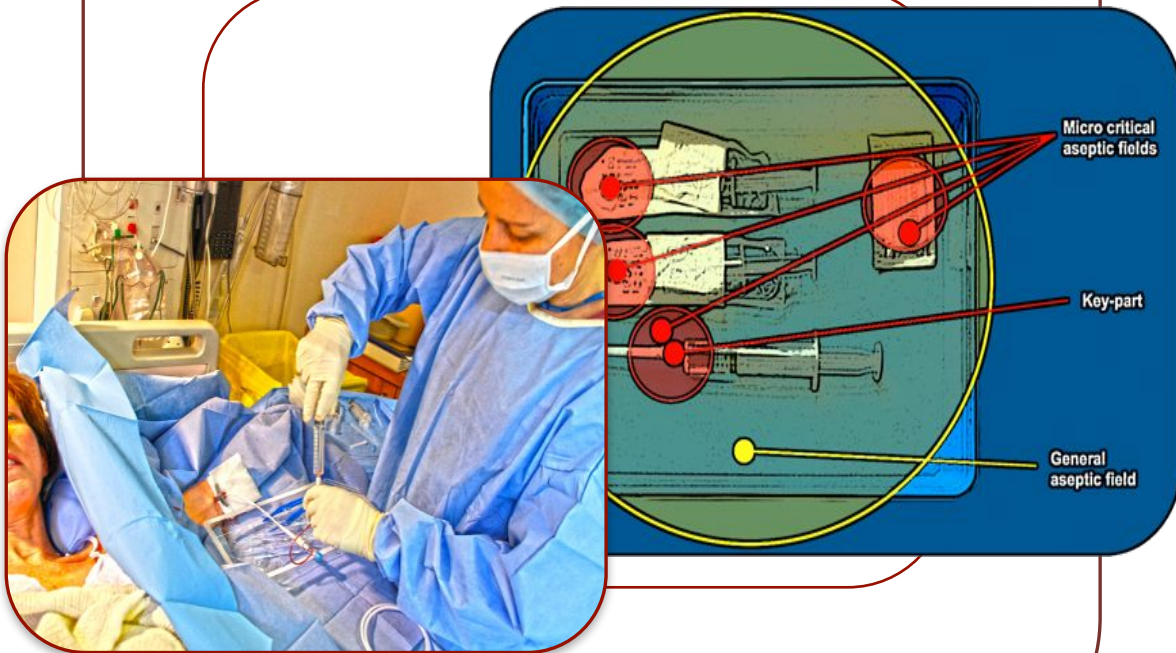


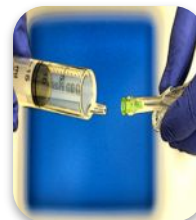
Aseptic Non Touch Technique The ANTT Clinical Practice Framework

...for all invasive Clinical Procedures from Surgery to Community Care



Essential Theory Applied to Practice

*First,
do no
harm*





Copyright Guidance – please read

© 2015 Aseptic Non Touch Technique (ANTT)[®]

This document is a publication of The-ASAP and all rights of copyright, intellectual property and International Trademark are reserved. ANTT is protected to prevent dilution and misrepresentation of the practice framework so as to avoid ANTT becoming another unhelpful generic term for aseptic technique that is variably interpreted. For guidance see enquiries@antt.org.

This document may however, be freely utilized, elements copied and translated, in part, for LOCAL, SINGLE HEALTHCARE ORGANIZATION educational use. It must not be published via the www/internet or its content used for production and re-publication of dedicated ANTT e-learning resources. ANTT is not for sale or for use in conjunction with commercial purposes. The-ASAP provide a number of free core ANTT resources to help disseminate and train healthcare staff.

The-ASAP requests that the balance it determines between free dissemination and protection of the standard is respected in the interests of patient safety. Disclaimer: The-ASAP provides the ANTT Clinical Practice Framework and ANTT Clinical Guidelines to healthcare organizations in good faith in a collaboration to promote effective aseptic technique. It is the responsibility of healthcare organizations to implement ANTT effectively. No guarantee or responsibility for the application or outcome of clinical practice can be, or is, assumed or accepted by The-ASAP/ANTT.

Published by The-Association for Safe Aseptic Practice (The-ASAP)

London • Adelaide

Index

Forward	page 5
Glossary	page 6
The ANTT Model for safe, efficient standardized aseptic technique	page 7
Background: The need for ANTT	page 8
Basic concepts relevant to ANTT	page 9
The Foundation Principles and Safeguards of ANTT	page 10
Applying the ANTT Framework to clinical practice	
- The 'ANTT-Approach'	page 18
- Standardizing ANTT using ANTT Clinical Guidelines	page 24
References	page 28
Appendices	page 29



The Association for Safe Aseptic Practice (The-ASAP) is an international not for profit organization. Recognizing the causal relationship between healthcare associated infection and ineffective standards of aseptic technique, the association is committed to improving aseptic clinical practice for the benefit of patients. The-ASAP oversees the ongoing development and dissemination of core ANTT[®] resources.

Forward

To practice safely it is essential that healthcare workers understand the principles and practice of aseptic technique. To the detriment of many patients it is clear that this is often not the case. As a consequence, ineffective aseptic technique remains a significant cause of morbidity and mortality in healthcare globally.

Despite aseptic technique being the most commonly performed critical infection prevention procedure in healthcare, national and international guidance typically 'prescribes' aseptic technique but does not actually explain how to perform it. Variability in practice terms and practice definitions has led to significant ambiguity in practice. By providing the first comprehensively defined practice framework for aseptic technique, Aseptic Non Touch Technique (ANTT) has filled a historical void. The National Institute for Health Care Excellence (2012), described ANTT as, '*A specific type of aseptic technique with a unique theory and practice framework*'.

The ANTT Clinical Practice Framework is contemporary and robust; it explicitly defines the meaning of practice terms using accurate and achievable terminology. It clearly sets out core principles for safe aseptic technique. Perhaps most importantly, ANTT provides a single and standardized approach to assessing and applying safe aseptic technique to any invasive clinical procedure, '*From Surgery to the Community Care setting*'.

ANTT is increasingly used internationally with ANTT resources used in more than twenty countries around the World. For example, it was illustrated in detail as a best practice example of aseptic technique in the Australian Guidelines for the Prevention and Control of Infection in Healthcare in 2010 and has since helped support a national standard. ANTT is well established as the de facto standard in England and in 2015 was endorsed by the Public Health and NHS Wales as the national standard. It is referenced or recommended by a range of guidance internationally including Epic2 (2007), ACSQH (2010), and NICE (2012).

The advantages for patient safety in having a common practice standard and practice language for aseptic technique by using ANTT have now become obvious. The important challenge now is to use this new standard to generate evidence in order to further disseminate and develop ANTT. This is the ongoing operation of The Association for Safe Aseptic Practice (The-ASAP).

Over the last decade, the foresight and commitment shown by so many healthcare workers and healthcare organizations in championing and implementing ANTT as a practice standard has helped reduce healthcare associated infection and save many lives. It's continued adoption towards a universal standard will no doubt continue to help organizations further reduce healthcare associated infections.

Stephen Rowley

Originator of ANTT
Clinical Director – The Association for Safe Aseptic Practice.

Glossary

Please note: Historically, the terms below have been defined variously and often ambiguously in the medical literature. The definitions given here are intended to provide an inter-related set of definitions that are technically accurate and achievable.

Aseptic - Free from pathogenic organisms (in sufficient numbers to cause infection)

Sterile - Free from (all) microorganisms

Clean - Free from visible marks and stains

Asepsis or Aseptic technique

Describes the infection prevention aim and method utilized 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 in sufficient numbers to cause infection, 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

Typically a sterilized drape. 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

Typically a disinfected plastic tray or pulp tray. 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')

Provides primary protection. Only sterilized or aseptic equipment may come into contact with a Critical Aseptic Field. Sterilized gloves are required to maintain aseptic continuity. Essentially, all equipment are handled as Key-Parts.

