ANTT v2: An updated practice framework for aseptic technique

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Abstract

Aseptic Non Touch Technique (ANTT) version 2 is an updated theoretical and practice framework expanding on the foundations set by ANTT v1, which was first published almost a decade ago, and has been adopted widely. ANTT v2 rationalizes an alternative and contemporary approach to aseptic practice, rather than the historically hierarchal paradigm of sterile, aseptic and clean techniques. To reflect current practice and reduce unnecessary complication, v2 introduces the theory and consolidates the practice of using micro aseptic fields to protect key-parts. It is advocated that micro aseptic fields are optimal and should be used whenever practically possible. Version 2 is intended as a principle approach to all aseptic practice no matter how simple or complicated clinical procedures may be. In other words, the principles of ANTT are as applicable to the surgeon as they are to the nurse or phlebotomist.

Key words: ■ Critical aseptic field ■ Critical micro aseptic field ■ General aseptic field ■ key parts ■ key sites

Aseptic technique is an essential procedure aimed at protecting patients from infection during invasive procedures, and is achieved by minimizing the presence of pathogenic micro-organisms as is practically possible. Aseptic Non Touch Technique (ANTT) is a specific type of aseptic technique with a unique theory and practice framework.

Since 1993, the ANTT project (www.antt.co.uk) has helped implement ANTT through clinical guidelines and a standard implementation process, into more than a third of acute NHS Trusts in England and internationally. ANTT has thus become the first standardized method of aseptic technique existing between multiple hospitals. Hospitals that have implemented ANTT robustly have reported improvements in practice that have helped reduce rates of healthcare associated infection (HCAI) (Rowley and Clare, 2009). The collaborative nature of this initiative, including multi-centre audit has afforded a unique insight into aseptic practice across the NHS. Lessons learnt, inform ANTT guideline and implementation development. ANTT is a quality assured aseptic technique providing peer-reviewed standard clinical guidelines, which are implemented, monitored and evaluated by a standard implementation process.

It's over a century since Pasteur, Lister and Nightingale laid the foundations for infection control; and as such the public might assume that aseptic technique was long since established, with standard terminology and practice. However, to the detriment of countless patients this is still not the case. In 2003, the Department of Health (DH) suggested a direct relationship between standards of aseptic technique and HCAI (DH, 2003). Department of Health directives have since required hospitals to implement standard aseptic policy and practice and this appears to have helped reduce HCAI (DH, 2009).

Among other essentials, such as an implementation and monitoring programme actively supported by the executive board, achieving a standard aseptic technique in any organization is dependent upon staff being well educated and trained (Rowley and Clare, 2009). Although improved since the publication of Epic2 (Pratt et al, 2007), Department of Health guidance and the wide uptake of ANTT v1, a review of the literature is still likely to confuse rather than support such education and training. It is beyond the scope of this paper to provide an exhaustive literature review of aseptic technique; however, a basic summary is given as it places in context the problems in practice today and the rationale for ANTT v2.

Compared to the debate and variation surrounding aseptic technique in nursing (Aziz, 2009), the literature has shown an absence of surgeons concerned with aseptic technique *per se*. As Ayliffe (2000) puts it, standard aseptic precautions in theatre are accepted by surgeons. Out of the theatre setting, procedure characteristics are more variable in both invasive nature and complexity. In the absence of research, and considering the effect of nursing ritual, (Aziz, 2009) it is not surprising that variability in procedures has been mirrored by variability in technique.

An unhelpful paradigm

The development of ward and community based aseptic practice initially focussed on wound care. As nurses took over the responsibility of intravenous (IV) therapy, and the significant risks of IV access were identified, (Maki, 1973) aseptic practices in wound care began to be applied to IV therapy and other procedures.

Much of the examination of aseptic technique occurred in the 1970s and 1980s, and Bree-Williams and Waterman (1996) provide a useful review.

