CLINICAL STATEMENT | INFECTION PREVENTION AND CONTROL

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Summary

This revised clinical statement outlines updated infection prevention and control practices with the current standards from the National Health and Medical Research Council (NHMRC), Therapeutic Goods Administration (TGA), and Australasian Sonographers Association (ASA). It outlines practical, evidence-based measures to reduce the risk of infection during ultrasound examinations, with a focus on hand hygiene, personal protective equipment (PPE) use, reprocessing of ultrasound transducers, environmental cleaning, and waste management. The document also includes a practical checklist for daily compliance. The recommendations are designed to support consistent, high quality care while protecting both patients and sonographers.

Daily Infection Control Checklist for Sonographers

- ✓ Perform hand hygiene in accordance with the 5 Moments of Hand Hygiene
- ✓ Use TGA-approved alcohol-based hand rubs or soap and water
- ✓ Wear appropriate PPE based on risk assessment
- ✓ Disinfect ultrasound transducers as per AS 5369:2023 standards[1]
- ✓ Clean and disinfect frequently touched surfaces between patients
- ✓ Follow respiratory hygiene and cough etiquette
- ✓ Apply aseptic technique during procedures
- ✓ Dispose of sharps immediately in puncture-resistant containers
- ✓ Segregate and dispose of waste per facility protocols
- ✓ Handle, store, and launder linen in accordance with AS/NZS 4146:2000[2]

Introduction

This clinical statement supports sonographers in applying safe and effective infection control practices during clinical care. It draws on key extracts from the Australian Guidelines for the Prevention and Control of Infection in Healthcare, developed by the National Health and Medical Research Council (NHMRC),[3] and highlights the elements most relevant to sonographic practice.

The Australasian Sonographers Association (ASA) recommends that all sonographers use this resource alongside ASA's broader clinical guidance. It is not a substitute for the full NHMRC Guidelines,[3] which should be readily accessible in all workplaces. The NHMRC Guidelines can be viewed or downloaded from the Australian Commission on Safety and Quality in Healthcare website.

Sonographers should prioritise workplace protocols. Where discrepancies arise, concerns should be raised through appropriate organisational channels.

Scope of this document

This document is designed to provide sonographers with practical and effective recommendations to minimise the risk of transmission of infectious agents in the workplace. As this document is focused specifically on the practices of sonographers, guidelines related to management strategies for infection prevention and control that are targeted at employers and healthcare organisations are outside the scope of this document.

It is recognised that employers and healthcare organisations have a significant role to play in managing and establishing infection prevention and control strategies to ensure the risk of infection in healthcare is effectively minimised. The complete NHMRC Guidelines contain information on how employers and healthcare organisations can encourage, improve, and maintain best practice by their clinical staff in the prevention and control of infection in healthcare.

The safe use and storage of ultrasound gel is not covered in this resource as the ASA provides clinical guidance on this topic in a dedicated resource. The *ASA Clinical Statement: Safe use and storage of ultrasound gel (revised October 2025) is available on the* ASA website.

Structure of Clinical Statement

This clinical statement is based on the following core principles:

- An understanding of the modes of transmission of infectious agents and of risk management
- Effective work practices that minimise the risk of transmission of infectious agents
- Governance structures that support the implementation, monitoring and reporting of infection prevention and control work practices
- Compliance with legislation, regulations and standards relevant to infection control

Infection prevention and control in the healthcare setting

- Infectious agents (also called pathogens) are biological agents that cause disease or illness to their hosts. Many infectious agents are present in healthcare settings.
- Infection includes six elements – causative agent (pathogen), reservoir, portal of exit, means of transmission, portal of entry, and a susceptible host.
- Patients and healthcare workers are most likely to be sources of infectious agents and are also the most common susceptible hosts. Other people visiting and working in healthcare may also be at risk of both infection and transmission. In some cases, healthcare associated infections (HAIs) are serious or even life-threatening.
- In healthcare settings, the main modes for transmission of infectious agents are contact (including blood-borne), droplet and airborne.

