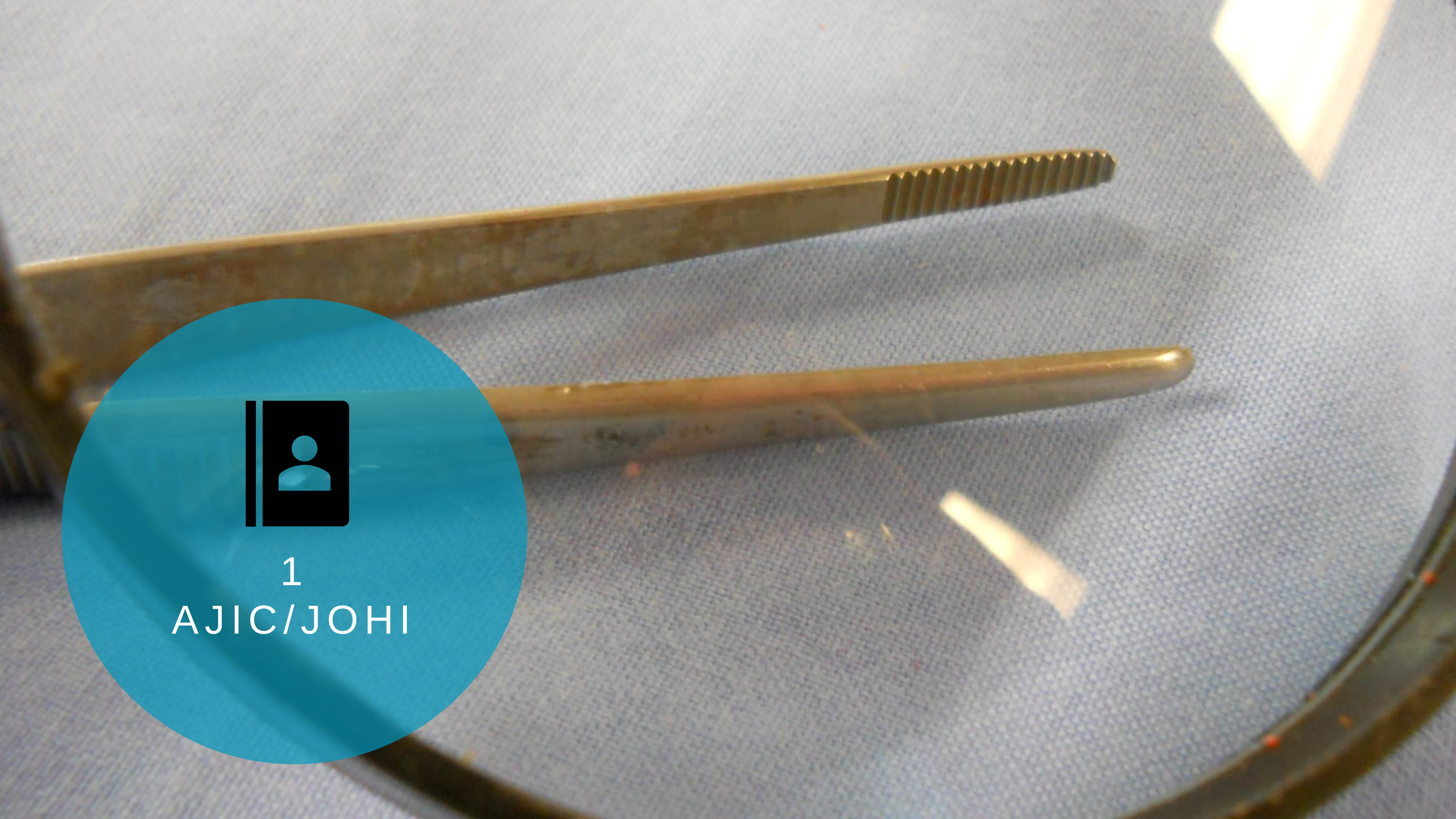
Device Decontamination Updates

What will we cover today

1. AJIC / JOHI
2. AORN
3. Central Sterilization Journal
4. News's Headlines and Articles

SafMed EDUCATION



1
AJIC/JOHI

AJIC

American Journal of Infection Control 50 (2022) 126–132

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

Droplet dispersal in decontamination areas of instrument reprocessing suites

Cori L. Ofstead MSPH [a,*], Krystina M. Hopkins MPH [a], Abigail G. Smart MPH [a], Marie K. Brewer CST, CRCST, CIS, CHL, GTS, CER, CSSGB [b]

[a] *Ofstead & Associates, Inc, Saint Paul, MN*
[b] *UnityPoint Health, St Luke's Hospital, Cedar Rapids, IA*

Ofstead, C et al.. Droplet dispersal in decontamination areas of instrument reprocessing suites 2022.AJIC.Vol 50

AJIC

A B S T R A C T

Background: Personnel working in sterile processing or endoscope reprocessing departments are at high risk of exposure to tissue, blood, and patient fluids when decontaminating reusable medical instruments and equipment. The effectiveness of protective measures for reprocessing personnel has not yet been systematically evaluated in real-world settings.

Objective: This pilot project aimed to identify reprocessing activities that generate splashes, determine how far droplets can travel in decontamination areas, and assess personal protective equipment exposure during routine activities.

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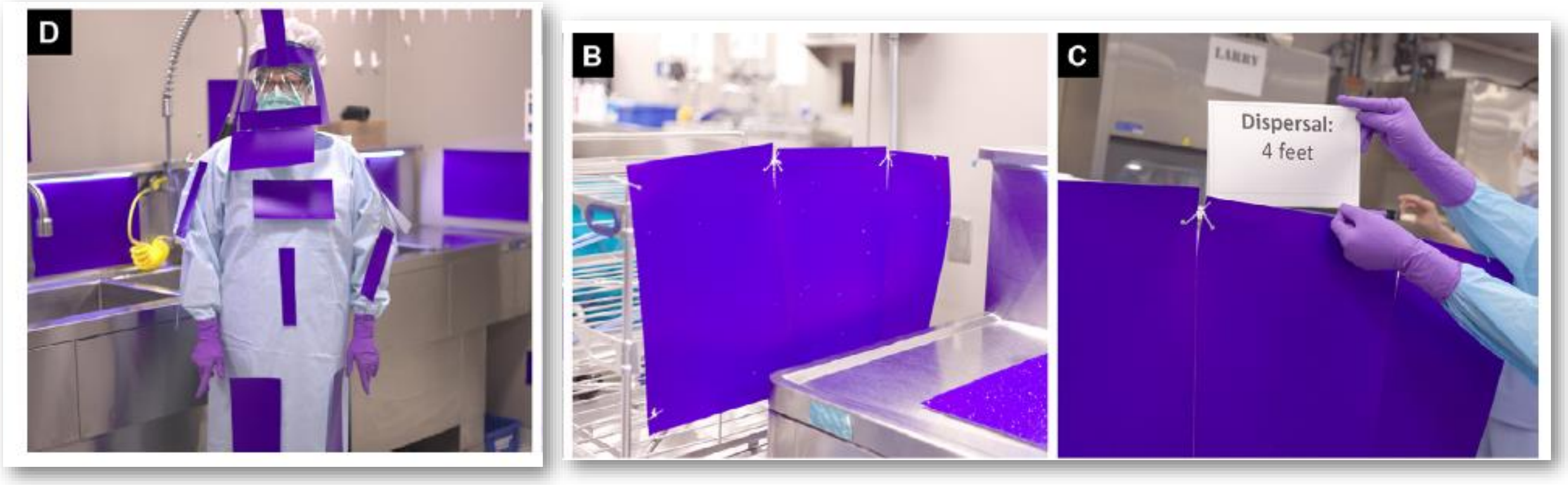
AJIC

Moisture-detection paper was affixed to environmental surfaces and personal protective equipment in a sterile processing department.



