



ASSOCIATION FOR VASCULAR ACCESS

# GUIDANCE DOCUMENT

*Standardizing the Critical  
Clinical Competency of  
Aseptic, Sterile, and  
Clean Techniques with  
a Single International  
Standard: Aseptic Non  
Touch Technique (ANTT®)*

*Protect the Patient • Educate the Clinician • Save the Line*

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September 2019



## Guidance Document

### Standardizing the Critical Clinical Competency of Aseptic, Sterile, and Clean Techniques with a Single International Standard: Aseptic Non Touch Technique (ANTT®)

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#### Background:

##### The Critical Importance of Aseptic Technique

Preventable healthcare-associated infection (HAI) remains a significant problem, with the Centers for Disease Control and Prevention (CDC) estimating 1.7 million infections in US hospitals and 99,000 associated deaths per annum<sup>1</sup>. Vascular access devices (VADs) especially, provide a direct invasive route for microorganisms to infect patients during their insertion and ongoing maintenance, and consequently provide a relatively high risk of preventable morbidity and mortality. CDC estimates the cost of central line associated bloodstream infections (CLABSI) were close to \$3 billion per annum in 2007<sup>2</sup>.

Consequently, for all invasive clinical procedures and ongoing maintenance of indwelling medical devices, patients are dependent upon healthcare workers (HCWs) and healthcare organizations to protect them from infection. This is only ensured when a collection of infection prevention methods and actions, generically referred to as aseptic or sterile techniques, are applied effectively. Effective aseptic technique is particularly important for patient safety during the insertion and maintenance of IVAD's due to their particularly invasive nature and frequent use. The challenge for healthcare organizations worldwide is to ensure effective aseptic technique for every invasive clinical procedure on every occasion.

##### Universal Problems with Aseptic Technique

Despite its importance, the literature and education for aseptic technique is historically ambiguous with conflicting approaches utilizing confused and interchangeable terminologies 8-10. Consequently, there is a dearth of research, highly variable and often poor standards of care, all contributing to preventable HAI<sup>11-14</sup>.

The historical picture becomes even more concerning in light of an international review by The-Association for Safe Aseptic Practice (2019), that identified international stakeholder guidance near universally, "prescribed" aseptic technique with virtually no description of what aseptic technique is, or how it needs to be applied to ensure patient safety<sup>17,25,26</sup>. The problem of "*prescription without description*" for aseptic technique has similarly been reflected in equipment focused standardized bundles of care. As a result, benefits seen in this approach for specific procedures such as Central Venous Access Device (CVAD) insertion<sup>3,31</sup> have not had wider influence on other aseptic procedures that remain problematic and of concern. For example, Mermel and DeVries have highlighted particular concern with standards of care



afforded to peripheral intravenous venous catheter (PIVC) insertion and their ongoing maintenance<sup>5-6</sup>. Reflecting this concern and need for improvement, the ECRI Institute identified infections from PIVCs in the 'Top 10 Patient Safety Issues for 2019'<sup>4</sup>.

### **What is Aseptic Non Touch Technique (ANTT®)?**

The ANTT® Clinical Practice Framework outlined here was originated by Rowley<sup>15,16</sup> as a contemporary Clinical Practice Framework for aseptic technique and has been shown to support reductions in Healthcare Associated Infections (HCAI)<sup>20-23</sup>. The National Institute for Health and Care Excellence (NICE) defined ANTT®'s original concept of "Key-Part and Key-Site Protection", as being, "*A specific type of aseptic technique with a unique theory and practice framework*". Notably, ANTT® is designed to be used in all settings for all clinically invasive procedures, from complex surgery to simple maintenance procedures. It is now used extensively in all care settings, in over 30 countries and is increasingly being mandated by governments within national standards<sup>18,19</sup>.