How standard precautions are implemented

1 Personal hygiene practices, particularly hand hygiene, aim to reduce the risk of contact transmission of infectious agents (see Section 1).

2 Appropriate use of personal protective equipment (PPE), which may include gloves, gowns, plastic aprons, masks/face shields and eye protection, aims to prevent exposure of the healthcare worker and patients to infectious agents (see Section 2).

3 Safe handling and disposal of sharps assist in preventing transmission of blood-borne diseases to healthcare workers (see Section 3).

4 Environmental controls, including cleaning and spills management, assist in preventing transmission of infectious agents from the environment to patients (see Sections 4 and 8).

5 Appropriate reprocessing of reusable equipment and instruments, including appropriate use of disinfectants, aims to prevent patient-to-patient transmission of infectious agents (see Section 5).

6 Practising respiratory hygiene and cough etiquette reduces risk of transmission of infection (see Section 6).

7 Aseptic technique aims to prevent microorganisms on hands, surfaces or equipment from being introduced into a susceptible site (see Section 7).

8 Appropriate handling of waste and linen assists in reducing transmission of infectious agents (see Sections 8).

1. Hand Hygiene

Hand hygiene is the single most effective action to prevent the spread of infection. Sonographers must perform the five moments of hand hygiene as follows:

- Before and after patient contact
- Before and after a procedure
- After exposure to body fluids
- After touching a patient's surroundings
- Before putting on gloves and after removing them

Choosing the right method

Alcohol-Based Hand Rub (ABHR)

- Use when hands are visibly clean. Must contain ethanol (80% v/v) or isopropyl alcohol (75% v/v). Apply the recommended amount, rub all hand surfaces, especially fingertips, thumbs, and between fingers, until dry.

Soap and Water:

- Use when hands are visibly dirty, after bathroom use, or contact with bodily fluids. Wet hands, apply soap, scrub for at least 20 seconds, rinse thoroughly, and dry with a single-use towel.

Product selection

Use ABHR products that:

- Meet international standards (e.g. EN1500)
- Are TGA approved for clinical use
- Offer good skin tolerance and ease of use

Personal responsibility

- Follow the "Five Moments for Hand Hygiene"
- Know and follow your facility's hand hygiene policy
- Avoid wearing nail polish, artificial nails, or hand jewellery
- Use only hand care products approved by your facility
- Minimise unnecessary contact with patient surroundings
- Report any skin reactions to occupational health
- Advocate for accessible ABHR at point of care
- Attend regular IPC training to maintain best practice

2. Personal Protective Equipment (PPE)

PPE protects sonographers and patients from exposure to infectious agents. Selection should be based on the procedure, patient interaction, and risk of contamination (see Table 1: PPE). All PPE must meet TGA standards and be used according to manufacturer instructions. To ensure consistent and safe practice, sonographers should receive regular training and updates on PPE protocols, including correct usage and disposal.

Table 1: PPE

PPE Item	Use When...
Gloves	Use for all patient contact, including contact with blood, body fluids, mucous membranes, non-intact or infected skin
Gowns/aprons	Risk of splashes or contamination of clothing or skin
Surgical masks	Risk of droplet exposure or respiratory secretions
P2/N95 respirators	Aerosol generating procedures or airborne infection risk[4]
Eye protection / face shields	Risk of splashes to eyes (if required by procedure)

Key practices

- Perform hand hygiene before and after PPE use
- Don PPE immediately before patient contact; remove safely after use
- Change PPE between patients or when visibly soiled
- Do not wear PPE outside designated clinical areas
- Reusable PPE must be cleaned, inspected, and stored according to manufacturer and facility guidelines

Donning and doffing

- Remove gowns and aprons by rolling contaminated surfaces inward
- Discard used PPE in designated waste containers
- Avoid touching the front of masks or face shields during removal
- Always follow facility protocols for safe disposal

Managing PPE breaches

A breach occurs when PPE is damaged, improperly used, or fails to protect. If a breach happens:

- Notify your supervisor immediately
- Perform hand hygiene and remove contaminated PPE
- Follow first aid and exposure protocols
- Document the incident and seek follow-up care if needed

3. Sharps Safety: What Every Sonographer Should Know

Sharps pose a serious risk of injury and exposure to blood-borne pathogens such as hepatitis B virus, hepatitis C virus and human immunodeficiency virus (HIV). Injuries can occur during use, after use but before disposal, or during improper disposal. Hollow-bore needles, especially those used for blood collection or catheter insertion, carry the highest risk due to residual blood.