Ofstead, C et al.. Droplet dispersal in decontamination areas of instrument reprocessing suites 2022.AJIC.Vol 50

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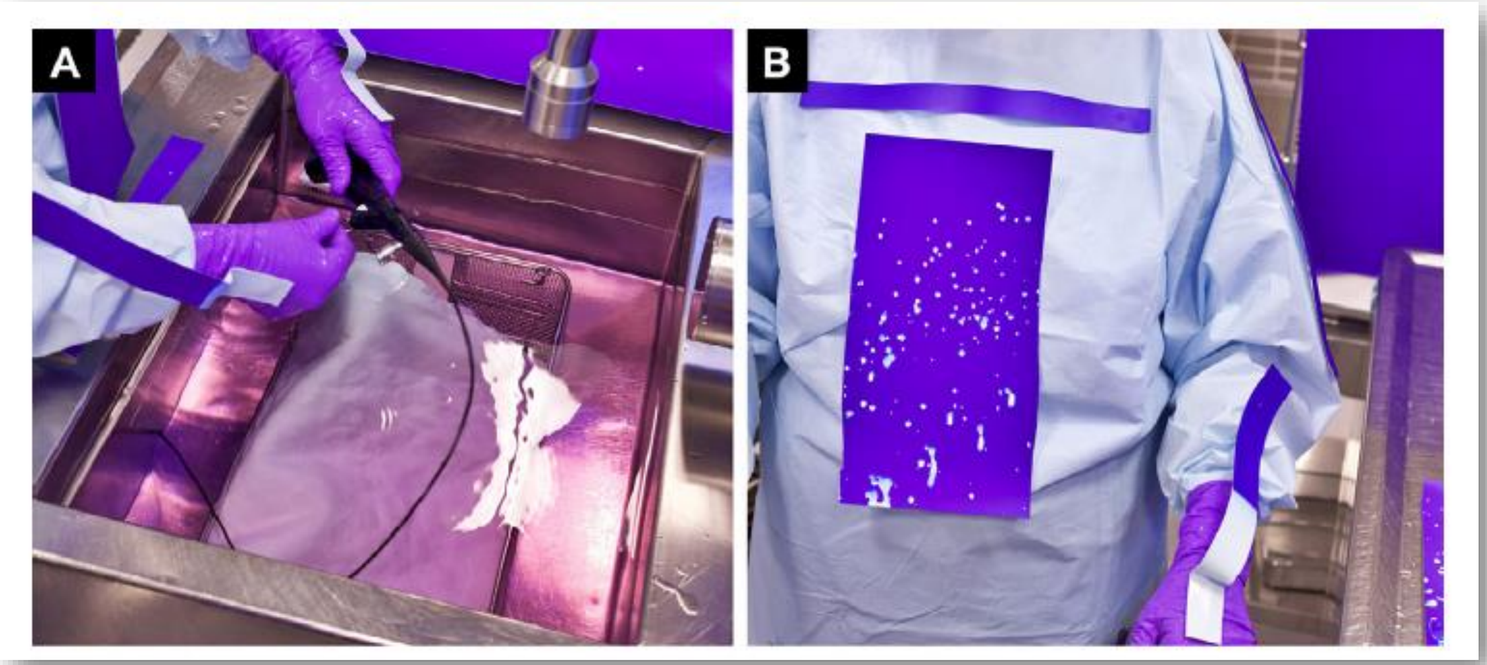
AJIC



- This hypothesis-generating pilot project found that routine reprocessing activities generated substantial splashing
- Visible droplets were generated during every reprocessing activity **except** running the sonication sink.
- Droplets travelled at least **3 feet (just under 1m)** when filling a sink, brushing a ureteroscope, and using a power sprayer to rinse a basin.

Ofstead, C et al.. Droplet dispersal in decontamination areas of instrument reprocessing suites 2022.AJIC.Vol 50

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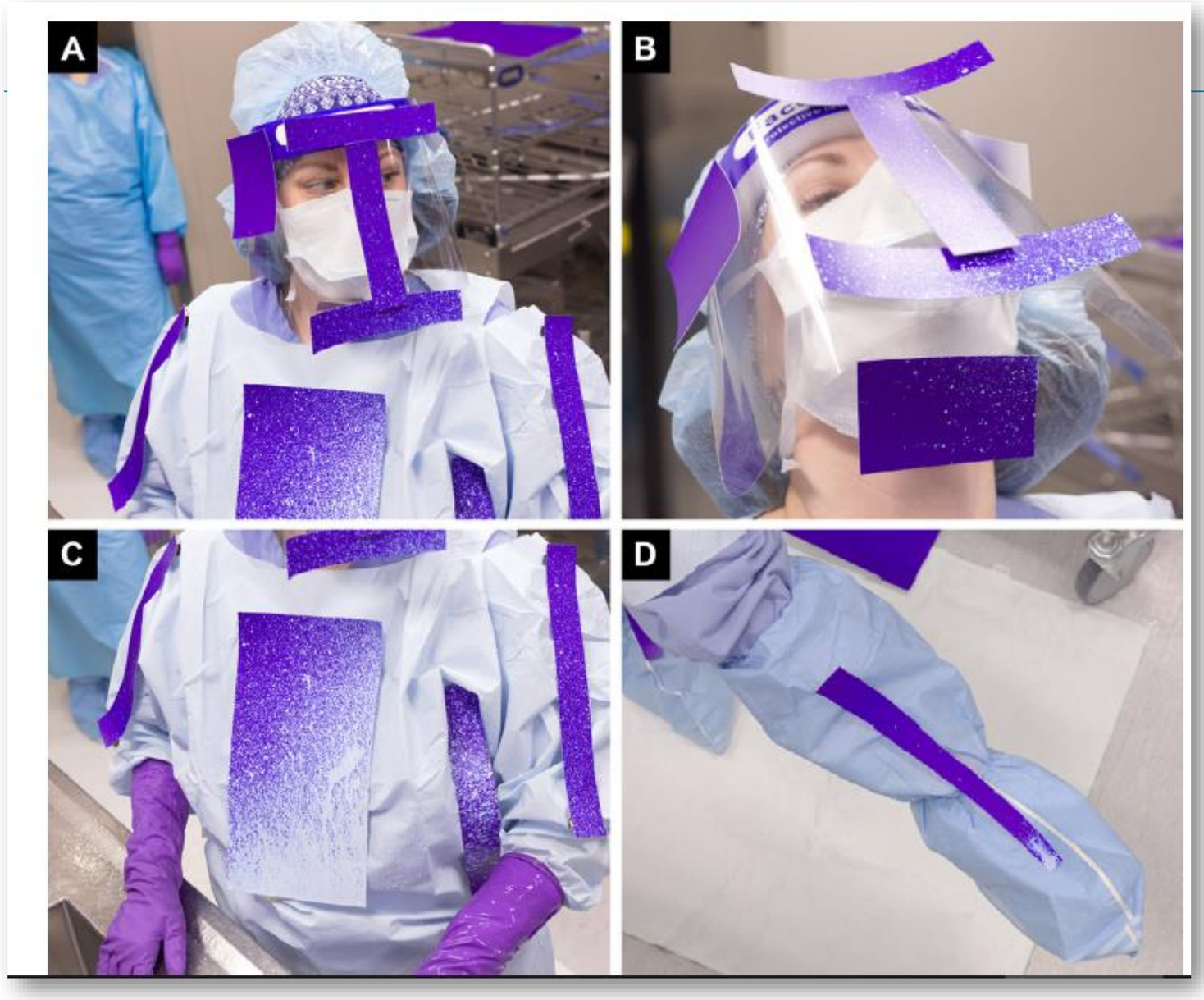