### **Why Use ANTT®?**

Using the ANTT® Clinical Practice Framework affords healthcare organizations a number of advantages that support improved patient safety:

- ANTT® as a single standard, supports improvement in aseptic practice by reducing practice variability across healthcare organizations.
- ANTT® provides an accurate, defined, achievable, and meaningful Practice Framework that has now been used in thousands of care organizations in different countries to provide effective education, training, and competency assessment in aseptic technique.
- ANTT® provides an initial implementation process and ongoing clinical governance structure that is prerequisite to improving and maintaining standards of safe aseptic technique across any care provider organization.
- ANTT® Procedure Guidelines are widely used by healthcare organizations to make practice expectations explicit for the most common clinical procedures acting as practice prompts and a basis for monitoring of practice standards.
- ANTT® Procedure Guidelines also provide organizations a very simple but effective method to translate best and latest evidence into practice.
- As an international standard, ANTT® provides organizations a universally common practice language, leading to educational efficiencies and more meaningful and generalizable research.



## How is ANTT® Developed and Disseminated?

ANTT® is overseen and disseminated by The Association for Safe Aseptic Practice (The-ASAP), a global non-profit Non-Governmental Organization (NGO). The Association works with individual HCWs, healthcare organizations, specialist organizations such as AVA, industry, and governments to support and facilitate the dissemination of a single global standard for aseptic technique with ANTT®.

## How Does ANTT® Help Reduce Healthcare Associated Infection?

ANTT® 's continued development as the single global standard for this critical clinical competency provides advantages for more meaningful and transferable education, practice, and research. ANTT® implementation is based upon the premise that reducing the variables in aseptic practice across large clinical workforces, by standardising aseptic technique, logically supports improvements in patient safety and subsequently infection rates<sup>15,16,20,24,30</sup>.

The definitions below provide some important context for understanding the basis, aim, and practice of ANTT®.

<b>Sterile</b>	<b>“Absence from ALL micro-organisms”.</b> This state, or technique, is simply not achievable due to the ever presence of microorganisms in the air and atmosphere
<b>Asepsis/ Aseptic</b>	<b>“Absence from pathogenic organisms in sufficient quantity to cause infection”.</b> This state, or technique, is achievable, effective in minimising infection risk, and is therefore the aim of ANTT®
<b>Clean</b>	<b>“Free from visible marks and stains”.</b> Microorganisms are invisible so a visual guide is inappropriate for invasive clinical procedures and maintenance of indwelling medical devices
<b>Aseptic technique</b>	<b>A generic term</b> used to describe a collection of infection prevention actions aimed at protecting the patient from microorganism contamination during invasive clinical procedures



The definitions below are important for the understanding and practice of ANTT®

<b>ANTT® Aseptic Non Touch Technique</b>	<b>A unique Clinical Practice Framework</b> for aseptic technique based on a unique concept of Key-Part and Key-Site Protection, designed for all clinically invasive procedures and maintenance of indwelling medical devices.
	<b>Key-Part:</b> Parts of the procedure equipment that if contaminated are likely to contaminate the patient e.g. syringe tip, IV port, injection needle.
	<b>Key-Site:</b> Any portal of entry into the patient e.g. open wound, cannula site, injection site.
	<b>Critical Aseptic Field:</b> A sterilized drape. Used to “ensure” asepsis, all procedure equipment is placed upon the drape and procedure Key-Parts are subsequently managed collectively.  <b>Micro Critical Aseptic Field:</b> Sterilized caps, covers, and the inside of recently opened sterilized packaging. Used to “ensure” asepsis by protecting Key-Parts individually.  <b>General Aseptic Field:</b> A decontaminated and disinfected procedure tray, working surface or pulp tray. Used to “promote” asepsis by providing a simple protected working space. <b>Note:</b> Key-Parts are primarily protected by Micro Critical Aseptic Fields.