Common injury points

- During patient procedures (41%)[5]
- After use, before disposal (40%)[5]
- During or after disposal (15%)[5]

Risk reduction strategies

- Use safety engineered devices whenever available
- Avoid needles when safe alternatives exist
- Plan ahead for safe handling and immediate disposal
- Avoid double handling of sharps
- Ensure the user is responsible for their disposal
- Dispose of sharps directly into puncture-resistant containers at point-of-use
- Follow facility protocols for handling, reporting, and notifiable incidents
- Educate patients on sharps safety when appropriate
- Stay up to date with training on sharps handling and new safety technologies
- Ensure vaccination against blood-borne viruses such as hepatitis B

In the event of a sharps injury

- Clean the wound immediately with soap and water (or ABHR if unavailable)
- Report the incident to your supervisor promptly
- Seek follow-up care, including post-exposure prophylaxis if indicated
- Document the event with details of exposure and source (if known)
- Reassure yourself that most exposures do not result in infection, and early action reduces risk

4. Environmental Surface Cleaning

Environmental surfaces can be safely decontaminated using less rigorous methods than those used on medical instruments and devices, however cleaning must still be systematic, risk based, and consistent with infection prevention protocols.

Cleaning frequency based on risk

Determine cleaning needs through local risk assessment, considering:

- Likelihood of contamination
- Type of surface or equipment
- Clinical setting (e.g. acute care versus outpatient)
- Presence of multi-resistant organisms or outbreaks

High touch surfaces (e.g. ultrasound transducers, examination couches, bed rails, keyboards)

- Clean between patients
- Clean immediately if visibly soiled or contaminated

General surfaces and fittings

- Clean daily or when visibly dirty
- Clean promptly after spills

Product selection and use

Choose cleaning products based on:

- TGA approval (Class IIb disinfectants for clinical use)
- Compatibility with surface type and facility resources
- Proven efficacy against target organisms
- Manufacturer instructions for dilution, contact time, and application

Begin with physical cleaning using a detergent before applying disinfectants. Staff must be trained in safe and effective use of all cleaning agents.

Spill management

For spills involving blood or other infectious material:

1. **PPE:** Wear gloves, apron, and eye protection as needed
2. **Contain:** Use absorbent material to remove visible matter
3. **Dispose:** Place waste in designated clinical waste containers
4. **Disinfect:** Apply chlorine-based disinfectant (e.g. sodium hypochlorite) with correct dilution and contact time
5. **Final steps:** Remove PPE safely and perform hand hygiene

Spill kits should be available in all clinical areas, and sonographers must be trained in their use.

5. Reprocessing and Storage of Ultrasound Transducers

The AS 5369:2023 standard outlines the requirements for reprocessing reusable medical devices (RMDs) across both healthcare and non-healthcare settings in Australia.[1] In New Zealand, health services follow the Ministry of Health's Ngā Paerewa Health and Disability Services Standards (NZS 8134:2021), which promote consistent, high-quality infection control practices across clinical settings.[6]

This involves cleaning and disinfection or sterilisation based on the level of infection risk, as defined by the Spaulding classification system (see Table 2: Spaulding classification and disinfection levels).