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Table 1: A confusion in terms

Transfer technique	Button (1984)
Glove technique	Broome (1973)
Medical or clean asepsis	Ayliffe et al (2000).
Hampshire dressing technique	Broome (1973)
Surgical asepsis	Weller (1997)
Sterile technique	Meers et al (1992)
Non-sterile technique	Hollinworth and Kingston (1998)
Alternative technique	Kelso (1989)
Surgical asepsis	Pierce (1997)
Clean technique	Preston (2005)
ANTT	Rowley (1993)
Clean non-touch technique	Hart (2007)
Surgical aseptic technique	Pratt (1997)
No touch technique	Department of Health (2001)
Strict aseptic technique	Department of Health (2003)

A gloved or transfer technique reflected the mindset of the time on remaining 'sterile' outside operating theatre environments. Later, as the folly and inefficiencies of pursuing a sterile technique out of the theatre setting were recognized, there followed a move towards so called 'clean' or 'no touch techniques' during the 1990s (Gilmour, 2000; Larwood et al, 2000; Aziz, 2009). Over many years, a paradigm was inadvertently created based on a hierarchy of techniques categorized and termed as being sterile, aseptic or clean. The paradigm has been further complicated by a number of subtle variations of these terms as illustrated in *Table 1*.

Table 1 illustrates how the catalogue of terms for technique used in both the literature (Taken from British Nursing Index [BNI], Medline, CINAHL, British Nursing Index Archive) and in practice is as confusing as it is conflicting. Further ambiguity is added by a lack of standard definition of these terms, and the manner in which they are still used differently by different authors.

Despite the lack of a research base, it seems that this paradigm has been rooted deeply into practice culture; probably by nursing ritual (Aziz, 2009). As a result, the literature and ANTT audits strongly suggest that authors and healthcare professionals have struggled to make sense of this paradigm. It confusingly implies three quality standards or aims for technique: sterile, aseptic, and clean. Compounding things further is the fact that a 'sterile' technique is unachievable and all the standards have been interpreted differently over time. An example of the paradigm is given by Xavier (1999) who describes the use of aseptic technique for wound dressing changes as generally accepted, and a clean technique as sometimes suitable, before declaring a general consensus for the use of 'sterile' techniques for open wound dressings. Such examples of the paradigm in the literature perhaps go some way in explaining the theory-practice gap often reported in this field (Schraag, 2006).

ANTT Theory

The term and framework for ANTT was rationalized from existing terms, and intended to provide users with a term that was accurate, descriptive and achievable (Rowley, 1993). It should be noted that ANTT is intended as an umbrella term, and framework that can be applied to all aseptic procedures. It is not intended to be 'fitted into' or to perpetuate the traditional hierarchical paradigm. For example, referencing ANTT v1 from Epic2, Hart (2007) states ANTT is (only) for simpler, less invasive procedures. This has never been the case. The ANTT framework is best understood in consideration of the following terms applied to practice. This statement is best understood in consideration of the following terms.

Sterile

The term sterile is generally defined as meaning 'Free from micro-organisms' (Weller, 1997). Because of the constant presence of airborne micro-organisms, sterility is not possible to achieve in typical healthcare environments. Therefore, the term 'sterile technique' or 'sterile field' is discouraged. Sterile is the quality standard for sterilized equipment. But sterilized equipment can only be considered sterile inside unopened packaging. Once open, it is instantly exposed to airborne organisms and is considered aseptic.

Despite the fact that the quality standard of sterile is not achievable, authors have been directing healthcare professionals to achieve it for decades, by mixing up the achievable quality standard of 'sterilized' equipment, with the unachievable quality standard of 'sterile technique'. For example, 'The general consensus is that a sterile technique should be used to dress open wounds' (Xavier, 1999: p51). 'Sterile technique involves meticulous hand-washing, use of a sterile field, use of sterile gloves for application of a sterile dressing, and use of sterile instruments' (Wooten and Hawkins, 2005: p1). This may seem no more than semantics, but inaccurate terminology hasn't helped to clarify or standardize practice.

Aseptic or asepsis

The term asepsis or aseptic means, 'Free from pathogenic micro-organisms' (Merriam-Webster, 2010). This quality standard can be achieved through standard infection control precautions. As a result, ANTT is based on the premise that asepsis is the common aim of all clinical procedures that entail an infection risk. In other words, whether the procedure is invasive or complex (e.g. central venous catheter (CVC) insertion or surgery) or superficial or simple (e.g. types of IV and wound care), the aim is always to prevent introducing pathogenic micro-organisms into or onto the patient.