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

Provides secondary protection as all Key-Parts are fully protected by individual Critical Micro Aseptic Fields and non touch technique. Typically, non sterile gloves are utilized.

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 safe, efficient and standardized aseptic technique

ANTT is a contemporary and unique Theoretical and Clinical Practice Framework for aseptic technique intended 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 and the Health Protection Surveillance Centre – Ireland (2011).

The ANTT Clinical Practice Framework set out in this publication 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 significant global initiative overseen by the Association for Safe Aseptic Practice (The-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...*'For 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 healthcare 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 ANTT is established by the **ANTT Implementation Programme**.

Background: The need for ANTT

Although the causes of healthcare associated infection are wide ranging, it is widely accepted that poor standards of aseptic technique are a fundamental cause of preventable HCAI (DH 2003). This is not surprising, as the healthcare worker is inherently and unavoidably the main potential vector for microorganism transmission during invasive clinical procedures and the maintenance of invasive medical devices. Reflecting this, Governments around the world are beginning to legislate for standardized and safe aseptic technique. In the UK it is a requirement of the Health and Social Care Act 2008 (updated 2010), for care organizations to practice a single, standardized aseptic technique in which education and monitoring can be demonstrated. The requirement for standardized aseptic technique is similar in Australia and the Australian Health Commission illustrated ANTT as a best practice example of aseptic technique in national guidelines (ACSQH 2010).

Invasive clinical procedures are performed in community and hospital settings many hundreds or thousands of times every day. By recognising the significant risks to patients that these critical clinical staff-patient 'interactions' present, healthcare organizations use ANTT to define, control and monitor standards of aseptic technique. In doing so, HCAI can be minimized, and financial and reputational risks to healthcare organizations significantly reduced.

Although aseptic technique is recognised universally as an essential clinical competency, actual education and competency assessment has historically been neglected. In part, this has been due to a universal assumption that something as commonly performed as aseptic technique must be well defined. A review of the literature and of high profile national and international guidance shows this not to be the case. Consequently, aseptic technique historically has largely been left to the subjective interpretation of individual healthcare workers. This has led to significant variability in understanding, interpretation, practice and ultimately effectiveness of aseptic technique.

The ANTT Clinical Practice Framework provides a logical and standard set of Principles and Safeguards that clinical staff need to understand and comply with, in order to apply safe aseptic technique to a wide range of clinical procedures. In addition, it provides healthcare organizations with a robust practice framework to ensure standardization and effective clinical governance of this critical clinical competency.

There is a long history of healthcare organizations reactively 'prescribing' infection prevention practice to specific clinical procedures in response to high rates of infection. The ANTT methodology adopts this successful approach, but does so proactively rather than reactively, and to all clinical procedures.

Implementing ANTT improves aseptic technique through standardization in three ways: Firstly, it teaches and robust and logical practice principles that staff can apply to all clinical procedures. This is identifiable in practice and is known as the 'The ANTT-Approach'. Secondly, it 'prescribes' effective aseptic practice for the most common clinical procedures via highly visible clinical guidelines. Thirdly, it helps ensure that the pre-requisite foundations for safe aseptic technique are in place (e.g. fit for purpose equipment and clinical environments that are conducive to safe aseptic practices).

To keep HCAI under control it is essential that progress in standardizing aseptic technique with ANTT is consolidated and further developed. Due to the high rates of HCAI at the time of ANTT's initial development, many hospitals and community care teams improved practice and helped reduce infection rates by mandatory enforcement and surveillance of ANTT guidelines alone. It is now prudent that this approach is reinforced with improved education of the Clinical Practice Framework that the ANTT guidelines are based upon. This will ensure practitioners are able to apply safe principles of aseptic practice to any clinical procedure in any care environment.

Basic concepts relevant to ANTT

An epidemiological approach

The ANTT Model is based on an epidemiological approach that a better understanding of the elements involved in the transmission of microorganisms will facilitate safer standards of clinical care and ultimately reduce HCAI. Recognising a significant gap between epidemiological evidence and aseptic technique behaviour, the original ANTT Theoretical Framework (1995) deconstructed historical aseptic technique. Then, focussing on the relationship between host, environment, organism and healthcare worker, originated a more relevant and novel practice framework grounded in accurate and original terminology. It is based on the fundamental principle that it is the identification and effective aseptic protection of Key-Parts and Key-Sites (*'Key-Part Protection'*) from microorganisms that must form the absolute core of any practice framework for aseptic technique (Rowley 2001). In other words, ANTT is based on the technical challenge of achieving asepsis for different procedures according to defined and standardized criteria, not the subjective beliefs of individuals.

Ineffective aseptic technique causes HCAI

The contamination of patients with microorganisms during invasive clinical procedures is largely an invisible process. However, a broad range of research provides clear evidence for an indirect and direct causal relationship between failed aseptic technique and HCAI. For example, Worthington et al, (2001) and Calop et al, (2000), demonstrated that approximately 8% of manually prepared saline flushes are contaminated prior to patient administration due to breaks in aseptic technique. Loftus et al (2008, 2011, 2012), demonstrate contamination of intravenous hubs and 3-way taps etc. as a direct result of failed aseptic technique and environmental contamination. Perhaps the best procedure demonstrating the causal relationship between failed aseptic technique and patient contamination is blood culture collection. The culture of the blood sample uniquely, and inadvertently, provides a quality control test of the practitioners' aseptic technique. Contamination rates of 5-10% are common. There is no reason not to believe that this contamination rate is the same for other similar procedures, such as cannulation. In this light, the main problem underpinning poor standards of clinical hygiene and aseptic technique isn't a lack of evidence supporting the need for effective aseptic technique it is the lack of compliance to an expanding evidence base.

Hand hygiene/cleaning

Although not a concept, the importance of effective hand cleaning is worth highlighting. Hand hygiene is accepted as the single most important measure to prevent transmission of infection in healthcare settings (APIC 2009, WHO 2009). ANTT actively supports and integrates with the World Health Organizations' 'Five Moments for Hand Hygiene', that helps reduce the transference of microorganisms in healthcare settings (See Appendix 3).

Standardization

In healthcare, aseptic technique is a critical safety procedure and high quality performance is essential. An important aspect of any quality system is to work according to an unambiguous standard. As a clearly defined standard, the ANTT Clinical Practice Framework ensures that practitioners in any organization are informed of what is expected of them to practice safely. The advantages of standardized aseptic practice are outlined in Principle 5, p15.

Teaching ANTT

Staff are taught how to apply ANTT theory to practice; namely, how to apply the Foundation Principles & Safeguards of ANTT to clinical practice using The 'ANTT-Approach'. The ANTT-Approach is a simple educational and public awareness tool that helps staff connect the main risks and routes of microorganism transference to the most essential elements of aseptic technique. The ultimate test of ANTT training is that the 6 essential elements of the ANTT-Approach are always demonstrable in practice (See p17).

The Foundation Principles and Safeguards of ANTT

The ANTT Clinical Practice Framework provides practitioners and healthcare organizations with a robustly defined and reproducible process by which to teach and apply safe aseptic technique.

CLINICAL PRACTICE

Principle 1

Asepsis is the aim for all invasive clinical procedures, including the maintenance and use of invasive clinical devices (*'For surgery to community care'*)

Principle 2

Asepsis is achieved by 'Key-Part & Key-Site Protection'; Protecting Key-Parts & Key-Sites from microorganisms transferred from the healthcare worker & the immediate environment

Principle 3

ANTT needs to be efficient as well as safe; therefore Surgical-ANTT is used for complicated procedures and Standard-ANTT for uncomplicated procedures

Principle 4

The need for Surgical or Standard-ANTT is determined by ANTT risk assessment that is based on the technical difficulty of achieving asepsis

Safeguard 1

Basic Infective Precautions

Basic infective precautions such as environmental controls, hand cleaning & disinfecting medical devices significantly reduce the risk of contaminating Key-Parts and Key-Sites

Safeguard 2

Identification of Key-Parts & Key-Sites

Key-Parts are the critical parts of the procedure equipment that if contaminated are most likely to cause infection. Key-Sites are open wounds and medical device access sites

Safeguard 3

Non-Touch Technique

Non-Touch Technique is a critical skill that protects Key-Parts & Key-Sites from the healthcare worker and the procedure environment. It is essential in Standard-ANTT & desirable in Surgical-ANTT

Safeguard 4

Aseptic Field Management

Aseptic Fields protect Key-Parts and Key-Sites from the immediate procedure environment. Surgical and Standard-ANTT require different aseptic field management

CLINICAL AND ORGANIZATIONAL MANAGEMENT

Principle 5

Aseptic practice should be standardized

Principle 6

Safe aseptic technique is reliant upon effective healthcare worker training and environments and equipment that are fit for purpose

CLINICAL

Principle 1

Asepsis is the aim for all invasive clinical procedures, including the maintenance and use of invasive clinical devices ('from surgery to community care').