Table 2: Spaulding classification and disinfection levels

Spaulding classification	Description	Action required
Non-critical	Transducer only contacts intact skin. No risk of contact with sterile tissues, mucous membranes, or non-intact skin.	Clean + low/ intermediate-level disinfection[7]
Semi-critical	Transducer contacts mucous membranes, non-intact skin, blood, wounds, any body fluids where infection risk is present.	High-level disinfection[7,8]
Critical	Transducer contacts sterile tissue or a device (e.g., needle, catheter) inserted into a sterile tissue during a procedure.	High-level disinfection[7]

Surface ultrasound transducers require different levels of disinfection based on the nature of contact (see Table 4 and Figure 1 below). When used on intact skin or during ultrasound-guided invasive procedures where the transducer does not touch the needle or puncture site, low-level (LLD) or intermediate-level disinfection (ILD) is appropriate. These transducers are classified as non-critical devices because they do not enter sterile tissue, the vascular system, contact mucous membranes, or blood. When transducers contact broken skin, mucous membranes, blood, or body fluids where infection risk is present, they are considered semi-critical and must undergo high-level disinfection (HLD) to ensure patient safety and compliance with infection control standards.[9,10]

Transducer covers

Transducer covers play an important role in infection prevention during ultrasound examinations involving mucous members or non-intact skin (see Table 3: Transducer cover requirements)[11] These single-use barriers help protect against clinically significant viruses such as human immunodeficiency virus (HIV), human papillomavirus (HPV), hepatitis B virus (HBV), and other pathogens that may be transmitted through patient contact.[10] By minimising the risk of cross contamination, transducer covers support compliance with established infection control standards. However, under AS5369:2023 the use of a transducer cover does not negate the requirement for disinfection to the required level.[1] If an uncovered transducer (i.e. no transducer cover has been used) comes into direct contact with the puncture site, then it becomes a semi-critical device that requires high-level disinfection.[7]

Table 3: Transducer cover requirements

Spaulding classification	Cover requirement
Non-critical	Optional
Semi-critical	Sterile cover (preferred) or non-sterile cover
Critical	Sterile cover

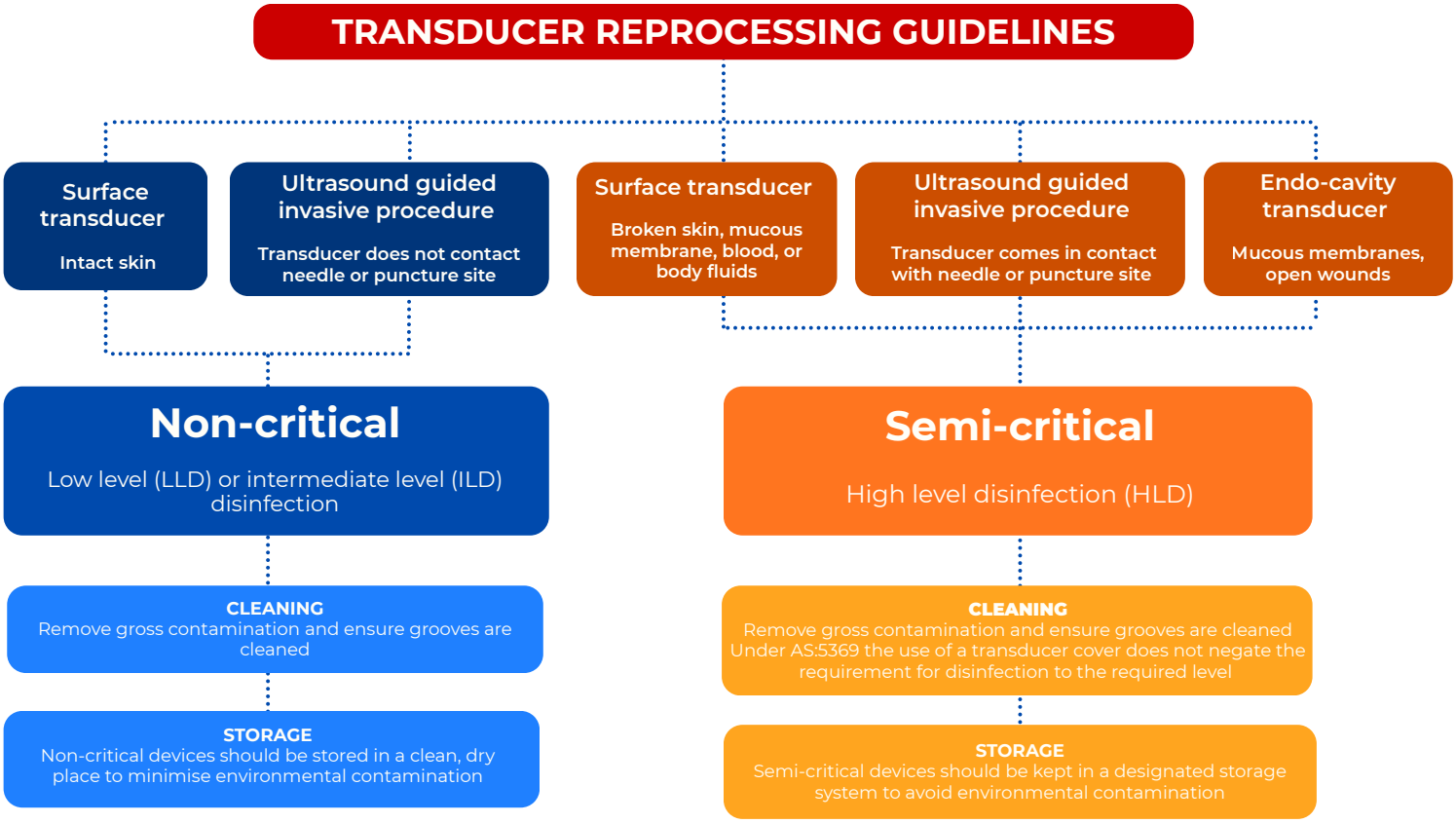
Prior to use, inspect each cover for tears or defects to ensure it is intact and safe for the examination. If damage is detected during the examination, the cover should be replaced immediately to maintain effectiveness. After the examination, remove the disposable transducer using a gloved hand, taking care not to contaminate the transducer handle, cable, or cord. Dispose of the used cover in accordance with infection control protocols.[12]