- Some activities dispersed droplets up to 5 feet **(1.5m)** from the sink.
- Personal protective equipment was splashed during most activities and did not prevent skin exposure even when properly donned and doffed.

Ofstead, C et al.. Droplet dispersal in decontamination areas of instrument reprocessing suites 2022.AJIC.Vol 50

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AJIC

American Journal of Infection Control 50 (2022) 1200–1207

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

Splash generation and droplet dispersal in a well-designed, centralized high-level disinfection unit

Cori L. Ofstead MSPH [a,*], Krystina M. Hopkins MPH [a], Frank E. Daniels MSHA, CFER, CER, AGTS, CSPDT, CSPM [b], Abigail G. Smart MPH [a], Harry P. Wetzler MD, MSPH [a]

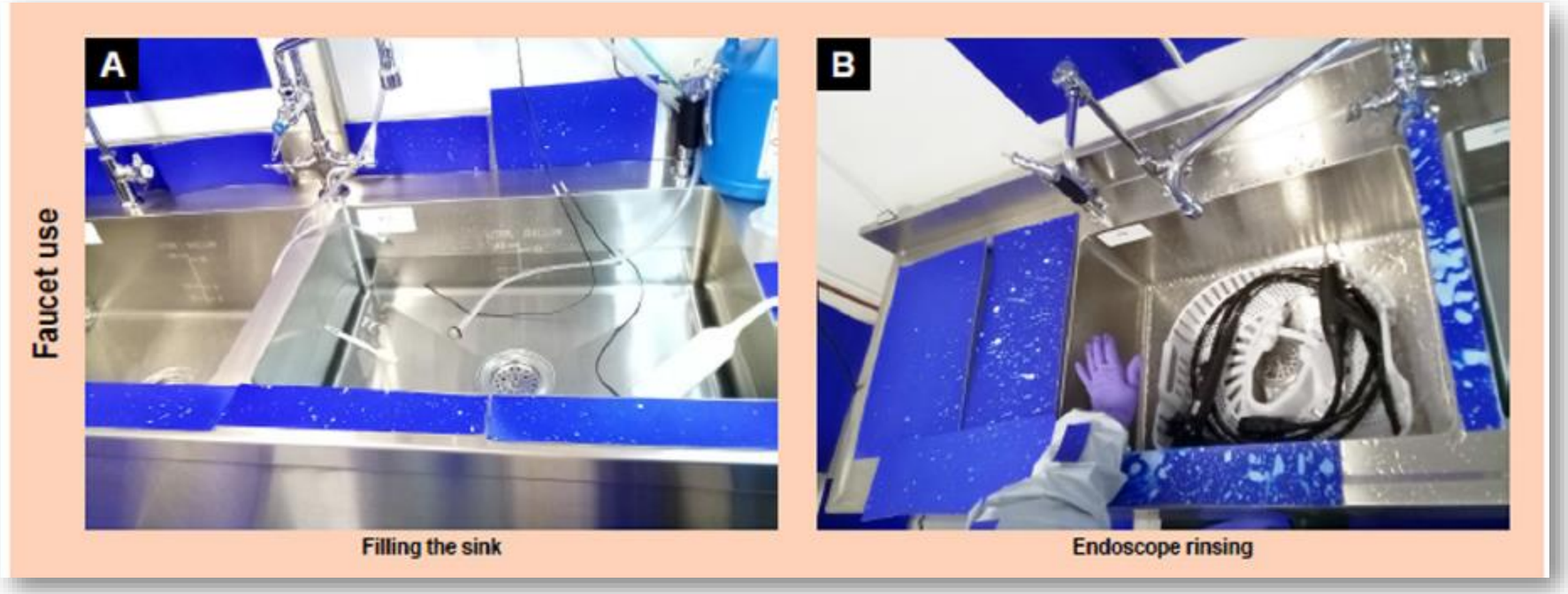
[a] *Ofstead & Associates, Inc., St. Paul, MN*
[b] *Department of High Level Disinfection & Sterilization, Virginia Commonwealth University Health, Richmond, VA*

Ofstead, C et al.. Splash generation and droplet dispersal in a well-designed, centralized high-level disinfection unit 2022.AJIC.Vol 50

AJIC

- Droplet generation and dispersal were assessed during **manual cleaning of a colonoscope and a transvaginal ultrasound probe**

- In this study, substantial splashes were generated, and droplets were dispersed more than 7 feet **(2.1 meters)** during the **manual cleaning of a colonoscope** and an **ultrasound probe**



Ofstead, C et al.. Splash generation and droplet dispersal in a well-designed, centralized high-level disinfection unit 2022.AJIC.Vol 50