ANTT is designed to protect patients from infection during all invasive clinical procedures including maintenance of invasive medical devices....'**From Surgery to Community Care**'. Whilst the process and equipment for ANTT will change according to the technical challenge of achieving asepsis for different procedures, (see Standard and Surgical-ANTT p11), the application of ANTT Principles and Safeguards always remain the same.

Historically, a hierarchy of terms; sterile technique, aseptic technique, clean technique and non-touch technique have been used to describe practice. These terms have been and still are applied interchangeably, subjectively and inconsistently (Rowley et al 2010). Moreover, interpretation of these terms has created doubt over the aim of these techniques. In particular, that a clean technique does not have an aim of asepsis or asepsis isn't achievable in certain settings such as the community (Haslett 2007). No doubt this has contributed to the variable and poor standards of aseptic technique that are well documented. Contrastingly, ANTT is based on accurate and achievable terminology (see below) and the aim of practice is always and unambiguously asepsis.

'Sterile' - Sterile Technique

The term 'sterile' is typically defined as meaning, '*Free from all living microorganisms*' (APIC 2009). Because of the presence of microorganisms in the air, it is by definition impossible to achieve a 'sterile technique' or maintain a 'sterile field' in typical healthcare settings.

'Clean' / Clean Technique

The term 'clean' is typically defined as meaning, '*Free from marks and stains*'. The term clean technique and implied 'clean' aim can cause confusion and should be avoided; any lesser aim than asepsis for invasive clinical procedures and maintenance of invasive medical devices is potentially ethically and legally problematic.

'Asepsis' / Aseptic Technique

The term 'asepsis' or 'aseptic' is typically defined as meaning, '*Free from pathogenic microorganisms*' (Merriam-Webster, 2010). '*The process for keeping away disease producing microorganisms*' (APIC 2009). By definition, asepsis is achievable in typical healthcare settings.

Non-touch Technique

Non-touch is the principle safeguard of achieving aseptic technique and should always be applied where practically possible. (Essentially, even surgical procedures require a non-touch technique – maintained by the aseptic barrier afforded by sterilized gloves).

Therefore, with the aim of using accurate and achievable terminology, practice is descriptively termed Aseptic Non Touch Technique or ANTT.

Principle 2

Asepsis is achieved by 'Key-Part & Key-Site Protection'; Protecting Key-Parts & Key-Sites from microorganisms transferred from the healthcare worker & the immediate environment.

The founding and fundamental principle of ANTT is that Key-Parts and Key-Sites require protecting from harmful microorganisms – during invasive clinical procedures or the maintenance of invasive medical devices. This is termed **Key-Part and Key-Site Protection**. To achieve this it is imperative that; '*Aseptic Key-Parts must only come into contact with other aseptic Key-Parts, or Key-Sites*'. Or, in other words, Key-Parts and Key-Sites require protecting from direct contact from the healthcare worker, the physical procedure environment and airborne contamination. Ultimately, Key-Parts and Key-Sites are protected by understanding and adherence to the Principles and Safeguards of the ANTT Clinical Practice Framework.

Principle 3

ANTT needs to be efficient as well as safe; therefore Surgical-ANTT is used for complicated procedures and Standard-ANTT for uncomplicated procedures.

The technical difficulty of achieving asepsis

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 both simple and complex procedures, and how to decide between the two approaches. In ANTT, uncomplicated and complex approaches to technique are termed Standard-ANTT and Surgical-ANTT respectively. It is important to note that the two approaches adhere to exactly the same 'ANTT-Approach'.

Surgical-ANTT

Surgical-ANTT is demanded when procedures meet one or more of the following criteria: They involve large or numerous Key-Parts, are significantly invasive, (e.g. Large Key-Sites(s) or central venous access), are technically complex to achieve asepsis or involve extended procedure time (approximately >20 minutes).

Standard-ANTT

Standard-ANTT is the technique of choice when procedures meet all of the following criteria: They involve minimal Key-Parts and small Key-Parts, are not significantly invasive, are technically uncomplicated to achieve asepsis and are short in duration (approximately <20 minutes).

Healthcare workers are trained to decide correctly between Standard and Surgical-ANTT, by applying the simple ANTT Risk Assessment (Principle 4). In practice, the main difference between Standard and Surgical-ANTT is the type and management of aseptic field(s) depending on the number of Key-Parts and Key-Sites that require protection.

A note about procedure duration

Determining the type of aseptic technique according to procedure time is not an exact science so mention of procedure time above is general guidance only. Logically, the longer Key-Parts and Key-Sites are exposed to the physical and air environment, the greater potential for environmental (or inadvertent touch) contamination. In the operating room, this risk is typically countered by extensive measures to reduce microorganisms on surfaces and in the air. However, these special measures are usually not present in many healthcare settings in which Surgical-ANTT is performed, such as central line insertion in ITU. Therefore, the prolonged exposure of Key-Parts is more of a concern and the use of Micro Critical Aseptic Fields, i.e. protecting Key-Parts with caps and covers etc. even when stationed on a large 'Critically Managed' Critical Aseptic Field seems a sensible measure.

Principle 4

The need for Surgical or Standard-ANTT is determined by ANTT risk assessment that is based on the technical difficulty of achieving asepsis.

For common clinical procedures performed in known settings, Standard or Surgical-ANTT can be pre-determined or 'prescribed' by utilising ANTT Clinical Guidelines. However, because it is not feasible to have clinical guidelines for all procedures, it is essential that staff are trained how to risk assess clinical procedures for safe aseptic technique in order to determine selection of Standard or Surgical-ANTT.

Historically, risk assessment for aseptic technique has been confused by ambiguous criteria such as the patients' age or diagnosis. Contrastingly, ANTT Risk Assessment is based upon the technical difficulty of ensuring **Key-Part and Key-Site Protection** for any given procedure i.e. Establishing, maintaining and protecting asepsis of Key-Parts and Key-Sites (Fig 1).