Table 4 Strategies to consider that may reduce confusion about disinfection status

Strategy	Description	Benefits	Limitations
Document and affix disinfection status	Label transducer with the level of disinfection performed	Improves transparency, supports auditing, reduces reliance on verbal communication	Requires consistent labelling and monitoring
Dedicated transducers for HLD procedures	Reserve specific transducers for high-risk examinations	Reduces cross-contamination risk, streamlines workflow	May require additional equipment and storage
Standardise HLD for all transducers	Apply HLD to all transducers regardless of procedure	Eliminates ambiguity, ensures highest infection control standard	Increased processing time, costs, and resource use

Note: When implementing these strategies, workplaces must consider their own capacity, workflow requirements, and existing policies and protocols. Decisions should align with organisational resources, infection control standards, and clinical risk management frameworks to ensure feasibility and sustainability.[7]

Figure 1: Transducer reprocessing guidelines



Cleaning and disinfection process

Effective design of ultrasound departments should include dedicated reprocessing areas to minimise the risk of cross contamination. These areas should be strategically located to support unidirectional workflows, ensuring that contaminated items are processed separately from clean items.[1] To maintain infection control standards, consider the following principles:

1. **Preparation**
- Remove gloves worn during the procedure
- Perform hand hygiene and don new gloves
- Wipe of residual gel with a clean, lint-free cloth

2. **Cleaning**
- Use a Class 1 agent listed on the ARTG to remove visible debris
- Pay attention to grooves and crevices

3. **Disinfection**
- Select a disinfectant product or device approved by the transducer manufacturer and listed on the ARTG as a Class IIb agent
- Match disinfectant level to Spaulding classification
- Follow manufacturer instructions for dilution, contact time, and application

4. **Inspection and storage**
- Ensure the transducer is clean, dry, and ready for use
- Store non-critical transducers in a clean and dry area
- Store semi-critical and critical transducers in a designated storage system to avoid environmental contamination

Reprocessing area design

- Use dedicated zones for cleaning, disinfection, and sterilisation[1]
- Maintain unidirectional workflow from dirty to clean areas[1]
- Ensure easy access for sonographers while keeping areas separate from patient care[1]
- Position equipment to support efficient handling and minimise contamination[1]

Documentation and traceability

To uphold patient safety and meet regulatory requirements outlined in AS 5369:2023, ultrasound departments must implement a robust traceability process that enables patient recall in the event of a decontamination failure. This process involves maintaining comprehensive records that link each RMD device to the patient, procedure performed, and the reprocessing cycle. Ensure traceability records are securely stored and accessible for audit or recall purposes.

