Dekontaminering av ultralydutstyr

Egil Lingaas
Avdeling for smittevern

Desember 2021

Disposisjon

- Infeksjoner knyttet til bruk av ultralydutstyr
- Kontaminering
- Beskyttelsestrekk
- Ultralydgel
- Dekontaminering

Utbrudd

JOURNAL OF CLINICAL MICROBIOLOGY, May 1998, p. 1357–1360 Vol. 36, No. 5
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Nosocomial Outbreak of *Klebsiella pneumoniae* Producing SHV-5 Extended-Spectrum β-Lactamase, Originating from a Contaminated Ultrasonography Coupling Gel

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Received 2 December 1997/Returned for modification 8 February 1998/Accepted 18 February 1998

Gaillot et al. JCM 1998;36:1357

Vol. 21 No. 12 INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY 761

AN OUTBREAK OF PYODERMAS AMONG NEONATES CAUSED BY ULTRASOUND GEL CONTAMINATED WITH METHICILLIN-SUSCEPTIBLE *STAPHYLOCOCCUS AUREUS*

Klaus Weist, MD; Constanze Wendt, MD, MPH; Lyle R. Petersen, MD, MPH; Hans Versmold, MD; Henning Rüden, MD

Weist et al. ICHE 2000;21:761

Adult Urology

Outbreak of *Pseudomonas aeruginosa* Infections After Transrectal Ultrasound-Guided Prostate Biopsy

UROLOGY 69: 912–914, 2007. © 2007 Elsevier Inc.

Jennifer L. Gillespie, Kathryn E. Arnold, Judith Noble-Wang, Bette Jensen, Matthew Arduino, Jeffrey Hageman, and Arjun Srinivasan

Gillespie etal. Urology 2007;69:912

Infection/Inflammation

An Outbreak of Achromobacter xylosoxidans Associated With Ultrasound Gel Used During Transrectal Ultrasound Guided Prostate Biopsy

Karen Olshtain-Pops, Colin Block, Violeta Temper, Carlos Hidalgo-Grass, Ilana Gross, Allon E. Moses, Ofer N. Gofrit* and Shmuel Benenson†

From the Departments of Clinical Microbiology and Infectious Diseases, and Urology (ONG), Hadassah-Hebrew University Medical Center, Jerusalem, Israel

Olshtain-Pops et al. J Urol 2010;185:144

Hell *et al. BMC Proceedings* 2011, **5**(Suppl 6):O75
http://www.biomedcentral.com/1753-6561/5/S6/O75

BMC Proceedings

ORAL PRESENTATION Open Access

Burkholderia cepacia – outbreak in obstetric patients due to intrinsic contamination of non-sterile ultrasound gel

M Hell[1*], C Abel[2], A Albrecht[3], A Wojna[4], G Chmelizek[1], JM Kern[5], M Maass[5], P Apfalter[6]

From International Conference on Prevention & Infection Control (ICPIC 2011)
Geneva, Switzerland. 29 June – 2 July 2011

Hell et al. BMC Proceedings 2011;5(Suppl 6):O75

An Outbreak of *Pseudomonas aeruginosa* Respiratory Tract Infections Associated with Intrinsically Contaminated Ultrasound Transmission Gel

Paul Chittick, MD;[1,2,3] Victoria Russo, MPH;[2]
Matthew Sims, MD, PhD;[1,3]
Barbara Robinson-Dunn, PhD;[3,4]
Susan Oleszkowicz, MPH;[2] Kara Sawarynski, PhD;[1,3]
Kimberly Powell, BS;[1] Jacob Makin, MT;[4]
Elizabeth Darnell, MT;[4] Judith A. Boura, MS;[3,5]
Bobby Boyanton, MD;[3,4] Jeffrey Band, MD[1,2,3]

We describe an outbreak of *Pseudomonas aeruginosa* respiratory tract infections related to intrinsically contaminated ultrasound gel used for intraoperative transesophageal echocardiograms in cardiovascular surgery patients. This investigation led to a product safety alert by the Food and Drug Administration and the development of guidelines for appropriate use of ultrasound gel.