Clean

The term 'clean' means free from dirt, marks or stains (Mcleod, 1991). Although the cleaning and drying of medical equipment and surfaces can be very effective, it doesn't necessarily meet the quality standard of asepsis (Ayliffe, 2000). However, the action of cleaning is nonetheless an important component in helping render equipment and skin aseptic, especially when there are high levels of contamination which require removal or reduction. To be confident of achieving asepsis, an application of a skin or hard surface disinfectant is required either during cleaning or afterwards.

Figure 1. Field 1: IV administration

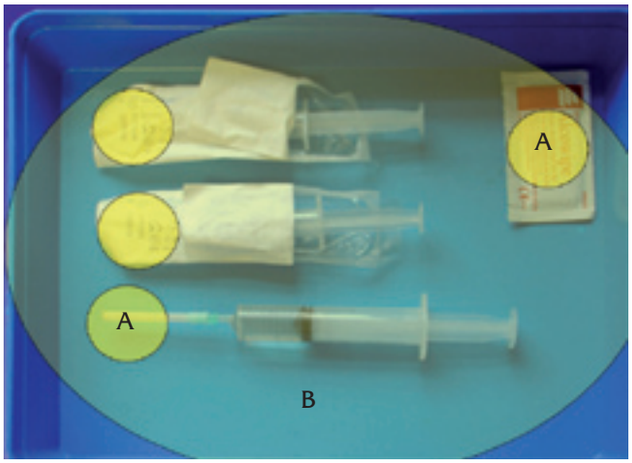


Figure 2. Field 2: IV administration

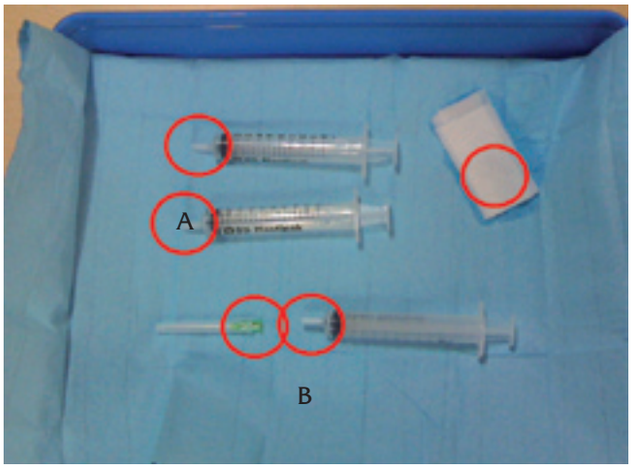
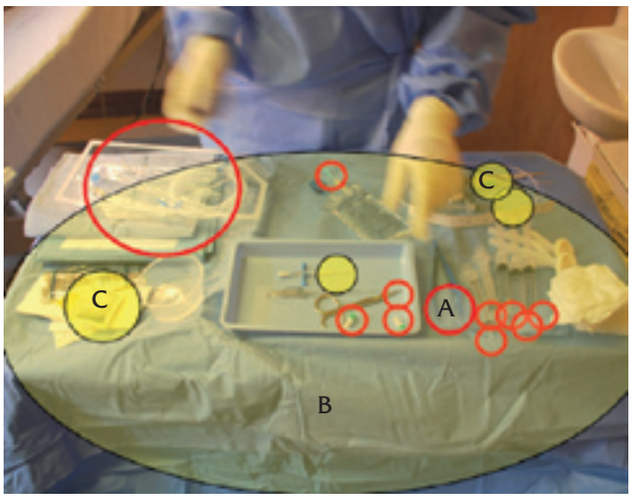


Figure 3. Field 3: PICC insertion



In a review of aseptic technique, Aziz (2009) referenced a number of authors who found no difference in the levels of morbidity between clean and aseptic techniques, and questioned whether aseptic techniques were always necessary.

Figure 1. Field 1: IV administration
All key-parts optimally protected by critical micro aseptic fields (A) within a main general aseptic field (B). Could the key-parts be any better protected?