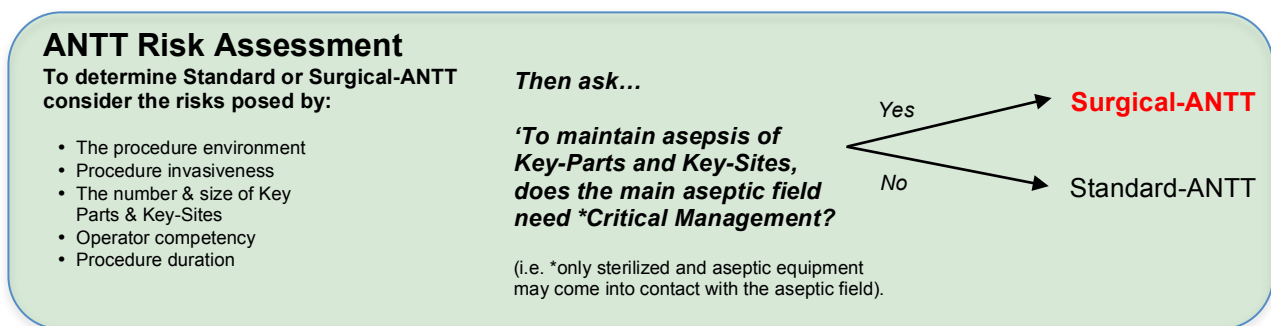
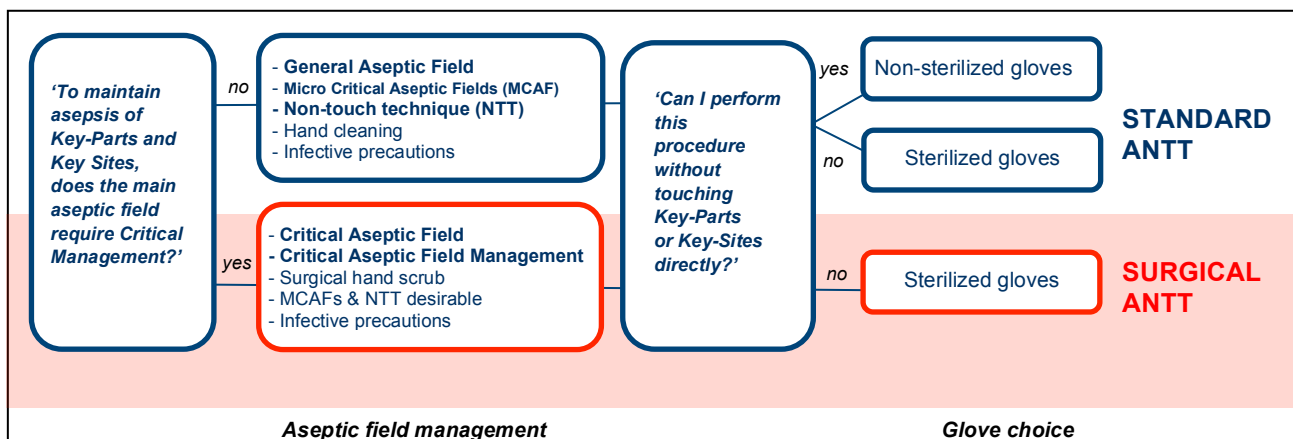


Fig 1.

The choice of Surgical or Standard-ANTT will then determine equipment selection and technique. This is explained fully in the ANTT Safeguards (See p13). But an overview is given below. (Fig 2).



(Fig 2)

Safeguard 1

Basic infective precautions such as environmental controls, hand cleaning & disinfecting medical devices significantly reduce the risk of contaminating Key-Parts and Key-Sites.

The healthcare worker can significantly reduce the risks they themselves pose to the patient by routinely employing basic, but essential infective precautions.

Hand cleaning

Effective hand cleaning performed at the correct time is an essential safeguard of safe aseptic technique. In Standard ANTT, hand decontamination should reflect the sequenced techniques set out by the WHO (2009) (Appendix for hand cleaning with soap and water or alcohol hand rub). In Surgical ANTT, a surgical hand scrub is required as defined by the ICNA (2002) and APIC (2009).

Glove use

Gloves are single use items. Sterilized gloves are the glove of choice for Surgical ANTT. Non-sterilized gloves are the glove of choice for Standard-ANTT. In some instances, during Standard-ANTT it may be necessary to touch a Key-Part directly. In such an event, sterilized gloves would be introduced to minimize the risk of touch contamination.

Other protective clothing

The need for further protective clothing is dependent upon clinical need and user assessment. This is typically prescribed by local policy. For example, aprons and/or gloves are commonly utilized for close patient care contact and when managing body fluids – namely for reasons of preventing cross infection and protecting the healthcare worker. To address the increased risks of environmental or healthcare worker contamination, full barrier clothing/precautions are commonly employed for particularly invasive procedures such as central line insertion or other surgery.

Managing the immediate procedure environment

Prior to undertaking aseptic procedures, practitioners must take steps to limit the immediate environmental risks such as bed making or patients using commodes etc. This will help reduce airborne microorganisms to a minimum. There is increasing acknowledgement of the airborne transmission of bacteria such as staph aureus, MRSA and even clostridium-difficile (Cotterill 1996, Roberts et al, 2008).

The '5-Moments for Hand Hygiene'

The patients' immediate care 'zone' (e.g. a bed space) should be managed at all times according to the World Health Organizations' model, the '*5 Moments for Hand Hygiene*' (Sax et al 2007). The model is designed to protect the patient and the patients' zone by effective and timely hand cleaning which will help keep microorganisms to a minimum at all times; thus ultimately reducing the potential for environmentally influenced contamination of invasive clinical procedures (See Appendix 3).

Safeguard 2

Identification of Key-Parts and Key-Sites

- Key-Sites are open wounds, including insertion and puncture sites.
- Key-Parts are the critical parts of the procedure equipment that come into direct or indirect contact with active Key-Parts connected to the patient, any liquid infusion or Key-Site. If contaminated they present a significantly high risk of infection to the patient.

NB: Key-Parts such as IV ports must be cleaned prior to use in order to render them aseptic. However, despite accepted and widely published evidence demonstrating best practice technique, cleaning of Key-Parts often carries a failure rate of up to 80% (Rowley and Clare, 2009).

Safeguard 3

Non-touch technique is a critical skill that protects Key-Parts & Key Sites from the healthcare worker and the procedure environment (In Surgical and Standard-ANTT).

It is well known that hand cleaning is often poor and that even correct hand cleaning cannot always remove all pathogenic organisms. Therefore, a non-touch technique, the skill of being able to identify Key-Parts and not touch them directly or indirectly, is a vital safeguard of achieving asepsis.

Because Standard-ANTT involves non-sterilized gloves and General Aseptic Fields, non-touch technique is mandatory and critical at all times. However, it should be noted, that in ANTT, the practice of non-touch technique is still applied to Surgical-ANTT when practical to do so. This is because Key-Parts can still be contaminated inadvertently by the healthcare worker or the environment. In other words, no matter whether using Standard or Surgical-ANTT, the safest way to protect a Key-Part is simply not to touch it.

Safeguard 4

Aseptic fields protect Key-Parts and Key-Sites from the healthcare worker and the environment. Surgical and Standard-ANTT require different aseptic field management

Typical healthcare environments (especially hospitals) are naturally 'dirty', busy and dynamic care environments exposed to unusual antibiotic resistant organisms and concentrated cohorts of patients with infection. Therefore, during clinical procedures, the use of aseptic fields is important in controlling the procedure environment and protecting Key-Parts and Key-Sites. ANTT employs two types of aseptic field. These require different management depending on whether their primary purpose is to ensure or promote asepsis. (Fig 3).

1. **Critical Aseptic Field (Ensuring asepsis)**

Critical Aseptic Fields are utilized, when due to their size or quantity, Key-Parts and Key-Sites cannot easily be protected at all times with covers and caps, or handled at all times by a non-touch technique. For example: for intravenous central line placement (which is complex and involves handling and protecting a very large Key-Part) or for invasive surgery with large open wounds demanding large aseptic working areas for extended lengths of time. In such circumstances, to maintain asepsis of Key-Parts the main Critical Aseptic Field must be 'Managed Critically', i.e. only equipment that has been sterilized and is aseptic can be introduced onto the Critical Aseptic Field (Surgical-ANTT). As a result, management of the aseptic field is more complicated, as in effect, the whole aseptic field must be managed as a Key-Part (i.e. the whole working space must only come into contact with other aseptic equipment).

Micro Critical Aseptic Fields (Ensuring asepsis)

Of course, when a main General Aseptic Field does not require Critical Management, it is still essential to maintain the asepsis of all procedure Key-Parts. This is achieved by protecting Key-Parts at all times with caps and covers etc. The inside of such caps, covers and equipment packaging are aseptic and are termed 'Micro Critical Aseptic Fields. In other words, because the inside of such caps and covers have been sterilized they typically provide an optimum all encompassing aseptic field for Key-Parts.