Infect Control Hosp Epidemiol 2013;34(8):850-853

Chittick et al. ICHE 2013;34:850

American Journal of Infection Control 45 (2017) 954-8

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

Outbreak of health care-associated *Burkholderia cenocepacia* bacteremia and infection attributed to contaminated sterile gel used for central line insertion under ultrasound guidance and other procedures

Ramon Z. Shaban PhD, PGDipPH&TM, GradCertInfCon, MEd, MCHPrac(Hons), BSc(Med), BN, RN, CICP-E, FACN, FFCENA [a,*], Samuel Maloney MBBS, BMedSc(Hons), FRCPA [b], John Gerrard MSc (Microbiology), MBBS, BSc(Med), DLSHTM, DTM&H (Lon), FRACP [c], Peter Collignon MBBS, BMedSc, FRACP, FRCPA, FASM [d], Deborough Macbeth PhD, RN, CICP-E [e], Marilyn Cruickshank PhD, RN, CICP-E, FACN [f], Anna Hume MBBS, BBiomedSc [g], Amy V. Jennison PhD, BSc(Hons) [h], Rikki M.A. Graham PhD, BSc(Hons) [h], Haakon Bergh BSc, AssDip(MedSc) [i], Heather L. Wilson PhD, MBBS, FRACP, FRCPA [j], Petra Derrington MBBS, FRACP [k]

Shaban et al. AJIC 2017;45:954

Outbreak of *Burkholderia cepacia* bacteraemia in a tertiary care centre due to contaminated ultrasound probe gel

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[b] *Department of Infection and Immunity, Research Center, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia*
[c] *Pathology & Laboratory Medicine Department, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia*
[d] *Infection Control Committee, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia*

Abdelfattah R et al. JHI 2018;98:289

RESEARCH ARTICLE

High Risk HPV Contamination of Endocavity Vaginal Ultrasound Probes: An Underestimated Route of Nosocomial Infection?

Jean-sebastien Casalegno[1*], Karine Le Bail Carval[2], Daniel Eibach[1,3], Marie-Laure Valdeyron[4], Gery Lamblin[2], Hervé Jacquemoud[5], Georges Mellier[2], Bruno Lina[1], Pascal Gaucherand[2], Patrice Mathevet[2], Yahia Mekki[1*]

Conclusion

Our study reveals that a considerable number of ultrasound probes are contaminated with human and HR-HPV DNA, despite LLD disinfection and probe cover. In all hospitals, where LLD is performed, the endovaginal ultrasound procedure must therefore be considered a source for nosocomial HR-HPV infections. We recommend the stringent use of high-level disinfectants, such as glutaraldehyde or hydrogen peroxide solutions.

Casalegno et al 2012

Table 1. Results of the 13 Sets of Samples for which HPV was Isolated from Ultrasound Probes after Removal of the Probe Cover under Routine Conditions.

Sample Number	Timing relative to Probe Use	Number of HPV detected	High Risk HPV	Low Risk HPV
1	Before probe use	1	HPV 70	
2	Before probe use	1	HPV 53	
3	Before probe use	1	HPV 53	
4	Before probe use	1		HPV 6
5	Before probe use	1		HPV 6
6	Before probe use	1	HPV 53	
7	After probe use	1		HPV 84
8	After probe use	1	HPV 16	
9	After probe use	1	HPV 53	
10	After probe use	4	HPV 31, HPV 58	HPV 54 HPV 84
11	After probe use	1	HPV 58	
12	After probe use	2	HPV 58	HPV 6
13	After probe use	1	HPV 53	

doi:10.1371/journal.pone.0048137.t001

Casalegno Js, Le Bail Carval K, Eibach D, Valdeyron ML, Lamblin G, et al. (2012) High Risk HPV Contamination of Endocavity Vaginal Ultrasound Probes: An Underestimated Route of Nosocomial Infection?. PLOS ONE 7(10): e48137. https://doi.org/10.1371/journal.pone.0048137
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0048137

Journal of Hospital Infection 83 (2013) 99–106

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

Review

Infectious risk of endovaginal and transrectal ultrasonography: systematic review and meta-analysis

S. Leroy*

Epidemiology of Emerging Diseases Unit, Institut Pasteur, Paris, France

Leroy S. JHI 2013

Etter «low level disinfection» av endovaginale prober:

12, 9 % kontaminert med patogene bakterier

- Enterobacter spp
- Acinetobacter spp
- E. coli
- P. aeruginosa
- S. aureus
- B. cepacea

Leroy S. JHI 2013

Etter «low level disinfection» av endovaginale prober:

- 19,8 % kontaminert med virus etter fjerning av trekk
- 1 % kontaminert med virus etter low level disinfection
  - HPV
  - Herpes simplex,
  - CMV