**When Should ANTT® Be Used?**

ANTT® needs to be efficient as well as safe. Therefore, although the principles are the same, there are two types of process for ANTT® - as below. Selection of Surgical-ANTT® or Standard-ANTT® is based upon ANTT® risk assessment, according to the technical difficulty of ensuring Key-Part and Key-Site Asepsis, not extraneous criteria such as the diagnosis or the age of the patient.

**Surgical-ANTT®:** Used for clinically invasive procedures where achieving asepsis is technically difficult and/or procedures are long in duration, e.g. surgery, central line insertion, urinary catheterization. Surgical-ANTT® typically involves a combination of standard precautions, full barrier precautions and Critical Aseptic Field management (use of a sterilized drape).

**Standard-ANTT®:** Used for clinically invasive procedures where achieving asepsis is technically straightforward and short in duration, e.g. peripheral cannulation or intravenous maintenance. Standard-ANTT® typically involves a combination of standard

precautions, a General Aseptic Field, and Key-Parts protected by Micro Critical Aseptic Fields and Non-Touch Technique.

Both Surgical-ANTT® and Standard-ANTT® are utilized for different intravenous therapy procedures.

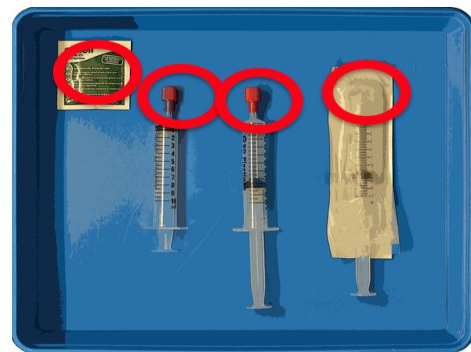
**Practice Scenario for Surgical-ANTT®:**

***Insertion of a Peripherally Inserted Central Catheter (PICC)***

ANTT® Risk assessment involves the practitioner assessing the difficulty of maintaining asepsis of all Key-Parts. The practitioner determines that there are multiple Key Karts requiring protection and significant manipulation, the procedure area is large and/or the Key-Site (the insertion site) is particularly invasive. To maintain asepsis, Surgical-ANTT® is required. (Fig 1).