2. **General Aseptic Fields (Promoting asepsis)**

When Key-Parts can easily be protected by caps and covers (Micro Critical Aseptic Fields) the main aseptic field is termed a General Aseptic Field (Standard-ANTT). This is because it does not require Critical Management as it is **promoting** rather than **ensuring** asepsis of Key-Parts and Key-Sites. Subsequently, aseptic technique is considerably simplified and typically involves non-sterilized gloves.

Type of ANTT	Type of aseptic field	Purpose of aseptic fields
Surgical-ANTT	A main Critical Aseptic Field . Optional utilization of Micro Critical Aseptic Fields and non-touch technique (NTT).	Critical Aseptic Fields help ensure the asepsis of Key-Parts.
Standard-ANTT	A main General Aseptic Field . Mandatory utilization of Micro Critical Aseptic Fields and NTT.	General Aseptic Fields promote asepsis of Key-Parts. The Micro Critical Aseptic Fields and non-touch technique ensure it. This is a quicker and more efficient technique.

(Fig 3) The choice of aseptic field for the type of ANTT

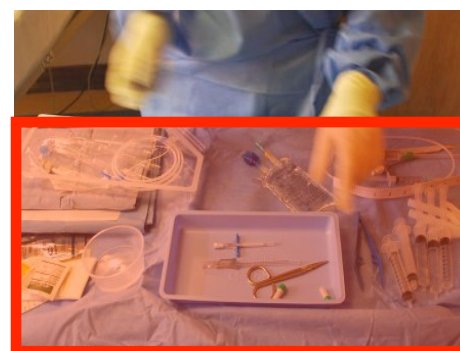
Aseptic Fields in Practice (e.g. Intravenous Medications and PICC line insertion)



(Fig 4) Standard-ANTT

*Fig 4 (Left). In **Standard-ANTT** the main aseptic field does not require **Critical Management** and is thus termed a **General Aseptic Field** - because the Key-Parts can primarily be protected with **Micro Critical- Aseptic Fields**.*

*Fig 5 (Right). In **Surgical-ANTT** the main aseptic field always requires **Critical Management** and is termed a **Critical Aseptic Field**.*



(Fig 5) Surgical-ANTT

Fit for purpose

It is important that whatever type of aseptic field is employed that it must be fit for purpose. In ANTT, aseptic fields are increased in size and sterilized drapes added on the basis of procedure complexity (e.g. PICC insertion). In IV therapy, 'mobile' aseptic fields, serving as General Aseptic Fields, such as plastic trays should be large enough and have high sides to provide a safe working space and contain equipment, sharps and spillages.

CLINICAL AND ORGANIZATIONAL MANAGEMENT

Principle 5

Aseptic technique should be standardized

Aseptic technique should be standardized across, and between, healthcare organizations. The CDC (2011) noted published reports over four decades demonstrating that standardized aseptic practice helped reduce infection risk. Further, where no such standard exists, the adverse effects on HCAI are well documented (DOH 2003). ANTT standardizes practice in four ways:

1. It provides a common 'practice language' and set of principles which direct and standardize decision making in aseptic practice.
2. It provides a collection of hospital and community focussed clinical guidelines for aseptic technique for the most common clinical procedures (The guidelines are designed collaboratively and peer-reviewed nationally).
3. Implementation of ANTT is standardized through a defined audit cycle based process.
4. This approach has reduced variability in clinical practice, raised standards of practice and subsequently helped reduce HCAI (Pike et al 2009, Rowley & Clare 2009).

Healthcare workers trained and competency assessed in ANTT principles and become identifiable by their '**ANTT-Approach**' to aseptic technique.

They can be consistently observed to:

- Focus on Key-Part and Key-Site protection at all times.
- Use exemplary non-touch technique whenever practical to do so.
- Respect and utilise basic infective precautions such as hand cleaning.
- Select appropriate aseptic fields and manage them effectively.
- Use fit for purpose equipment.

The importance of standardized aseptic technique:

- Promotes a standard approach to aseptic technique
- Reduces variation in practice
- Facilitates a consistent structure for I.N.S.E.R.T.
- Provides a framework for auditing guideline adherence & evaluating practice

"The consistent and correct use of ANTT will maximise the incorporation of best evidence of effectiveness into infection prevention and control practice which will enhance patient safety"
(Professor Pratt 2010)

Principle 6

The biggest risk to the patient is the healthcare worker: Safe aseptic technique is reliant upon effective training, safe environments and fit for purpose equipment

Failed aseptic technique is probably the most significant cause of preventable HCAI. However, whilst this is widely accepted, there remains a significant gap between this knowledge and the required changes in clinical behavior. It is therefore essential that practitioners fully understand the risks they pose to patients and that this knowledge is demonstrable in practice. Firstly, this involves helping to reduce the dissemination and transfer of microorganisms in care environments generally by practicing basic infection prevention measures at all times (e.g. The WHO 5 Moments for Hand Hygiene). Secondly, it involves taking the additional and appropriate infection prevention steps to prevent the contamination of specific clinical procedures (aseptic technique). This requires an understanding of the risks posed by the immediate clinical environment and from the healthcare worker themselves.

Ensuring the foundations of safe aseptic practice are in place is the shared responsibility of individual practitioners and healthcare organizations; for example:

- Healthcare workers must be effectively trained in ANTT and assessed as competent. Competency should be re-evaluated periodically. (Annually is typical for such an important competency).
- Standards and compliance to ANTT should be monitored.
- Equipment used in ANTT must be fit for purpose and standardized where possible.
- The care environment should be well maintained and cleaned effectively.
- Basic systems should be employed to ensure sterilized and other procedure equipment is not compromised during storage.

Applying the ANTT Framework to Clinical Practice

Typically, healthcare organizations use the standard ANTT Implementation Programme to implement ANTT across small to very large clinical workforces. This involves two main objectives:

1. Teaching and accrediting healthcare workers in the **ANTT-Approach**.
2. Standardizing the common clinical procedures with **ANTT Clinical Guidelines**.

1. The 'ANTT-Approach'

'The ANTT-Approach describes the application of the ANTT Principles and Safeguards to clinical practice. This is best assured by applying ANTT systematically by always taking **6 Actions for safe aseptic technique (p18-19)**.

This 6 step approach is based upon the premise that safe aseptic technique is most effectively applied in a systematic and standardized manner that is identifiable and easily auditable. With an improved appreciation of the risks of microorganism transference, healthcare workers are trained to address the risks posed by the environment and themselves.

Unlike the confused historical paradigm for aseptic technique (Sterile, Aseptic, Clean or Non Touch Techniques), the ANTT-Approach has the same unambiguous aim of asepsis, and the same 'Six Actions for Safe Aseptic Technique', whether the procedure is technically complicated (Surgical-ANTT) or technically uncomplicated (Standard-ANTT) (Fig 6).

Competency Development and Assessment of The ANTT-Approach

Competency development and assessment of ANTT needs to blend educational theory with practical training and assessment. Ultimately, the ANTT-Approach should be identifiable in practice and healthcare workers practicing ANTT should systematically apply the six actions for safe aseptic technique as below:

6 Actions for Safe Aseptic Technique

1. ANTT Risk Assessment

The routine application of the ANTT Risk Assessment to clinical procedures. This assessment determines whether the procedure requires Standard or Surgical-ANTT for ensuring Key-Part and Key-Site Protection.

2. Environmental Management

The routine identification and control or avoidance of environmental risks in the procedure environment.

3. Decontamination & Protection

A heightened appreciation of the risks healthcare workers pose to the contamination of the procedure and patient. This should be demonstrable by effective hand cleaning, glove usage etc.

4. Aseptic Field Management

The routine utilization and effective management of aseptic fields as defined in the ANTT Safeguards.

