Increasing use of the Aseptic Non Touch Technique model for safe aseptic practice is helping to significantly reduce healthcare-associated infections

ANTTT: a standard approach to aseptic technique

In this article...

▷ Definition of Aseptic Non Touch Technique (ANTT)
▷ Why this approach is important
▷ Principles of the ANTT framework for clinical practice

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Abstract

Aseptic technique is the most commonly performed infection prevention procedure in healthcare; it is also probably the most critical. This article looks at the Aseptic Non Touch Technique (ANTT) model for reducing healthcare-associated infections (HCAI). It outlines the principles of ANTT and the approach to practice, and discusses the challenges health professionals still face in reducing HCAIs.

Ten years ago, Nursing Times featured an article on a new practice framework for aseptic practice called Aseptic Non Touch Technique (ANTT) (Rowley, 2001). The piece stressed the importance of standardising aseptic technique and outlined the practice framework for ANTT (Rowley, 2001).

At the core of the ANTT theoretical framework for clinical practice (tinyurl.com/ANTT-framework) was the singular and clear infection prevention aim of asepsis for all invasive clinical procedures, no matter how simple or complex. The term “asepsis” is an accurate and achievable quality standard relating to the absence of pathogenic microorganisms (Hauswirth and Sherk, 2011). The framework’s focus was based on the simple fact that, by definition, sterile technique (requiring the complete absence of microorganisms) is impossible to achieve in typical healthcare settings due to the prevalence of microorganisms in the air. The term “clean” was discounted as being too ambiguous as a quality standard for invasive clinical procedures.

As a result of defining accurate and achievable terminology, the ANTT practice framework challenged the conventional hierarchical paradigm of so-called sterile, aseptic or clean techniques. The selection of these techniques had historically been commonly based on health professionals’ perceptions of patients’ risk of infection; the framework took the opposite approach and based risk assessment on how much the patient was at risk from the healthcare worker, the technical challenge of the procedure and the practice environment.

This new approach was quickly embraced nationally. ANTT better defined the infection control methods and precautions necessary during invasive clinical procedures to prevent the transfer of microorganisms from health professionals, procedure equipment or the immediate environment to the patient. It is achieved by ensuring the asepsis of procedure key parts and key sites.

Now overseen by the Association for Safe Aseptic Practice (ASAP), ANTT is the de facto standard aseptic technique in the UK. The framework has been endorsed by Epic2 (Pratt et al, 2007), the RCN infusion guidelines (RCN, 2010), the Australian Commission on Safety and Quality in Healthcare (National Health and Medical Research Council, 2010), and is used to varying degrees in 15 other countries. The importance of safe aseptic practice was recognised in the government’s white paper Winning Ways (Department of Health, 2003) and in 2008 it became a requirement of the Health and Social Care Act for healthcare providers to have a standardised aseptic technique in which education and audit can be demonstrated (DH, 2008).

Why is aseptic technique so important?

The interplay of microorganisms in the clinical environment and their impact on healthcare-associated infections (HCAIs) is well accepted but not fully understood. It is clear that significant numbers of infections are caused by microorganism contamination of invasive clinical procedures due to failed aseptic technique, especially via in situ medical devices that breach patients’ natural defence mechanisms (Loftus et al,
best practice-based ANTT can be identified by other ANTT users. This is an important advantage as, rather than being dependent on occasional and formal audit alone, the defined and identifiable ANTT approach enables a routine day-to-day level of peer monitoring of practice standards. ANTT-trained staff also articulate a common practice language and apply a consistent approach to risk assessment and supporting aseptic processes in general.

Discussion

By deconstructing and rebuilding a problematic area of clinical practice, the ANTT practice framework and its adoption has done much to improve standards of aseptic technique. However, many challenges remain. Contrary to the requirement of the Health and Social Care Act 2008, some hospitals and community organisations still undervalue the critical procedure of aseptic technique and do not have a single standard. Audit by ASAP has shown such hospitals practise what can only be termed “general” aseptic technique. Typically, this is characterised by variable, subjective approaches to practice, which means standards are also variable. Ineffective practice is often protected by excessive autonomy in some specialties, while risk assessment is often ambiguous and confused.

No other major industry would tolerate an undefined and variable approach to such a vital safety procedure; for example, it is unthinkable that the aviation industry would operate without a universal standard for servicing jet engines. Indeed, comparison with the aviation industry is sobering; while some 800 people a year die worldwide from air accidents, in 2007 around 9,000 patients died in the UK alone from MRSA and Clostridium difficile infections (National Audit Office, 2009).