Figure 2. Field 2: IV administration
Key-parts exposed (A) on a main critical aseptic field. Has the introduction of a critical aseptic field (B), rather than critical micro aseptic fields, reduced or increased the risk in this procedure from Field 1?

Figure 3. Field 3: PICC insertion
A combination of protected and unprotected key-parts (A) within a main critical aseptic field (B). NB: Threats from the physical/air environment; The bin, sink, cramped conditions and standard patient bed area. Would protecting all the key-parts with critical micro aseptic fields (C) reduce risk further?

Further examination reveals that the authors were examining differences in procedure and equipment, rather than questioning fundamental differences in the quality standard of asepsis. This ambiguity is mirrored in actual practice, as many staff are unsure whether to apply clean or aseptic techniques (Preston, 2005). This has often been highlighted in ANTT audits and site work. One such example is the common belief that chronic wounds don't require aseptic technique as they are already colonized. One might wonder, then, whether this is why chronic wounds stay chronic. The value of aseptic technique in chronic wounds is of course to prevent introducing new pathogenic micro-organisms which could further delay healing.

Trying to distinguish between clean and aseptic technique can be confusing for other reasons. Gilmour (2000) describes a clean technique as an aseptic technique that uses non-sterile gloves and less hand washing. Preston (2005) describes it as having the same aims as aseptic technique but using non-sterile gloves. Educationally, this variable approach of defining technique by either equipment or hand washing frequency is problematic and limited. In practice, the approach fails because healthcare professionals naturally hold different levels of competency and expertise. Where one healthcare professional may be able to perform a procedure without touching key-parts or key-sites and would wear non-sterile gloves, another would not be able to do so, requiring the use of sterile gloves.

Asepsis is the aim

In ANTT v2, the traditional and confusing hierarchical paradigm of sterile, aseptic and clean technique is replaced with the minimum and singular quality standard of asepsis. To re-enforce this, the terms 'clean' and 'sterile' technique are not used in ANTT. Whereas the procedure equipment and technique may change based on risk assessment, the quality standard of asepsis will not. Subsequently, the principles and practice of ANTT are intended for all clinical procedures that involve a risk of infection to the patient; from the community to the ward to the operating theatre, as even laminar air flow operating theatres don't provide sterile air.

Elements of aseptic technique: 'Promoters' and 'ensurers'

ANTT guidelines involve equipment and procedures that, for the most part, can be said to be either 'promoting' or 'ensuring' asepsis. For example, hand cleaning and general aseptic fields promote asepsis but effective non-touch technique will ensure it. In theory, different components of aseptic technique may be perceived to hold different importance. However, in practice, aseptic promoters like hand cleaning have proven to be essential 'safety nets' and must also be performed routinely

Key-parts and key-sites

- Key-sites: wounds, including insertion sites.
- Key-parts: the aseptic parts of the procedure equipment that need to have direct contact with aseptic key-parts of the patient, key-sites, or any liquid infusion. If contaminated, key-parts provide a direct route for transmission of pathogens between the procedure and the patient.

There are many causes of infection in healthcare, but during aseptic technique there is ultimately one cause or decisive failure; the contamination of key-parts and key-sites. Contamination will occur via the healthcare professional as a vector of infection, or by risks present in the immediate physical and air environment including the patients' flora. ANTT combats this fundamental principle with the essential practice of identifying, cleaning effectively (if required), and optimally protecting the key-parts and key-sites at all times during a procedure. For example, in IV therapy, syringe tips should always be protected by dedicated caps, capped needles or the inside of syringe packets.

The effective cleaning of key-parts is critical. Despite guidance, cleaning of key-parts often carries a failure rate of up to 80% (Rowley and Clare, 2009). ANTT cleaning method is based on best evidence. For example, when cleaning an intravenous port, introduce the port tip into the centre of a large 70% alcohol /2% chlorhexidine impregnated wipe (Pratt et al, 2007). Scrub the tip hard generating friction for at least 15 seconds (manufactures guidance often states 30 seconds) (Kaler and Chinn, 2007). Use different parts of the wipe in order to clean away as well as kill any harmful organisms. The rest of the port and lumen is then cleaned working away from the tip.