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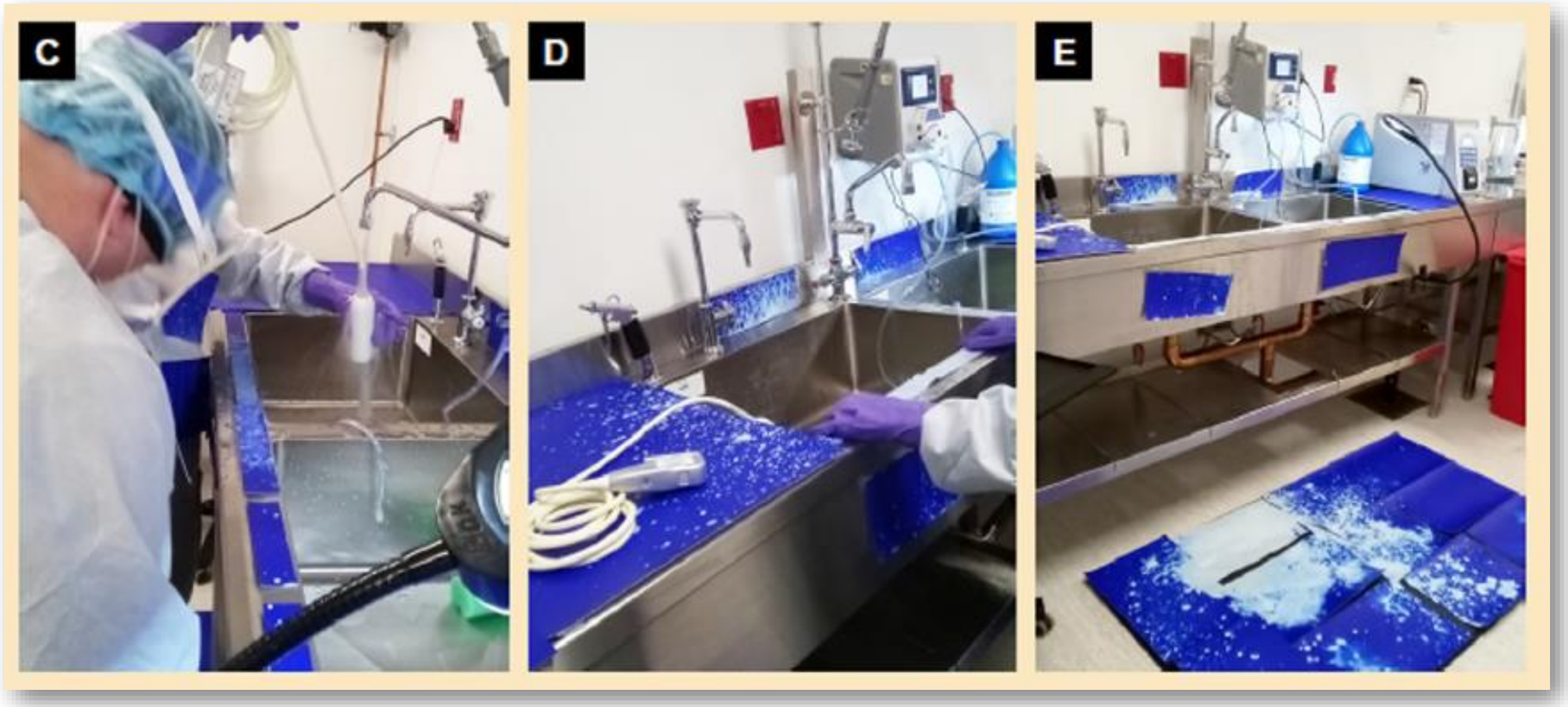
AJIC

- Extensive droplets were detected on PPE worn by technicians at the sink and observers 3-4 feet **(1.2m)** away



Ofstead, C et al.. Splash generation and droplet dispersal in a well-designed, centralized high-level disinfection unit 2022.AJIC.Vol 50

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AJIC: HLD Audit Program

ISR-57

Implementation of a High-level Disinfection Audit Program to Standardize Processes and Improve Compliance at an Academic Health System

Shawn Alderman MPH, UofL Health; **Brandon Feusner BS**, UofL Health; **Crystal Heishman MBA, MSN, RN, ONC, CIC, FAPIC**, UofL Health - Jewish Hospital

APIC 49th Annual Educational Conference| Indiannapolis, IN | June 13-15, 2022

Poster Abstracts / American Journal of Infection Control 50 (2022) S11–S38

- **Background**: Reducing the transmission of pathogens from medical devices continues to be a focus.
- High-level disinfection (HLD) is one method frequently employed.
- **HLD is a complex process** that requires **meticulous cleaning** and **attention to details** such **concentration of disinfectant**, and **exposure time**
- Staff must be **properly trained** and **competent** to ensure the process is being performed correctly

Alderman S. et al.. Implementation of a High-level Disinfection Audit Program to Standardize Processes and Improve Compliance at an Academic Health System 2022.AJIC.Vol 50

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AJIC: HLD Audit Program

Used industry **recommendations**, **regulatory standards**, and **manufacturer's instructions** for use was used to facilitate and inform the **development of auditing tools**

Results: The audit program has proven beneficial in highlighting deviations in practice, enhancing communication, and allowing the team to address real or perceived barriers.
Pre-audit compliance averaged
- 87.7% (Ultrasound probes)
- 88.1% (TEE probes)
- 91.2% (Endoscopy)
- 94.5% (Liquid HLD)

Six months post implementation, overall compliance had increased to an average of
95.2% (Ultrasound probes)
94.4% (TEE)
96.8% (Endoscopy)
96% (Liquid HLD)

APIC 49th Annual Educational Conference| Indianapolis, IN | June 13-15, 2022

Poster Abstracts / American Journal of Infection Control 50 (2022) S11–S38

Alderman S. et al.. Implementation of a High-level Disinfection Audit Program to Standardize Processes and Improve Compliance at an Academic Health System 2022.AJIC.Vol 50

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HLD Audit Program

- Why?
- Clean (where/what detergent)?
- Logbook / record keeping?
- Mix date and expiry date?
- Test MEC (using test strips)
- Follow MIFU
- SOP
- Keep the lid on?
- Submerge the entire device?
- Flush HLD down channels?

Images from the taken in the field in SA

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AJIC

ARTICLE IN PRESS

American Journal of Infection Control 000 (2022) 1–9

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

The utility of lighted magnification and borescopes for visual inspection of flexible endoscopes

Cori L. Ofstead MSPH *, Abigail G. Smart MPH, Krystina M. Hopkins MPH, Harry P. Wetzler MD, MSPH

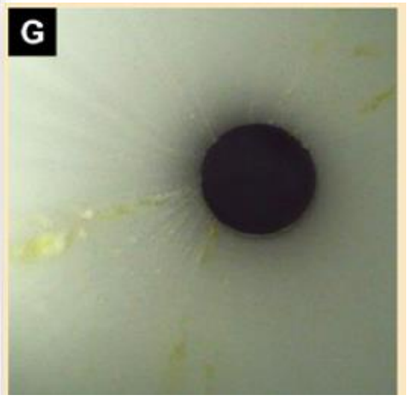
Ofstead and Associates, Inc.; St. Paul, MN

Ofstead, C.L. et al. 2022. The utility of lighted magnification and borescopes for visual inspection of flexible endoscopes. AJIC

AJIC

- **New standards** recommend personnel be trained on using **borescopes**, but endoscope **manufacturers have not yet** disseminated **guidance on how to perform borescope examinations** and discern whether findings are normal or represent defects that require repair, additional cleaning, or other action

- Systematically examine fully processed endoscopes twice during a 2-month period



- Findings: Visible damage and residue or debris were observed in 100% of 25 endoscopes at both assessments

- Defects at baseline included scratches (88%); channel shredding or peeling (80%)

Ofstead, C.L. et al. 2022. The utility of lighted magnification and borescopes for visual inspection of flexible endoscopes. AJIC

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JOHI

Journal of Hospital Infection 128 (2022) 64–73

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

Review

The carbon footprint of the operating room related to infection prevention measures: a scoping review

A. Bolten [a], D.S. Kringos [a,b], I.J.B. Spijkerman [c], N.H. Sperna Weiland [b,d,e,*]

[a] Department of Public and Occupational Health, Amsterdam UMC, University of Amsterdam, Amsterdam, the Netherlands
[b] Amsterdam Public Health Research Institute, Quality of Care, Amsterdam, the Netherlands
[c] Department of Microbiology and Infection Prevention, Amsterdam UMC, University of Amsterdam, Amsterdam, the Netherlands
[d] Department of Anaesthesiology, Amsterdam UMC, University of Amsterdam, Amsterdam, the Netherlands
[e] Centre for Sustainable Healthcare, Amsterdam UMC, University of Amsterdam, Amsterdam, the Netherlands

Bolten, A. et al. The carbon footprint of the operating room related to infection prevention measures: a scoping review.. 2022. JOHI. Vol. 128

JOHI

Background: Infection prevention measures are widely used in operating rooms (ORs). However, the extent to which they are at odds with ambitions to reduce the health sector's carbon footprint remains unclear.