**Fig 1. Surgical-ANTT® for PICC insertion  
 Medication administration**



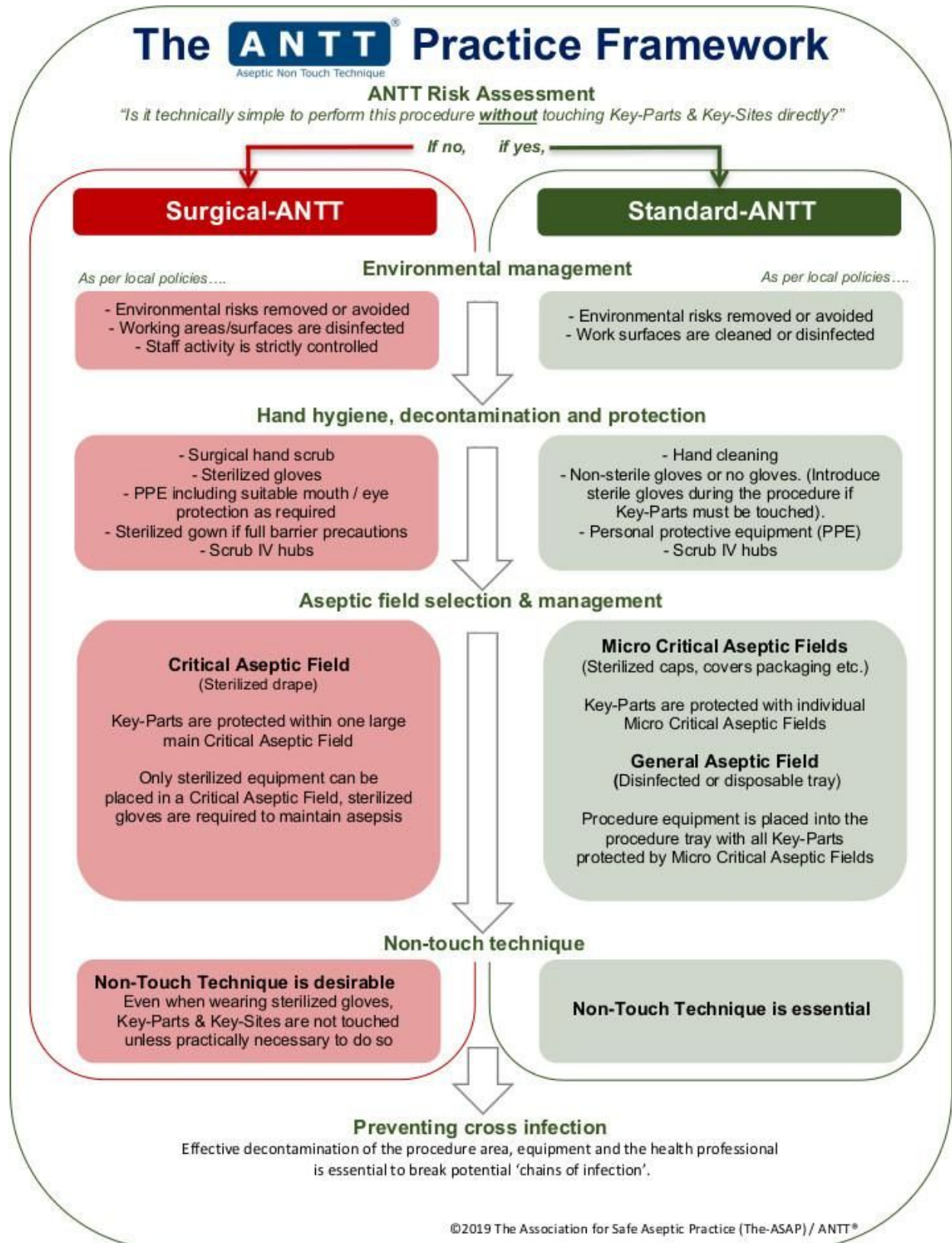
**Fig 2. Standard-ANTT® for IV**

**Practice Scenario for Standard-ANTT®:**

***Administration of intravenous medications via a central line or peripheral line***

ANTT® risk assessment involves the practitioner assessing the difficulty of maintaining asepsis of all Key-Parts. The practitioner determines that there are few Key-Parts which are easily manipulated individually using non touch technique. The procedure area is small, the Key-Site (the catheter exit site), while invasive, is protected by a sterilized dressing/fixation device. The Key-Part (the iV access port) is protected in part by a closed-circuit intravenous device. Therefore, to maintain asepsis, the more efficient Standard-ANTT® is appropriate. (Fig 2).

A summary of the ANTT® Clinical Practice Framework is given below (Fig 3)





## **The Association for Vascular Access (AVA) Recommendations:**

### **Specific and Actionable**

The advantages for patients in having a single international standard for the critical clinical competency of aseptic technique are as clear as they are profound. In collaboration with The Association for Safe Aseptic Practice (ASAP), the Association for Vascular Access supports the important international patient safety initiative of having a single standard for aseptic technique, ANTT®.

### **Practice Recommendations**

Given the variability of facilities, personnel, organizational capabilities, and practices, AVA recommends the following:

#### **Standardized Practice**

1. Standardized practice promotes safer practice. To reduce practice variability and improve patient safety, aseptic technique should be standardized with the international standard, ANTT®.

#### **Individual Health Care Workers**

2. HCWs should apply the ANTT®-Approach for each and every invasive clinical procedure, including the maintenance of indwelling medical devices.
3. The selection of Standard-ANTT® or Surgical-ANTT® for different procedures and situations is achieved by using the defined ANTT® Risk Assessment.
4. HCWs should take appropriate opportunities to support patients in the teaching of ANTT® for self-care situations.