Glove choice

In ANTT, if it is necessary to touch key-parts directly then sterile gloves should be used to minimize the risk of contamination. Otherwise, non-sterile gloves are usually the logical glove of choice. Non-sterile gloves need to be stored appropriately and not moved from dirty to clean rooms.

ANTT Risk assessment:

Key-parts and key-sites are protected by a very simple risk assessment. The healthcare professional assesses whether s/he can perform the procedure without touching key-parts and key-sites directly. The answer takes into account the technical difficulty of the procedure and the competence of the practitioner.

As well as the above technical assessment, the risks posed in the immediate environment must be assessed. The question for healthcare professionals is whether the risks of airborne contamination in aseptic procedures can be ruled out. It would seem not, as 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 healthcare professional must therefore ensure that there are no avoidable nearby environmental risk factors such as bed making or patients defecating in commodes.

Unlike the traditional paradigm, assessment of risk in ANTT does not take into account the patient's age or diagnosis. In practice, these criteria have led to unduly complicated or overly casual techniques, based on subjective assessments of what are largely unquantifiable risks. In ANTT, the strict aim of asepsis is the same for all patients.

ANTT guidelines strike a balance between individual risk assessment and the challenges of getting large workforces to comply with infection control procedures. To this end, ANTT guidelines prescribe a minimum standard for common aseptic procedures. Risk assessment may sometimes add infection precautions to a procedure, but subtraction or omission of elements of the guidelines will only compromise safety and is not permitted. Even with the increasing use of clinical guidelines, risk assessment remains important, as healthcare professionals will need to apply ANTT principles and risk assessment to a range of procedures that do not have guidelines.

Aseptic fields

ANTT audits have often shown aseptic field equipment, selection and management to be suboptimal. Aseptic fields are sometimes observed to be omitted with equipment placed on uncleaned surfaces. Aseptic field equipment ranges from small cardboard trays no larger than a postcard, to larger plastic trays or procedure trolleys. Typically, aseptic fields are increased in size and sterilized drapes or towels added on the basis of procedure complexity (for example, peripherally inserted central catheter [PICC] insertion, or perceived risk such as the patient's diagnosis or age). When sterile towels or drapes are introduced it is generally considered acceptable for sterile equipment and key-parts to be unprotected and exposed.

Aseptic field management in ANTT is based on the relative risks of current practice and equipment choices and is rationalized as follows: Even well cleaned hospitals can be said to be 'dirty', busy and dynamic environments resident with unusual antibiotic resistant organisms. Therefore, aseptic fields are considered important because they help promote or ensure the integrity of asepsis during clinical procedures by providing a controlled aseptic working space. It is also important that aseptic fields are fit for purpose. For example, in IV therapy, mobile aseptic fields, such as trays, should provide an adequate aseptic working space with high sides to contain equipment, sharps and spillages.

ANTT v2 involves two grades of aseptic field that require different management depending on whether their primary purpose is to promote or ensure asepsis.

Critical aseptic fields; ensuring asepsis

Critical aseptic fields are used when key-parts, usually due to their size or number, cannot easily be protected at all times with covers and caps, or handled at all times by a non-touch technique (such as in PICC or urinary catheter insertion), or when particularly open, invasive or technical procedures demand large aseptic working areas. In such cases, the main critical aseptic field demands to be managed as a key-part (i.e. only equipment that has been sterilized and is aseptic can be introduced into the critical aseptic field, which consequently demands the use of sterile gloves). As a result, management of the critical aseptic field is relatively more complicated.

Critical micro aseptic fields; ensuring asepsis

A sub-type of critical aseptic field is the critical micro aseptic field. Traditional non-touch/clean techniques have protected key-parts by way of syringe caps, sheathed needles, covers or packaging. This traditional, often understated approach is given new emphasis in ANTT v2, as the inside of such caps and covers have been sterilized and thus provide optimum all encompassing critical micro aseptic fields for key-parts.

General aseptic fields; promoting asepsis

General aseptic fields are used when key-parts can easily and optimally be protected by critical micro aseptic fields (above) and a non-touch technique. As a result, the main general aseptic field does not have to be managed as a key-part and is essentially promoting rather than ensuring asepsis. (*Figure 1*). Subsequently, aseptic technique is considerably simplified and typically involves non-sterile gloves as sterile gloves would not provide added value (e.g most IV therapy and basic wound care).