Aim: To synthesize the evidence base for the carbon footprint of commonly used infection prevention measures in the OR, namely medical devices and instruments, surgical attire and air treatment systems.

Methods: A scoping review of the international scientific literature was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines. The search was performed in PubMed and Google Scholar. Articles published between 2010 and June 2021 on infection prevention measures, their impact on the health sector's carbon footprint, and risk for surgical site infections (SSIs) were included.

Bolten, A. et al. The carbon footprint of the operating room related to infection prevention measures: a scoping review.. 2022. JOHI. Vol. 128

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JOHI

Findings: Although hospitals strive to reduce their carbon footprint, many infection prevention measures result in increased emissions. Evidence suggests that the use of disposable items instead of reusable items generally increases the carbon footprint, depending on sources of electricity. Controversy exists regarding the correlation between air treatment systems, contamination and the incidence of SSIs. The literature indicates that new air treatment systems consume more energy and do not necessarily reduce SSIs compared with conventional systems.

Conclusion: Infection prevention measures in ORs can be at odds with sustainability. The use of new air treatment systems and disposable items generally leads to significant greenhouse gas emissions, and does not necessarily reduce the incidence of SSIs. Alternative infection prevention measures with less environmental impact are available. Implementation could be facilitated by embracing environmental impact as an additional dimension of quality of care, which should change current risk-based approaches for the prevention of SSIs.

Bolten, A. et al. The carbon footprint of the operating room related to infection prevention measures: a scoping review.. 2022. JOHI. Vol. 128

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JOHI

Journal of Hospital Infection 126 (2022) 52–55

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

A standardized method for evaluating test soils used to demonstrate cleaning efficacy

T.A. Kremer [a,*], R. Bancroft [b], Z. Patel [b], M. Owen [b], G. McDonnell [a]

[a] Johnson & Johnson, Raritan, NJ, USA
[b] STERIS Corporation, Leicester, UK

Kremer, T.A et al. A standardized method for evaluating test soils used to demonstrate cleaning efficacy.. 2022. JOHI. Vol. 126

JOHI

Background: Cleaning and associated validation requirements are essential for the safe use of reusable devices. In the past, test methods and associated endpoints for cleaning validations have varied worldwide. Recent international standards have updated the requirements to include cleaning endpoints and requirements for the use of test soils for demonstrating cleaning efficacy of washer-disinfectors.

Methods: A quantitative comparison of test soils used in cleaning efficacy studies was conducted using a new standardized test method as published in Annexe B ISO 15883 –5:2021. Test soils included Artificial Test Soil (ATS 2015), Blood Test Soil (BTS), Coagulated Blood, Defibrinated Blood Soil (DBLSO), Modified Coagulated Blood Soil, Two Component Blood Test Soil and the UK Test Soil (Edinburgh Soil).

Conclusion: All the test soils demonstrated acceptable performance in accordance with the standard.

Kremer, T.A et al. A standardized method for evaluating test soils used to demonstrate cleaning efficacy.. 2022. JOHI. Vol. 126

SafMed EDUCATION

JOHI

Journal of Hospital Infection 110 (2021) 15–25

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

Improved surveillance of surgical instruments reprocessing following the variant Creutzfeldt–Jakob disease crisis in England: findings from a three-year survey

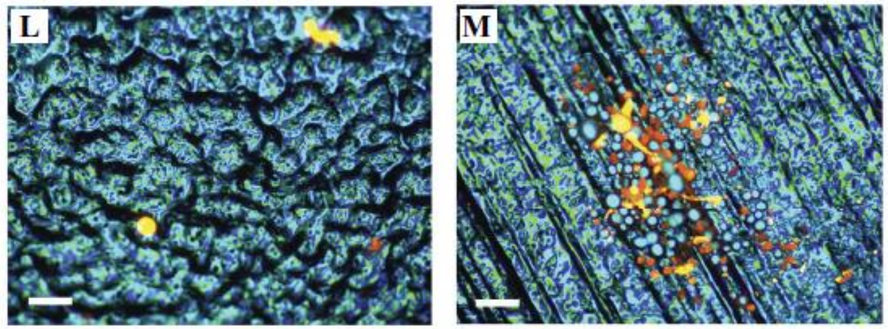
R.C. Hervé [a,*], J. Hedges [b], C.W. Keevil [a]

[a] Environmental Healthcare Unit, School of Biological Sciences, University of Southampton, Southampton, UK
[b] Sterile Services Department, University Hospital Southampton NHS Foundation Trust, Tremona Road, Southampton, UK

Herve R.C. et al. A Improved surveillance of surgical instruments reprocessing following the variant Creutzfeldt Jakob disease crisis in England: findings from a three-year survey. 2021. JOHI. Vol. 110

JOHI

Methods: We introduced highly sensitive epifluorescence (EDIC/EF) microscopy in a large SSD. Over three years, we periodically tested two models of washer disinfector using stainless-steel tokens spiked with mouse brain homogenate or Browne test soil for comparison. We also obtained data and feedback from staff who had been using EDIC/EF to examine almost 3000 reprocessed instruments.



Conclusions: Implementing recent national guidelines to address the prions concern proved an eye-opener. Microscopic levels of proteins remain on many reprocessed instruments. The impact most of these residues, potentially including prions, may have on subsequent patients after sterilization remains debatable. Improving surveillance capability in SSDs can support decision making and raise the standards of surgical instruments reprocessing.

Herve R.C. et al. A Improved surveillance of surgical instruments reprocessing following the variant Creutzfeldt Jakob disease crisis in England: findings from a three-year survey. 2021. JOHI. Vol. 110