5 key points

1. The Health and Social Care Act 2008 requires healthcare providers to have a standardised aseptic technique in which education and audit can be demonstrated.
2. Aseptic technique represents the last line of defence for patients from microorganisms during invasive clinical procedures.
3. Aseptic Non Touch Technique is the de facto standard aseptic technique in the UK.
4. Safe aseptic technique relies on effective staff training, safe environments and equipment that is fit-for-purpose.
5. Basic infection prevention precautions, such as effective hand hygiene and glove usage also help to ensure asepsis.

FIG 1. THE ANTT PRACTICE FRAMEWORK

FIG 2. KEY PARTS

Key parts are the critical parts of equipment that come into contact with liquid infusion.
Conclusion
Over the last decade numerous NHS organisations have adopted ANTT to help significantly reduce HCAIs (Pike et al, 2009; Rowley and Clare, 2009). The commitment and hard work of participating hospitals and community teams has no doubt contributed to saving many lives. In partnership with health professionals and patients, the ASAP will continue its mission to significantly reduce HCAIs and improve patients’ experience of healthcare by further championing and standardising aseptic technique. NT

The 4th Annual National ANTT Conference will be held on 28 November in Manchester. For more details, visit www.antt.org.uk

References

BOX 1. THE 10 PRINCIPLES OF ANTT

1. The main infection risk to the patient is the health professional. It is essential that healthcare organisations and individual health professionals understand and address the real risks they pose to patients.

2. Health professionals must understand what asepsis is and how to establish and maintain it. Poor understanding and application of the terms “sterile”, “asepsis” and “clean” have contributed to confused aseptic technique (Aziz, 2009). The aim of ANTT “from the operating theatre to the community”, is the standard of asepsis.

3. Identifying and protecting key parts and key sites is paramount. Key parts are the critical parts of clinical equipment that come into direct or indirect contact with any liquid infusion, key sites and any active key parts connected to the patient (Fig 2). If contaminated they present a significantly high risk of infection.

4. Asepsis is achieved with standard ANTT or surgical ANTT. Standard ANTT is the technique of choice if procedures are technically uncomplicated, short in duration (approximately <20 minutes), involve small key sites and key parts, and minimal numbers of key parts. Surgical ANTT is needed when procedures are technically complex, last approximately >20 minutes, involve large open key sites, and large or numerous key parts.

5. Clinical procedures should be risk assessed to determine the need for standard or surgical ANTT. ANTT risk assessment is based on the technical challenge of the procedure, practitioner competency and the environment in which the procedure is performed. The health professional asks: “Can I maintain the asepsis of all key parts and key sites by using a general aseptic field and microcritical aseptic fields?” In other words, can the procedure be performed safely using the most simple and efficient standard ANTT? If not, surgical ANTT is used and the main aseptic field must be managed critically (see principle 6).

6. Aseptic fields are important; although the principles of ANTT remain constant, standard and surgical ANTT require different aseptic field management. Healthcare environments are typically resident with atypical, often antibiotic-resistant and invisible, microorganisms. As such, aseptic fields are important to ensure a controlled safe working space to help maintain the asepsis of key parts and key sites. ANTT uses two types of aseptic field that require different management. Common to standard and surgical ANTT is the use of critical aseptic fields to maintain the asepsis of procedure key parts.

In surgical ANTT, the critical aseptic field will be a relatively large area on which only equipment that has been sterilised or is aseptic can be introduced. In standard ANTT, the main aseptic field is termed a “general aseptic field” because it does not require critical management. This is because procedure key parts can easily and optimally be protected using microcritical aseptic fields, such as caps, covers and the inside of equipment packaging.

7. Non-touch technique is the most important component of standard and surgical ANTT. Because the safest way of protecting a key part is not to touch it, the principle and practice of non-touch technique (NTT) is a core element of standard ANTT and surgical ANTT (when practical to do so).

8. Appropriate infective precautions help promote and ensure asepsis. Although non-touch technique and appropriate aseptic field management are the core components of key-part and key-site protection, basic infection prevention precautions, such as effective hand cleaning and glove usage are important and help ensure asepsis.

9. Aseptic practice should be standardised across and between healthcare organisations. Typically, when HCAI rates are high in specific areas, hospitals react by standardising practice with explicit guidance. ANTT has been used to good effect reactively (Rowley and Clare, 2009) but, in the best interests of patients, it is best used proactively to standardise aseptic practice across large workforces. Standardising practice naturally reduces practice variability and the number of variables in practice. It also enables peer enforcement, monitoring of standards and research enquiry.

10. Safe aseptic technique is reliant on effective staff training in infection control, safe environments and equipment that is fit for purpose. Effective aseptic technique is dependent on healthcare organisations taking a systematic approach to asepsis management in general. The effective education and training of healthcare workers is paramount, as is ensuring equipment is fit for purpose and clinical environments promote asepsis.