#### **Health Care Organizations**

5. Healthcare organizations should standardize all aseptic technique policies and practices with the single international standard ANTT® Clinical Practice Framework.
6. ANTT® should be utilized for all invasive clinical procedures and all maintenance and manipulation(s) of invasive medical devices.
7. ANTT® implementation and maintenance should adopt a multi-modal approach to establishing standardized ANTT® practice and maintaining effective standards for patients.
8. ANTT® should be implemented with Executive Board-level backing and maintained as a part of an ongoing audit cycle with periodic evaluation and appropriate intervention to maintain effective levels of aseptic practice.





9. Standardized clinical education and practice for ANTT® should be supported and reinforced with ANTT® Clinical Procedure Guidelines for the most relevant and common clinical procedures and displayed in relevant clinical areas.
10. ANTT® should be a mandatory clinical competency for all clinically active healthcare workers.
11. ANTT® competency should be reassessed periodically with frequency based upon audit findings with a minimum of 3-yearly competency-based clinical practice updates.

### **Education and Competency Assessment**

12. HCWs should be taught the principles and process of the ANTT® Clinical Practice Framework and the ANTT®-Approach.
13. Education should accurately utilize the ANTT® practice terminology, definitions, and descriptors.
14. HCWs should be assessed for ANTT® Clinical Competency using the standard Competency Assessment Tools (CAT) (Provided freely by The-ASAP).

### **Research**

15. In order to maximize international understanding and generalizability of findings, research enquiry for aseptic practices should utilize the ANTT® Clinical Practice Framework for methodology and publication.

### **Patient and Public involvement**

16. Healthcare organizations should provide relevant patients with simple and appropriate education of ANTT® for self-care activities.
17. Patients should be made aware of basic practice expectancies for ANTT® in order to maximize patient involvement.

### **Summary**

- Aseptic technique is a core clinical competency that is fundamental to patient safety.
- The definitions and descriptive language of aseptic technique is often confused, ambiguous, or incorrectly and variously attributed to a variety of generic terms.
- There has been no standardized approach to education and teaching which has led to variable and sub-optimal standards of clinical practice.
- Standardizing aseptic technique with the ANTT® Clinical Practice Framework enables healthcare organizations to support improvements in practice and reductions in HAI.

### **Conclusion**

Given the ongoing concerns regarding the maintenance of VADs and increasing concerns regarding the insertion and maintenance of short peripheral cannulas, AVA recommends that health care organizations consider utilization of the international standard of ANTT®.



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**About the authors:** The authors are health care professionals and board members of The Association for Safe Aseptic Practice (ASAP) a nonprofit Non-Governmental Organization with international remit.

Stephen Rowley RN RSCN BSc (Hons) MSc is the originator of the Aseptic Non Touch Technique (ANTT) Clinical Practice Framework and serves as the Clinical Director. He leads The-Association for Safe Aseptic Practice, a non profit NGO with a global remit, disseminating and supporting ANTT developments worldwide in all care settings. Working closely with all types of Healthcare organizations and governments internationally, he has helped realize improvements in aseptic practice and championed reduction of healthcare associated infection. His peer reviewed publications are widely read and cited. As a leading opinion leader and expert on aseptic technique, he lectures internationally.

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The Association for Vascular Access (AVA) was founded in 1985 to promote the emerging vascular access specialty. Today, AVA stands at the forefront of protecting and saving lives via establishing best practices and promoting patient advocacy. AVA's multidisciplinary membership advances research, provides professional and public education to shape practice and enhance patient outcomes, and partners with the device manufacturing community to bring about evidence-based innovations in vascular access. To learn more or join, visit [www.joinAVAnow.com](http://www.joinAVAnow.com).

**Adopted by:** AVA Board of Directors  
September, 2019

**Approved by:** The Association for Safe Aseptic Practice – Clinical Board