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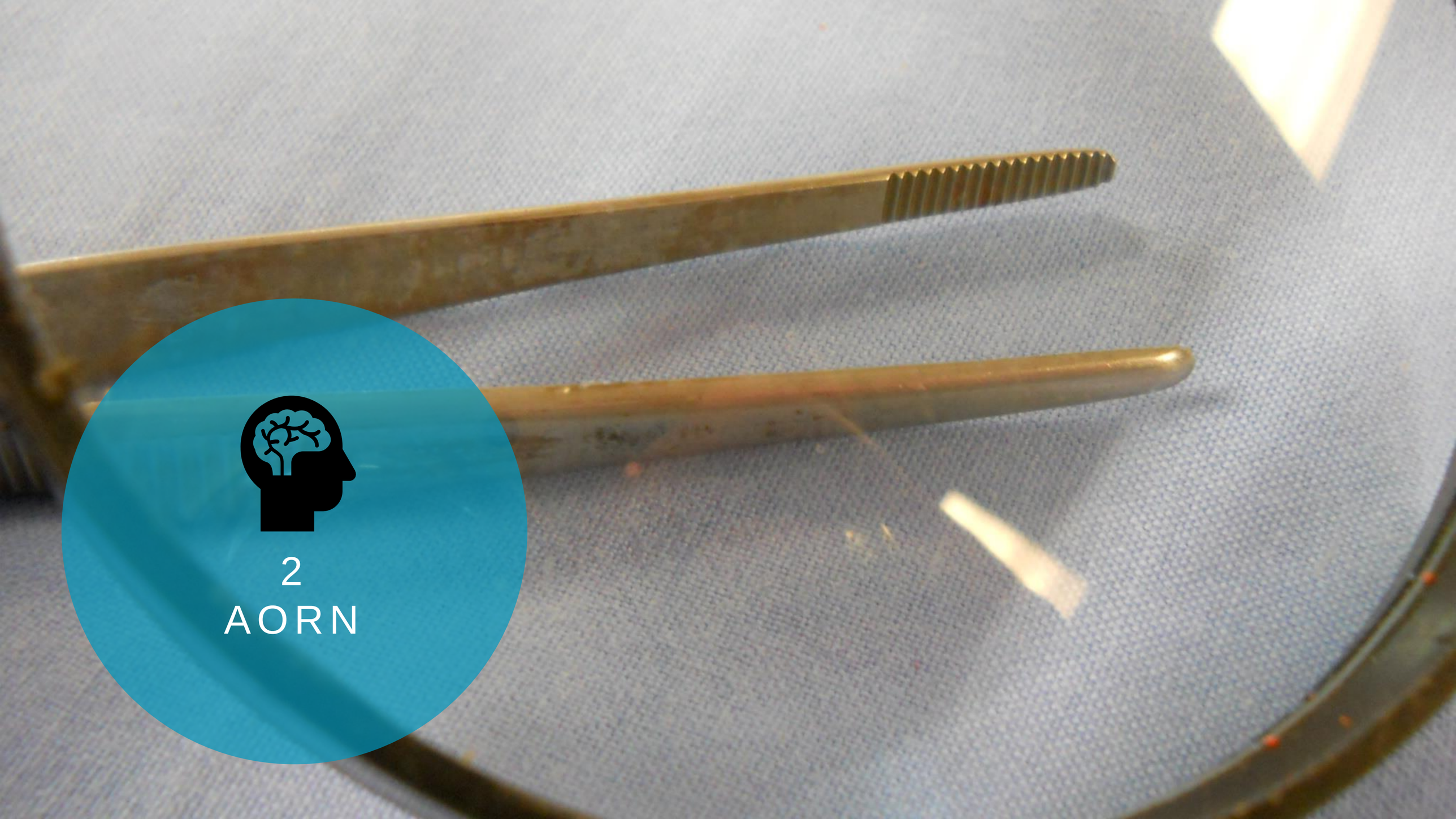
2
AORN

TEE (Transoesophageal echocardiography) Probes

LITERATURE REVIEW

Infection Transmission Associated With Contaminated Ultrasound Probes: A Systematic Review

Karina de Souza Hajar, MSc, RN; Camila Quartim de Moraes Bruna, PhD, RN;
Kazuko Uchikawa Graziano, PhD, RN

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TEE (Transoesophageal echocardiography) Probes

ABSTRACT

A systematic review of seven studies on infections related to contaminated ultrasound probes showed that the infections were related to a failure in the decontamination process of ultrasound devices used on immature skin of neonates in an intensive care unit and transesophageal echocardiography probes. Six of the studies involved outbreaks in patients who underwent transesophageal echocardiography either during or after surgery or as a part of treatment for a nonsurgical cardiac condition. The evidence shows links between the infection outbreaks and environmental contamination, lack of standardized ultrasound probe disinfection processes, inadequate storage, and lack of monitoring of probe integrity. When personnel addressed the deficiencies (eg, improving the disinfection process, cleaning the probes immediately after use, inspecting the probes for defects), the infections ceased. Personnel involved with the reprocessing of ultrasound probes should clean, disinfect, inspect, and store ultrasound probes in a manner that maintains device integrity and prevents contamination.

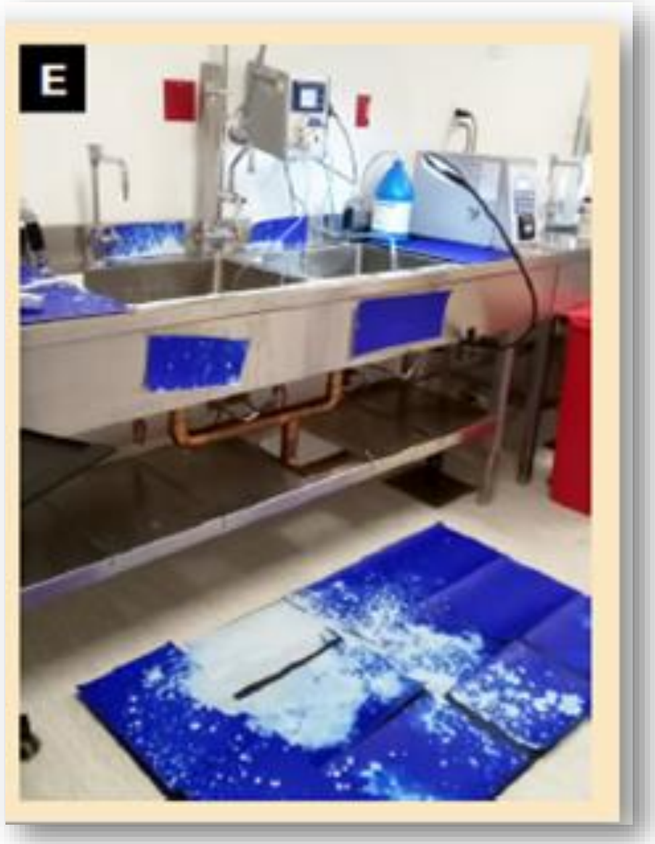
TEE (Transoesophageal echocardiography) Probes

Pathogenic microorganisms related to the outbreaks included *Candida parapsilosis sensu stricto*,[32] *Enterobacter cloacae*,[30] *Escherichia coli*,[29] *Legionella pneumophila*,[31] multidrug-resistant *Pseudomonas aeruginosa*,[33] *Salmonella enterica* serotype Isangi,[34] and *Serratia marcescens*.[35] The

TEE (Transoesophageal echocardiography) Probes

Findings from three of the included studies indicated that TEE probes had external structural damage, including cracks that could house microorganisms.[29,33,35] In addition, researchers identified reprocessing deficiencies, including

- using contaminated disinfectants,[35]
- using the improper strength of disinfectant,[35]
- failing to inspect TEE probes after cleaning,[29]
- decontaminating TEE probes in the OR between patients rather than in a central sterile supply department (CSSD),[29]
- cleaning TEE probes adjacent to a waste sink,[29]
- rinsing TEE probes in running tap water,[31] and
- storing TEE probes inappropriately.[29,35]