5. Non-Touch Technique

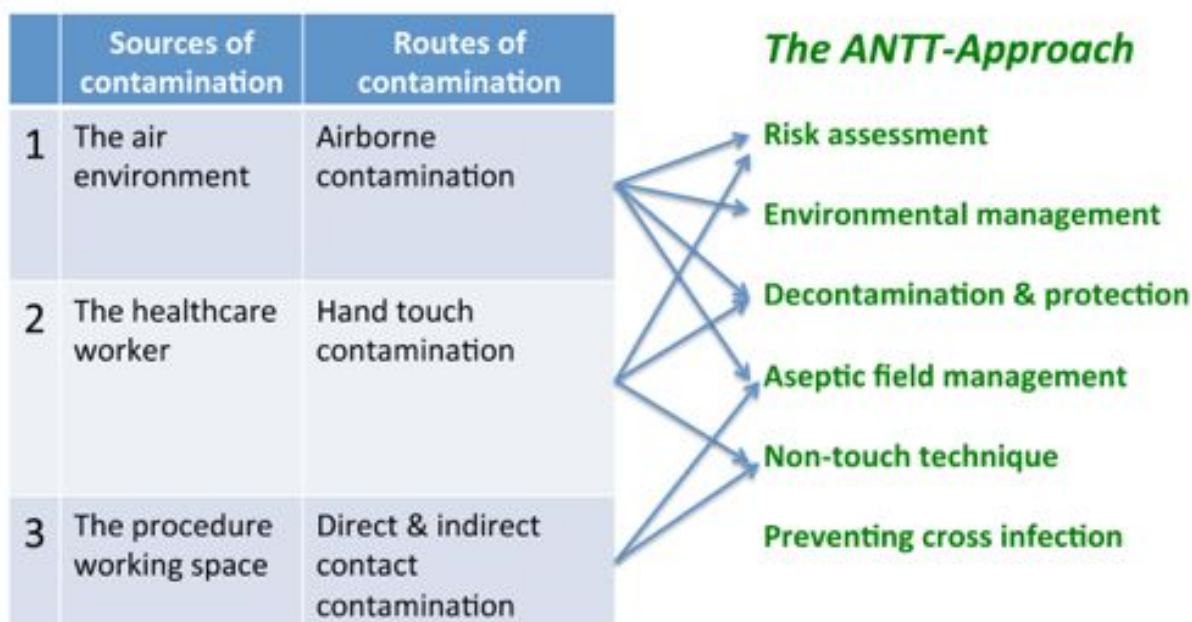
The routine application of effective non-touch technique for Standard-ANTT, and where practical possible to do so, in Surgical-ANTT too.

6. Preventing Cross Infection

Routine and effective decontamination measures that demonstrate an appreciation of the high risks of microorganism transference.

Linking the ANTT-Approach to the main routes of infection in aseptic technique

The ANTT-Approach serves as an excellent educational model for linking the main routes of contamination associated with invasive clinical procedures to the main elements of aseptic technique.



'The ANTT-Approach'

1

Key-Part / Key-Site Risk Assessment

To determine Standard or Surgical-ANTT, assess the difficulty of **Protecting Key-Part & Key-Site asepsis** based on: environment, invasiveness, technical difficulty, number & size of Key-Part & Key-Sites and user competency. Then ask: **'To maintain asepsis of Key-Parts and/or Key-Sites, does the main aseptic field need to be *Managed Critically*'**?**



Surgical-ANTT

Standard-ANTT

2

Environmental Management

- Environmental risks removed or avoided.
- Working areas/surfaces are disinfected.
- Staff activity is strictly controlled.

- Environmental risks removed or avoided.
- Work surfaces are cleaned or disinfected.

3

Decontamination and Protection

- Hand cleaning or surgical hand scrub
- Sterilized gloves
- Suitable mouth / eye protection
- Sterilized gown if full barrier precautions
- 'Scrubbing IV hubs' etc.

- Hand cleaning
- Non-sterilized gloves. Sterilized gloves are worn if Key-Parts must be touched
- Personal protective equipment
- Scrubbing IV hubs etc.

4

Aseptic Field Selection & Management

Critical Aseptic Field

- Sterilized drape(s)

Key-Parts are protected within one large main Critical Aseptic Field.

Only sterilized equipment can be placed in a Critical Aseptic Field, sterilized gloves are required to maintain asepsis. (i.e. The main aseptic field is ***'Managed Critically'**).

Micro Critical Aseptic Fields

(Caps & covers etc.)

Key-Parts are protected with individual Micro Critical Aseptic Fields (MCAF's).

General Aseptic Field

- Disinfected or disposable tray

With Key-Parts protected by MCAF's, essential but non sterilized equipment may be placed in the aseptic field (i.e. the main General Aseptic Field is **'Managed Generally'**)

5

Non-Touch Technique

Non-Touch Technique is desirable

Despite wearing sterilized gloves, Key-Parts & Key-Sites are not touched unless necessary to do so

Non-Touch Technique is essential

6

Preventing Cross Infection

Effective decontamination of the procedure area, equipment and the health professional is essential to break potential 'chains of infection'.

Fig 6

The 'ANTT-Approach': Practice Examples

This table provides examples of risk factors and decision making when applying the ANTT-Approach to invasive clinical procedures. It is not prescriptive or exhaustive

Procedure Type	Procedure Risks 1 →	Type of ANTT	Environment Management 2 →	Decontaminate / Protection (PPE) 3 →	Aseptic Field Management 4 →	Non-Touch Technique 5
<p>Cannulation</p> <p>PICC Insertion in ITU</p> <p>IV Preparation/ Administration</p> <p>Wound Cleaning & Dressing (Large exudating wound) in the community</p> <p>Venepuncture</p> <p>Surgical Intervention in the operating room</p>	<ul style="list-style-type: none"> Few Key-Parts Moderately invasive. Small Key-Parts Single small Key-Site 	Standard ANTT	<ul style="list-style-type: none"> Remove or avoid any environmental risks 	<ul style="list-style-type: none"> Hand cleaning Non-sterilized gloves Tray cleaning for General Aseptic Field 	<ul style="list-style-type: none"> Micro Critical Aseptic Fields Supported by a General Aseptic Field 	<ul style="list-style-type: none"> Non-touch technique is essential
	<ul style="list-style-type: none"> Many Key-Parts Highly invasive Large Key-Part High activity environment Large procedure area 	Surgical ANTT	<ul style="list-style-type: none"> Remove or avoid any environmental risks 	<ul style="list-style-type: none"> Surgical hand-scrub Sterilized gloves Other full barrier precautions 	<ul style="list-style-type: none"> Critical Aseptic Field Micro Critical Aseptic Fields where practical e.g. Handling of PICC line 	<ul style="list-style-type: none"> Non-touch technique is desirable where practical
	<ul style="list-style-type: none"> Few Key-Parts Small Key-Parts Moderately invasive procedure 	Standard ANTT	<ul style="list-style-type: none"> Remove or avoid any environmental risks 	<ul style="list-style-type: none"> Hand cleaning Non-sterilized gloves & apron Tray cleaning for General Aseptic Field 	<ul style="list-style-type: none"> Key-Parts protected by Micro Critical Aseptic Fields Supported by a General Aseptic Field 	<ul style="list-style-type: none"> Non-touch technique is essential
	<ul style="list-style-type: none"> Multiple Key-Parts Large Key-Site 	Surgical ANTT	<ul style="list-style-type: none"> Remove or avoid any environmental risks 	<ul style="list-style-type: none"> Hand cleaning Non-sterilized or sterilized gloves as required Irrigation or soaking performed with aseptic receptacle 	<ul style="list-style-type: none"> Critical Aseptic Field 	<ul style="list-style-type: none"> Non-touch technique is desirable where practical
	<ul style="list-style-type: none"> Minimally invasive Few Key-Parts Small Key-Parts 	Standard ANTT	<ul style="list-style-type: none"> Remove or avoid any environmental risks 	<ul style="list-style-type: none"> Hand cleaning Non-sterilized gloves & apron Tray cleaning for General Aseptic Field 	<ul style="list-style-type: none"> Key-Parts protected by Micro Critical Aseptic Fields Supported by a General Aseptic Field 	<ul style="list-style-type: none"> Non-touch technique is essential
	<ul style="list-style-type: none"> Multiple Key-Parts Large Key-Parts Large Key-Site Long duration Highly invasive Controlled area but many personnel 	Surgical ANTT	<ul style="list-style-type: none"> Full Theatre Room Precautions 	<ul style="list-style-type: none"> Surgical scrub Sterilized gowns & gloves Full barrier precautions 	<ul style="list-style-type: none"> Critical Aseptic Field 	<ul style="list-style-type: none"> Scrub nurse Non-touch technique is still desirable where practical

The 6 Actions ANTT-Approach is a simple and powerful expression of ANTT

In 2013, The ANTT-Approach Initiative was launched internationally. The initiative promotes the essential elements of aseptic technique with the aim that they are performed 'effectively and every time'. This message is promoted by posters displayed in hospitals across the world.