Which aseptic field is safest?

If the transference of pathogenic organisms were visible to the naked eye, the need to cover key-parts at all times would become obvious. The literature and contemporary practice would suggest that so called 'sterile' fields (called critical aseptic fields in ANTT) are considered optimal or safest. However, in ANTT, micro critical aseptic fields are considered optimal aseptic fields as they offer key-parts maximum protection from the surrounding environment. Of course, some key-parts are too large to be managed in critical micro aseptic fields; procedures like PICC insertion, demand a large critical aseptic field and sterile gloves in order to ensure safe key-part handling. But a large critical aseptic field does not decrease the risks of the wider physical and air environment. It would therefore seem illogical to consider the introduction of critical aseptic fields to warrant leaving key-parts unprotected (*Figures 2* and *3*). Where possible, and especially in high activity and dynamic ward or day care environments it seems most sensible to combine the necessities of a large critical aseptic field with the benefits of micro aseptic fields. Whilst there is perhaps less potential for environmental key-part contamination in the operating theatre it may warrant testing.

Non-touch technique

Protecting the aseptic state of key-parts is critically important, but their management is straightforward. Simply, the optimal way of protecting key-parts is never to touch them. Hence, as an ensurer of asepsis, a non-touch-technique is critically important. A non-touch technique is advocated whether healthcare professionals are wearing gloves or not, and regardless of glove type as sterile gloves can still become contaminated.

Standard and surgical ANTT

According to risk assessment, equipment and technique will vary between procedures, especially between the ward and the operating theatre. It may therefore be useful for ANTT to be considered (NB: but not strictly defined) as being either 'standard' or 'surgical' ANTT. The pivotal difference between the two approaches lies within the management of the main aseptic field.

Surgical ANTT

This is demanded when procedures are technically complex, involve extended periods of time, large open key-sites or large or numerous key-parts (e.g. surgery in the operating theatre or CVC insertion on a ward). Subsequently, a main critical aseptic field and sterile gloves are demanded and usually full barrier precautions (Pratt et al, 2007). Surgical ANTT should

Table 2. Examples of standard and surgical ANTT

Procedure	Standard / Surgical ANTT	Rationale/Typical procedure
IV therapy	Standard ANTT	Key-parts can typically be protected by optimal critical-micro-fields and non-touch technique. Key-sites are small. Procedures are technically simple and <20 mins duration.
Simple wound	Standard ANTT	Key-parts and sites can be protected by dressings, optimal critical-micro-fields and non-touch technique. Procedures are technically simple and <20 mins duration.
Complex or large dressings	Surgical ANTT	The complexity, duration or number of wound key-parts may demand a critical aseptic field.
Urinary catheterisation	Standard/ Surgical ANTT	An experienced healthcare professional can perform UC with the use of micro-aseptic-fields and a non-touch technique. However, less experienced healthcare professionals may require a critical aseptic field.
Cannulation	Standard/ Surgical ANTT	Although technically quite simple the close proximity of healthcare professional hands to the puncture site and key-parts may demand sterile gloves – dependant upon HCO competency.
PICC/CVC insertion	Surgical ANTT	The size of the CVC or PICC line, invasiveness, numerous key-parts and equipment and duration will demand a critical aseptic field and full barrier precautions.
Surgery	Surgical ANTT	Surgical access involves deep or large exposed wounds, numerous key-parts and equipment and long procedures. Standard operating theatre precautions required.

still utilize critical micro fields and non-touch technique where practical to do so.

Standard ANTT

Procedures managed with standard ANTT will typically be technically simple, short in duration (in general, less than 20 minutes), and involve smaller key-sites and key-parts (e.g. IV therapy, or peripheral cannulation). Standard aseptic technique typically requires a main general aseptic field and non-sterile gloves. It relies heavily on a non-touch technique and the use of critical micro aseptic fields to protect key-parts.