AORN

Association of periOperative Registered Nurses (AORN) 2022

- A new section on prepurchase evaluation added
- Includes criteria to assess when deciding whether to purchase single-use or reusable endoscopes and accessories
- Reusable endoscopes that are manufacturer-validated for sterilization should be sterilized when possible
- Use lighted magnification to inspect endoscope and accessory exteriors before sterilization or HLD
- 10× magnification used to inspect distal end of duodenoscopes

Croke, L. 2022. Guideline for Processing Flexible Endoscopes AORN Vol 116 No 3

AORN

Association of periOperative Registered Nurses (AORN) 2022

- A clean borescope should be used to visually inspect endoscope channels before sterilization or HLD
- Cleaning verification tests should be performed –on purchase and at established intervals to confirm the effectiveness of cleaning
- High risk endoscopes (eg, duodenoscopes, ultrasound endoscopes, bronchoscopes, ureteroscopes, cystoscopes) should be identified by the health care organization and should be tested after each use

Croke, L. 2022. Guideline for Processing Flexible Endoscopes AORN Vol 116 No 3

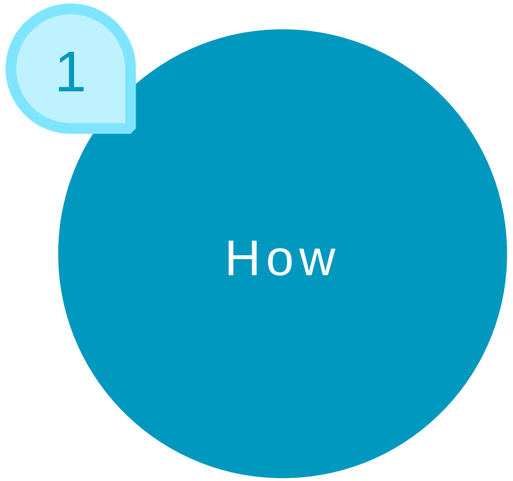
AORN Journal

WELLNESS MATTERS

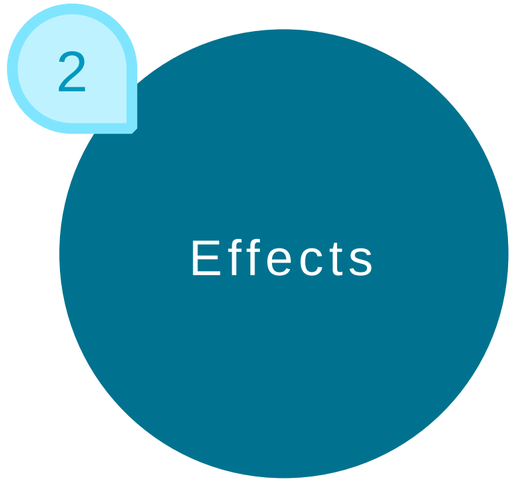
Discovering the Power of Grateful Thinking

Patricia Sullivan, DNP, RN, NEA-BC; Linda Roszak Burton, BBC, BS, ACC

AORN Journal: Power of Grateful Thinking



- An appreciation of what is meaningful and important in one's life
- Can be a powerful antidote to the emotional and psychological stresses that nurses face

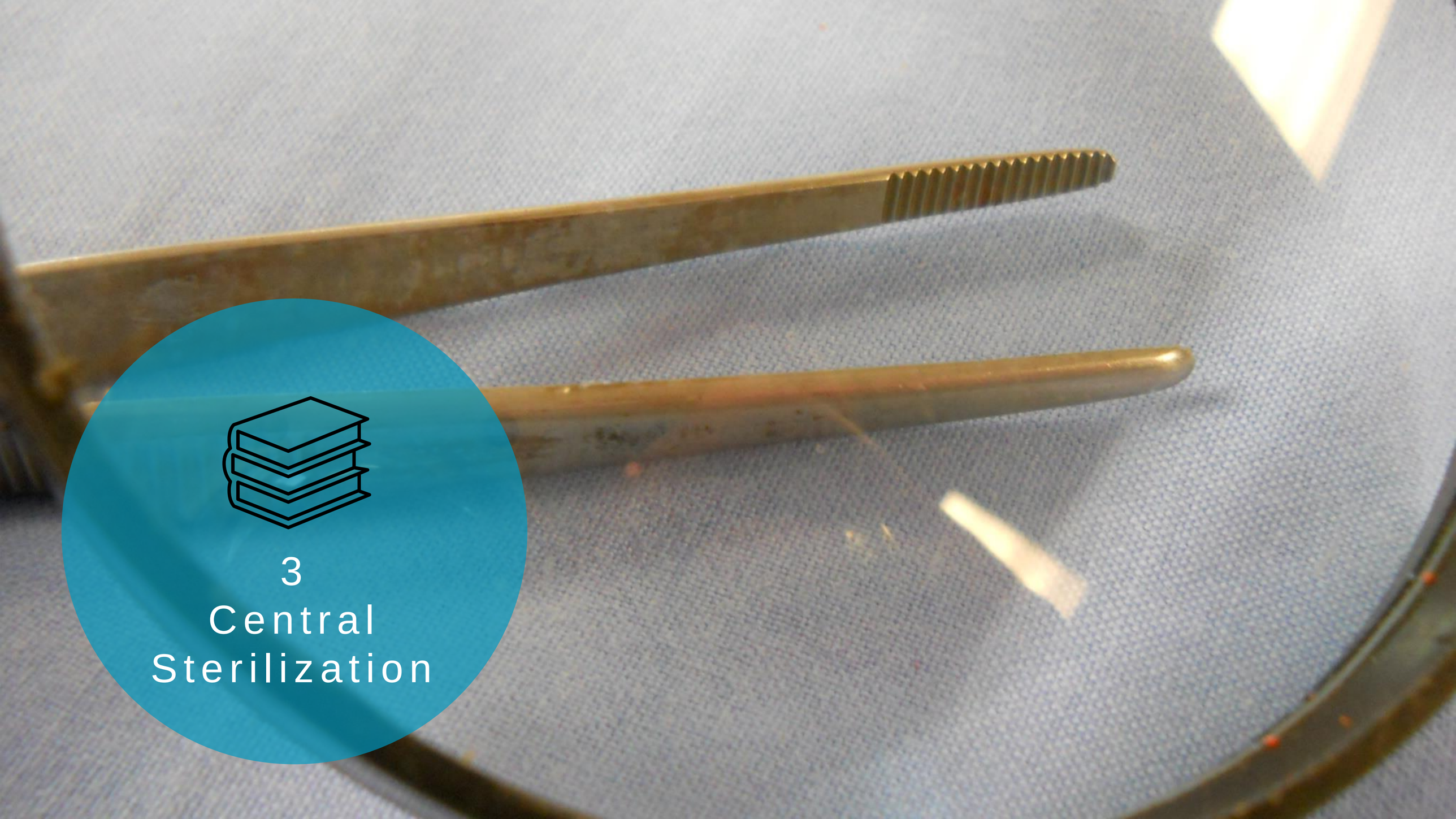


Physical, Emotional, and Mental Effects

- Associated with better sleep, less depressed mood, less fatigue, and better self-efficacy to maintain cardiac function

Practicing Gratitude

- Gratitude journal
- Keep a gratitude jar
- Write a gratitude letter



3 Central Sterilization

Central Sterilization (German Journal)