Protect patients every time with...
6 Actions for Safe Aseptic Technique

The ANTT-Approach

- 

1 Risk Assessment
Select Standard or Surgical-ANTT according to the technical difficulty of achieving asepsis
- 

2 Manage the Environment
Avoid or remove contamination risks
- 

3 Decontaminate & Protect
Hand cleaning, personal protective equipment (PPE), disinfecting equipment, surfaces and Key-Parts
- 

4 Use Aseptic Fields
General, Critical and Micro Critical Aseptic Fields protect Key-Parts & Key-Sites
- 

5 Use Non-Touch Technique
Key-Parts must only come into contact with other Key-Parts & Key-Sites
- 

6 Prevent Cross Infection
Safe equipment disposal, decontamination & hand cleaning

ANTT[®]

Mirroring the posters targeted at healthcare workers, simpler ANTT-Approach posters are displayed that encourage the active involvement of **patients**.....

Protecting YOU every time with...
4 Actions for Safe Aseptic Technique

The ANTT-Approach

Aseptic Technique describes the measures we take to protect you from contamination by microorganisms during invasive clinical procedures such as surgery, insertion of medical devices and the administration of intravenous medications



1 Hand Cleaning
We clean our hands immediately prior to commencing your procedure, and use protective equipment like gloves



2 Using Aseptic Fields
We protect procedure equipment from microorganisms by using a procedure tray and individual equipment covers or, for more complex procedures, use a sterilized drape



3 Using Non-Touch Technique
We avoid touching the 'Key-Parts' of procedure equipment & any open wound or procedure skin site. If we must touch them we wear sterilized gloves.



4 Preventing Cross Infection
We remove our gloves and wash our hands immediately after we have tidied up your procedure

If you have any questions or concerns about aseptic technique please inform the Nurse in Charge

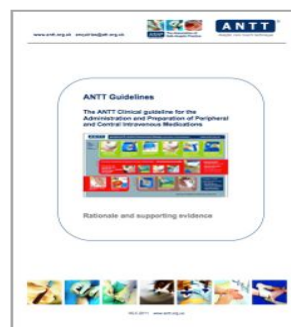
ANTT

2. Standardizing aseptic technique using ANTT Clinical Guidelines

ANTT principles and method are incorporated into a range of clinical guidelines for the most common clinical procedures. These help further standardize aseptic technique by 'prescribing out' variables and variability, standardising equipment and procedure sequence. This simple method of translating ANTT into standardized practice has proven to significantly help reduce HCAI (Rowley & Clare 2009, Pike et al 2009).



Each ANTT Clinical Guideline is sequenced to ensure optimal asepsis. Critical Steps are highlighted.



Each guideline is supported by a comprehensive rationale and evidence review.



The collections of Hospital and Community Care focussed ANTT Clinical Guidelines and associated audit tools are provided freely on request by the Association for Safe Aseptic Technique (The-ASAP).


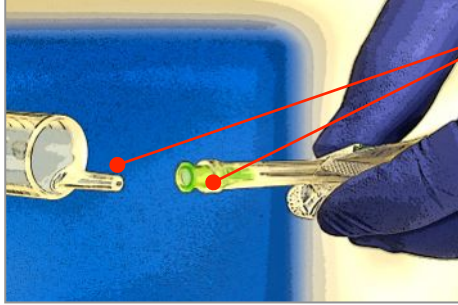

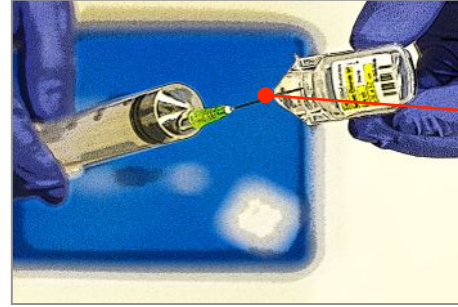
Hospital ANTT Clinical Guideline for Urinary Catheterization

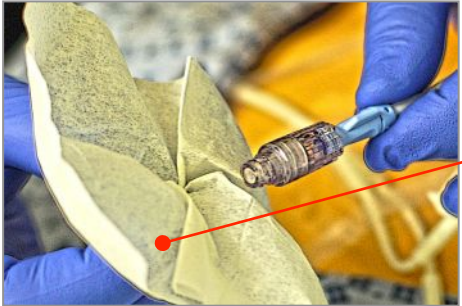
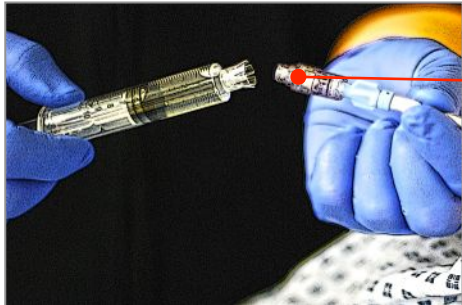
Community ANTT Clinical Guideline for Uncomplicated Wound Care

ANTT Intravenous Therapy guideline: Rationale

ANTT Guidelines (or ‘Practice Prompts’) are simply designed for easy viewing in clinical areas. The ‘hidden’, but important rationale for the sequencing and actions in a typical ANTT guideline are outlined below.

1	Assess the procedure environment for any avoidable environmental risks.
2	Establish clear access to the patients IV port.
3	<p>With clean hands disinfect the tray to establish a General Aseptic Field.</p> <p>(IV maintenance is nearly always performed using Standard-ANTT)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Aseptic fields help protect procedure equipment from the immediate procedure environment.</p> </div> </div>
4	<p>Whilst the tray is drying gather all procedure equipment and place easy to hand.</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Ensuring all equipment is gathered at this stage will ensure the procedure is not later interrupted and asepsis is not compromised. (Sequencing procedure steps in a logical order reduces risk).</p> </div> </div>

5	Clean hands using alcohol hand rub or soap and water.
6	<p>Apply non-sterilized gloves.</p>  <p>Sterilized gloves are not required for this procedure because Key-Parts do not need to be touched.</p> <p>In the case of inadvertent touch of Key-Parts, non-sterilized gloves will be cleaner than skin.</p>
7	<p>Assemble all equipment taking care to identify and then protect all the Key-Parts using non-touch technique (NTT).</p>  <p>Non-touch technique is fundamental. i.e. if a Key-Part is not touched it is unlikely to become contaminated.</p>
8	<p>Protect all Key-Parts with dedicated caps and covers. (Micro Critical Aseptic Fields).</p>  <p>The General Aseptic Field here is not managed critically because Key-Parts are easily protected by NTT and caps and covers (Micro Critical Aseptic Fields).</p> <p>If Key-Parts are protected at all times they can't be contaminated by practitioners, contact with other equipment or the air environment.</p>
9	<p>Prepare medications using non-touch technique.</p>  <p>In IV therapy, Key-Parts are the critical parts of the equipment that come into contact with the liquid infusion.</p>
10	Proceed directly to the patient. If gloves are contaminated by the journey from prep room to patients' zone remove gloves, decontaminate hands and apply fresh gloves.