It is important to note that this differentiation is intended to provide clarity and structure to aid understanding, but not polarize practice. Ultimately, technique and equipment levels are defined by ANTT guidelines and/or an individual healthcare professional's risk assessment. For example, taking into account the competency of different healthcare proffesionals, the very close proximity of hands to key-parts and the insertion site, procedures like cannulation will sometimes fall between 'surgical' and 'standard' ANTT, and might demand sterile gloves. But their introduction would not warrant a surgical hand scrub wash, or necessarily require a critical aseptic field to meet ANTT principles.

Hand cleaning

Hand decontamination remains an essential component of ANTT v2. In Standard ANTT, hand decontamination is considered to be a promoter of asepsis and should reflect a six step technique as outlined by the ICNA (2002). In Surgical ANTT, because of the need to handle key-parts and key-sites, hand decontamination is considered more of an ensurer of asepsis and demands surgical hand scrub (ICNA, 2002). Although improved greatly by Department of Health directives, effectiveness and compliance of hand cleaning still remains a problematic issue. The reasons for this are well documented (WHO, 2009) and wide ranging, but probably not well understood. On the whole it would still seem that healthcare professionals often underestimate their role as vectors of infection. ANTT guidelines are designed accordingly.

Please note: Table 2 is not prescriptive or exhaustive. It is intended to demonstrate typical levels of aseptic technique for typical procedures. However, this does not take into account healthcare professional competency or individual situations.

Discussion

Patients expect hospital environments and healthcare professionals to protect them from infection during clinical procedures. However, considering the realities of processed, centralized health care, the hospital environment could, and perhaps should, be considered more of a threat than a protector, but still less of a threat than the healthcare professional. To this end, ANTT v2 is intended to help healthcare professionals apply aseptic theory to practice by providing clarity in purpose, delivered through evidence based procedure guidelines.

Some healthcare professionals may consider the application of ANTT in the operating theatre a leap of faith. Howver, critical micro aseptic fields aside, the theory and practice of ANTT is nothing new to the operating theatre, ward or community setting. What *is* novel, is a practice framework that recognizes this. By advocating a single quality standard for technique, ANTT v2 is intended to provide a simpler foundation for practice and teaching.

Intended to build on the progress achieved nationally by ANTT v1, v2 has a number of implications for practice. Identifying critical micro aseptic fields as an optimum aseptic field is intended to promote more effective and efficient aseptic practice and generate further enquiry. Until the relative risks of the air and physical environment are clear, it would seem prudent to provide optimal protection of key-parts in this way whenever practically possible to do so.

Conclusion

Standardizing aseptic care is important as it significantly reduces HCAI (Pratt et al, 2007). It is self evident that the traditional paradigm of sterile, aseptic and clean techniques has not proved helpful in standardizing practice or teaching technique. To this end, ANTT v2 provides a framework for practice that builds upon the progress of ANTT v1 in clarifying and standardizing aseptic technique.

ANTT v1 proposed a new paradigm for practice focused around the new terms and conceptual approach of key-part and key-site protection. This has been used by many hospitals and authors since to teach aseptic technique, for example, Workman and Bennett (2003). It appears that healthcare professionals have found this approach an effective way to unravel existing rituals and simplify practice. ANTT v2, as described here, reinforces this approach and introduces a structure of standard and surgical aseptic technique and the utilization of general or critical aseptic fields. In particular, it highlights and recommends the ideal aseptic environment for key parts afforded by critical micro aseptic fields.

Despite the wide adoption of ANTT in the UK, helping to create a standard approach for aseptic practice, it is worth noting that ANTT is not a generic term for aseptic technique. It is a specific framework for aseptic technique aimed at simplifying practice. In light of progress to date it seems appropriate to remind authors to take particular care when referencing the framework. Incorrect citation or explanation of ANTT can lead to confusion and misunderstanding for healthcare professionals. Hospitals that choose to adopt ANTT can take confidence in its quality assurance and the regard for standards and requirements set out by the National Patients Safety Association, Care Quality Commission and the Department of Health. BJN

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KEY POINTS

- ANTT is based upon the identification and protection of key-parts and key-sites at all times.
- Aseptic key-parts must only come into contact with other aseptic key-parts or key-sites.
- All procedures must be risk assessed.
- ANTT risk assessment is based on a defined assessment of the technical difficulty of the procedure, the competency of the HCP and the risk posed in the immediate physical and air environment.