Recommendation by the Quality Task Group (126)

Cleaning and disinfection of sterilization containers and of transport and storage containers for disinfected and sterilized as well as contaminated medical devices

Authors: T. Appel, D. Betz, D. Betz, S. Bungardt, F. Deinet, D. Diedrich, C. Diekmann, M. Fažon, A. Forster, C. Graßhoff, A. Hartwig, H. Hückinghaus, C. Jäkel, A. Jones, G. Kirmse, K. Mann, J. Metzing, H. Pozo, G. Regnieth, P. Sauer, C. Schmid, M. Schreiner, D. Schricker, R. Stens, A. van Waveren, K. Wiese, U. Zimmermann qualitaet@dgsv-ev.de

Apple, T. et al. Cleaning and disinfection of sterilization containers and of transport and storage containers for disinfected and sterilized as well as contaminated medical devices. 2022. Central Sterilization. Vol 30 5/2022

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Central Sterilization (German Journal)

1. Sterile supply container system

The container is used exclusively as a sterile barrier system

Sterilization containers are used to store and protect the medical devices and maintain sterility for a specific period of time. As such, sterilization containers come directly into contact with the medical devices contained therein and must not negatively impact the efficacy achieved in the medical device reprocessing process and, when appropriately stored, must maintain the properties of the microbial barrier system until the
opened, they are considered pote

3. Manual cleaning and disinfection

MANUAL REPROCESSING PROCESSES are not recommended because of the high risk they present to personnel (see German Technical Regulation for Biological Substances of TRBA 250 [7])

They are time-consuming and personnel-intensive. Besides, there is a risk that not all surfaces and parts of containers and receptacles that are difficult to access will be decontaminated (see workshop report from DGSV Congress 2009/ Recommendation 62, *Central Service* 2009; 17 (5)).

However, if manual reprocessing is used in justified cases, suitable processes must be chosen using standard operating procedures that set out in detail the individual reprocessing steps.

Apple, T. et al. Cleaning and disinfection of sterilization containers and of transport and storage containers for disinfected and sterilized as well as contaminated medical devices. 2022. Central Sterilization. Vol 30 5/2022

SafMed EDUCATION


4
New Headlines
& Articles

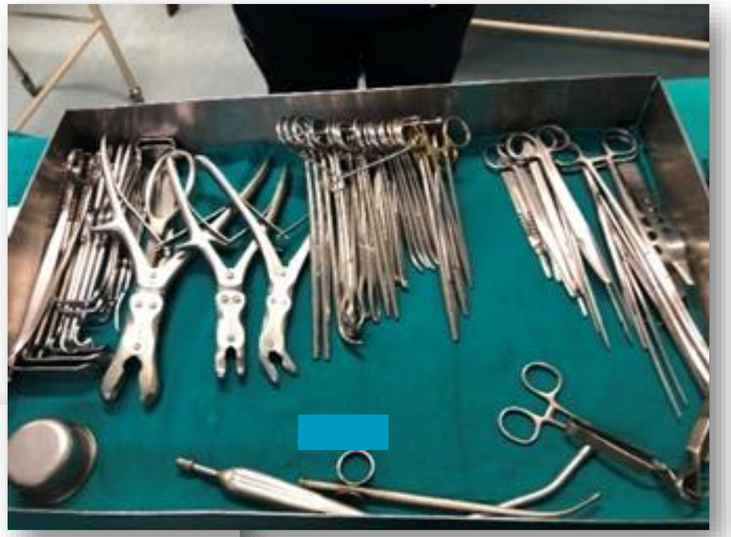
HPN: Tray liner

STERILE PROCESSING

Heavy trays, towels and moisture: Part 1

Stephen M. Kovach

May 24, 2022



Should or could we (re)use surgical towels as tray liners?

Ultimately, surgical towels are meant for wiping hands and not intended for lining surgical trays. A surgical towel is a piece of linen capable of producing unwanted lint, and it should have documentation that it has been inspected for particles like hair and gone through a de-linting process. Also, most surgical towels are colored (e.g., green or blue) and can hide stains or issues with the sterilization process. Using a liner that is white can help when issues arise with steam quality. Thus, my advice is, whatever you use to line your surgical trays, whether it's for protection or reducing wetness, make sure the IFU states it can be used that way.

HEALTHCARE PURCHASING NEWS

CLINICAL INTELLIGENCE FOR SUPPLY CHAIN LEADERSHIP

https://www.hpnonline.com/sterile-processing/article/21268043/heavy-trays-towels-and-moisture-part-1

SafMed EDUCATION

Infection Control Today-News Headlines

Improper Sterilization at Veterans Affairs Hospital Could Have Exposed Thousands to HIV, Hepatitis

A **letter has been sent to more than 4500** veterans stating that reusable instruments used in medical procedures may not have been sterilized properly at a Georgia hospital

An internal review found that proper sterile processing protocols are not always being followed, there may have been times when.

all the steps necessary for complete and safe cleaning or sterilization were not followed.

The affected patients underwent **dentistry, endoscopy, urology, podiatry, optometry, or surgical procedures in 2021.**

T.W. Martonicz, April 2022. Improper Sterilization at Veterans Affairs Hospital Could Have Exposed Thousands to HIV, Hepatitis. Infection Control Today. (Accessed 21 Nov 2022)

SafMed EDUCATION

Inspectors find issues with sterilization, infection control at Roper Hospital (USA)

- Of four surgical instruments checked, all four were sterilized incorrectly or not to standards set by the manufacturers.
- Of a dozen instruments used to check blood sugar levels in multiple patients, three were incorrectly cleaned before being readied for use on another patient.
- Staff failed to document and record data needed to show sterilizations were done correctly.
- The hospital failed to create a system for effectively monitoring, reporting and documenting problems with infection control and sterilization, and ensuring personnel were properly trained to do both.

https://www.postandcourier.com/health/inspectors-find-issues-with-sterilization-infection-control-at-roper-hospital/article_7999fbb0-f6fb-11ec-a40b-ff10bda169ac.html

SafMed EDUCATION

Inspectors find issues with sterilization, infection control at Roper Hospital (USA)

In the case of one "flash" sterilization meant to ready an instrument for immediate use, the item was actually left in the sterilizer for nearly an hour, which a Roper official admitted is problematic due to the potential for contamination as it sits there.

https://www.postandcourier.com/health/inspectors-find-issues-with-sterilization-infection-control-at-roper-hospital/article_7999fbb0-f6fb-11ec-a40b-ff10bda169ac.html

SafMed EDUCATION

Series **Fatal** Incident Autoclave Explosion Paraguay

https://lnkd.in/eDzX5QpK

SafMed EDUCATION

In Summary

- Splashing, droplet transmission and PPE
- Correct use of HLD
- Borescopes
- Carbon footprint
- Test soils
- Prions
- TEE Probes
- Tray liner/linen
- Failed Audits / Record keeping
- Equipment maintenance and staff safety

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Conclusions

- Research ongoing
- Remain up to date
- Collaboration: CSSD/IPC/OR
- Ongoing Auditing
- Keep our patients & our staff safe!

SafMed EDUCATION