11	Scrub the tip of the IV port for 20 seconds, generating friction, using a 2%/70% Chlorhexidine /alcohol wipe. Use different parts of the wipe. Then clean away from the tip using NTT .	 <p data-bbox="1173 338 1337 434"><i>NB: The wipe is held on one side only i.e. non-touch technique.</i></p>
12	Allow port to dry. Administer medications using non-touch technique .	 <p data-bbox="1137 663 1302 734"><i>The port will not be aseptic until it is dry.</i></p>
13	Discard sharps and equipment safely.	
14	Clean the tray.	
15	Remove gloves	
16	Clean hands immediately.	

References


- APIC (2009)** APIC text of infection control and epidemiology 3rd edition. Volume 1 Essential Elements. ISBN 1-933013-44-3 APIC Publishing. Washington DC
- ACSQH (2010)** Australian Commission on Safety and Quality in Healthcare: Australian Guidelines for the Prevention and Control of Infection in Healthcare. Australian Government. ISBN Online 1864965223
- Aziz AM (2009)** Variations in aseptic technique and implications for infection control. *British Journal of Nursing* 18(1): 26–31
- CDC (2011)** Guidelines for the prevention of intravascular catheter – related infections.
- Calop J, Bosson JL, Croize J, Laurent L (2000)** Maintenance of peripheral and central intravenous infusion devices by 0.9% sodium chloride as a potential source of catheter microbial contamination. *Journal of Hospital Infection* (46) Issue 2, 161 -162 5.
- Cotterill et al Cotterill S, Evans R, Fraise AP (1996)** An unusual source for an outbreak of MRSA on an intensive care unit. *Journal of Hospital Infection* 32(3): 207-216
- DH (2003)** Winning Ways. Working together to reduce Healthcare Associated Infection in England. Report from the Chief Medical Officer. The Department of Health.
- ICNA (2002)** Hand decontamination guidelines. Infection Control Nurses Association. ISBN 0-954196203.
- ICNA (2003)** Asepsis: Preventing HAI. Infection Control Nurses Association. ISBN -0-9541962-093.
- Gilmour D (2000)** Is the aseptic technique always necessary? *Journal of Community Nursing*. 14(4): 32-35
- Kaler, W, Chinn, R. (2007)** Successful disinfection of needleless access ports: A matter of time and friction. *JAVA* 2007:12(3); 140-142.
- Loftus, R et al (2008)** Transmission of pathogenic bacterial organisms in the anaesthesia work area. *The American Society of Anesthesiologists*. 109: 399-407.
- Loftus R, Muffly MK, Brown JR, Beach ML, Koff MD, Corwin HL, Surgenor SD, Kirkland KB, Yeager MP (2011)** Hand contamination of anesthesia providers is an important risk factor for intra-operative bacterial transmission. *Anesthesia & Analgesia* 112(1): 98-105
- Loftus RW, Brown JR, Koff MD, Sundara R, Heard SO, Patel HM, Fernandez PG, Beach ML, Corwin HL, Jensen JT, Kispert D, Huysman B, Dodds TM, Ruoff KL, Yeager MP (2012).** *Multiple reservoirs contribute to intraoperative bacterial transmission. Anesthesia and Analgesia* 114:1236–48
- Merriam-Webster (2010)** *Merriam-Webster Online Dictionary: Aseptic*. Available at: <http://www.merriam-webster.com/dictionary/Aseptic> (accessed 3 March 2010) Nightingale F (1898).
- NICE (2012)** Infection: prevention and control of healthcare-associated infections in primary and community care. National Clinical Guideline Centre Available: <http://guidance.nice.org.uk/CG139/Guidance/pdf/English> Accessed: 26/03/12
- NAO (2004)** Improving patient care by reducing the risk of hospital acquired infection: a progress report. National Audit Office 2004. http://www.nao.org.uk/publications/0304/improving_patient_care.aspx
- Pike D, Dodgson A, Cawthorne J, Ladds. et al (2009)** Reduction of HCAI by the Adoption of Aseptic Non-Touch Technique (ANTT) Central Manchester University Hospitals NHS Foundation Trust. Poster. <http://www.cmft.nhs.uk>
- Pratt et al (2007).** Epic2: National evidence based guidelines for Preventing Healthcare-Associated Infections in NHS hospitals in England. *Journal of Hospital Infection* 65S, S1-S64.
- Pratt R (2010)** 3rd ANTT National Conference. London. November 12th 2010. Presentation available from www.antt.org.uk
- RCN (2010)** Standards for Infusion Therapy. 3rd Edition. Available: http://www.rcn.org.uk/_data/assets/pdf_file/0005/78593/002179.pdf Accesses: 15/06/12
- Roberts K, Smith C, Snelling A ,Kerr K, Banfield K, Sleight A, Beggs C (2008).** Aerial dissemination of clostridium difficile spores. *BMC Infectious Diseases* 8(7). Available: www.biomedcentral.com/1471-2334/8/7
- Rowley, S (2001)** Aseptic Non Touch Technique Nursing Times. Infection Control Supplement Feb 15 97(7) p V1-V111
- Rowley & Clare (2009)** Improving standards of aseptic practice through an ANTT trust-wide implementation process: a matter of prioritisation and care. *Journal of Infection Prevention* 10(1): Supplement.
- Rowley S, Clare S, Macqueen S, Molyneux, R (2010)** ANTT v2: An updated practice framework for aseptic technique. *British Journal of Nursing* 2010: 19(5); S5-S11.
- Sax H et al. (2007)** *Journal of Hospital Infection* 67(1): 9–21
- Weller BF (ed) (1997)** *Encyclopedic dictionary of nursing and healthcare*. Bailliere Tindall, London Wooten M, Hawkins K
- Worthington T, Tebbs S, Moss H, Bevan V, Kilburn J, Elliot TSJ.** Are contaminated flush solutions an overlooked source for catheter related sepsis? *J Hosp Infect.* 2001 (49) Issue 1
- WHO (2009)** Guidelines on hand hygiene in healthcare. World Health Organization. ISBN 978 92 4 159790 6

Appendices

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










Hand Hygiene Technique with Soap and Water

⌚ Duration of the entire procedure: 40-60 seconds

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

Hand Hygiene Technique with Alcohol-Based Formulation

⌚ Duration of the entire procedure: 20-30 seconds

<p>1a</p>  <p>Apply a palmful of the product in a cupped hand, covering all surfaces;</p>	<p>1b</p>  <p>Rub hands palm to palm;</p>	<p>2</p>  <p>Rub hands palm to palm;</p>
<p>3</p>  <p>Right palm over left dorsum with interlaced fingers and vice versa;</p>	<p>4</p>  <p>Palm to palm with fingers interlaced;</p>	<p>5</p>  <p>Backs of fingers to opposing palms with fingers interlocked;</p>
<p>6</p>  <p>Rotational rubbing of left thumb clasped in right palm and vice versa;</p>	<p>7</p>  <p>Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;</p>	<p>8</p>  <p>Once dry, your hands are safe.</p>

Appendix 3. The 5-Moments for Hand Hygiene. World Health Organization (2009).

ANTT is intended to complement the ‘5-Moments for Hand Hygiene’ by providing comprehensive instruction for aseptic technique during invasive clinical procedures (Step 2). The ‘5-Moments for Hand Hygiene’ complements ANTT by supporting the reduction of microorganism transference in the clinical environment during everyday healthcare activity, hence leading to less chance of patient contamination during invasive clinical procedures.

Your 5 moments for HAND HYGIENE



1 BEFORE TOUCHING A PATIENT	WHEN? Clean your hands before touching a patient when approaching him or her WHY? To protect the patient against harmful germs carried on your hands
2 BEFORE CLEAN/ASEPTIC PROCEDURE	WHEN? Clean your hands immediately before performing a clean/aseptic procedure WHY? To protect the patient against harmful germs, including the patient's own germs, entering his or her body
3 AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal) WHY? To protect yourself and the health-care environment from harmful patient germs
4 AFTER TOUCHING A PATIENT	WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving WHY? To protect yourself and the health-care environment from harmful patient germs
5 AFTER TOUCHING PATIENT SURROUNDINGS	WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient WHY? To protect yourself and the health-care environment from harmful patient germs



www.antt.org

*First,
do no
harm*