For every clinical occasion, the following details must be accurately recorded and traceable:

- Patient identification
- Person reprocessing
- Procedure performed
- RMD used, particularly for semi-critical and critical ultrasound examinations[1]
- Disinfectant details, including:
  - Batch number
  - Expiry date
  - Reprocessing method applied[1]

This traceability framework promotes accountability, supports effective recall procedures, and aligns with best practice standards for infection prevention and control.

6. Respiratory Hygiene and Cough Etiquette

Respiratory hygiene and cough etiquette are essential components of standard precautions and must be practiced consistently across all healthcare settings to reduce the transmission of respiratory infections, including influenza, COVID-19, and other airborne or droplet-spread illnesses.[13]

Core practices

- Cover mouth and nose with a tissue or elbow when coughing or sneezing
- Dispose of used tissue immediately in a hands-free bin
- Perform hand hygiene after coughing, sneezing, or handling tissues
- Sonographers experiencing respiratory symptoms should wear a mask and follow workplace health protocols.
- Maintain physical distancing where possible during outbreaks[13]

Supporting patients

- Provide tissues, masks, and ABHR at reception and waiting areas
- Encourage patients with symptoms to wear a mask and practice hand hygiene
- Display signage promoting respiratory hygiene in visible areas
- Ensure staff are trained to respond respectfully and consistently

7. Aseptic Technique

Aseptic technique is essential for preventing infection during procedures that involve sterile equipment or contact with non-intact skin or mucous membranes. Sonographers must apply these principles consistently to protect patients and maintain safe clinical environments following Standard 3: Preventing and controlling infections under the National Safety and Quality Health Service (NSQHS) Standards.[14]

Core principles

1. **Know what's critical**
- Identify procedures that require aseptic technique, typically those involving invasive devices, sterile fields, or high infection risk.

2. **Prepare the environment**
- Ensure the workspace is clean, clutter-free, and equipped with necessary sterile supplies.

3. **Use sterile equipment**
- Select and handle sterile items appropriately. Check packaging integrity and expiry dates before use.

4. **Maintain hand hygiene**
- Perform hand hygiene before and after procedures, and before donning gloves.

5. **Avoid contamination**
- Minimise contact with non-sterile surfaces. Do not touch sterile items with bare hands or unclean gloves.

Application in Sonography

- Use sterile gel and transducer covers for procedures involving mucous membranes or sterile body sites
- Follow manufacturer instructions for sterile product use
- Dispose of single-use items immediately after use
- Document any breaches and follow facility protocols for corrective action

8. Waste Management

Effective waste management reduces infection risk and supports environmental safety. Sonographers must handle clinical waste in accordance with facility protocols and relevant standards, including AS 3816:2018 (waste) and AS/NZS 4146:2000 (linen).

General Principles

- Segregate waste at the point of generation using clearly labelled containers
- Use appropriate PPE when handling or disposing of waste
- Dispose of sharps immediately in puncture-resistant containers
- Do not overfill bins to prevent spills and contamination
- Clean bins regularly and replace liners as needed
- Report any waste-related incidents or breaches promptly

Cleaning & Disposal

- Clean waste bins regularly and replace liners as needed
- Ensure bins are accessible but positioned away from patient care zones
- Use hands-free bins for contaminated materials whenever possible

Compliance

- Follow local and national regulations for clinical, cytotoxic, pharmaceutical, and general waste
- Ensure all staff are trained in correct waste handling procedures
- Maintain documentation for waste disposal as required by facility policy

Linen handling and management

- Wear appropriate PPE when handling used or soiled linen
- Do not shake linen to avoid aerosolising contaminants
- Place used linen directly into designated bags or hampers
- Store clean linen in a dry, enclosed area away from patient zones
- Follow facility protocols for laundering and transport
- Ensure traceability for linen used in high-risk or sterile procedures

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