Leroy S. JHI 2013

Clinical Radiology 67 (2012) 1069–1077

Contents lists available at SciVerse ScienceDirect

Clinical Radiology

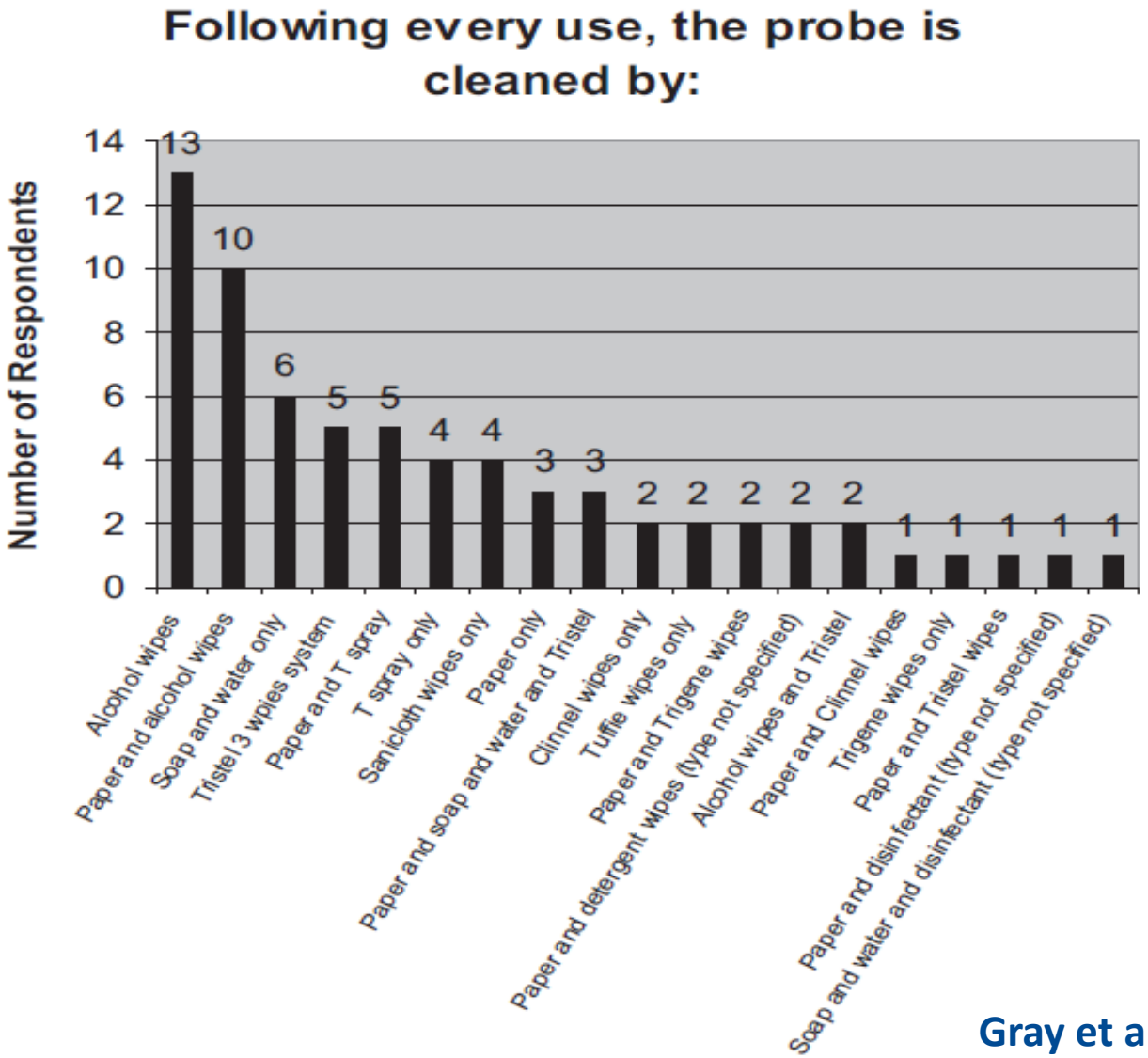
journal homepage: www.clinicalradiologyonline.net

Decontamination of transvaginal ultrasound probes: Review of national practice and need for national guidelines

R.A. Gray*, P.L. Williams, P.A. Dubbins, P.J. Jenks

Derriford Hospital, Crownhill, Plymouth, Devon, UK

Gray et al. Clin Radiol 2012;67:1069



Gray et al. Clin Radiol 2012;67:1069

ORIGINAL ARTICLE

Investigation of Current Infection-Control Practices for Ultrasound Coupling Gel

A Survey, Microbiological Analysis, and Examination of Practice Patterns

David A. Provenzano, MD, Michael A. Liebert, BA,* Barbara Steen, BSN, MPH,† Debra Lovetro, MT-ASCP,† and David L. Somers, PhD, PT‡*

Provenzano DA et al Regional Anesthesia and Pain Medicine 2013;38:416

TABLE 1. Results of Survey Identifying Key Areas of Compliance and Noncompliance With Health Canada Practice Recommendations

Recommended Practice	Compliance, n (%)	Noncompliance, n (%)
Infection-control policy for gel bottles (n = 9)	0 (0)	9 (100)
Expiration dates for gel bottles (n = 9)	0 (0)	9 (100)
Expiration dates for bulk containers (n = 3)	3 (100)	0 (0)
Exterior cleaning of gel bottles after usage (n = 9)	6 (67)	3 (33)
Disposal of gel bottles after usage with patient in contact precautions* (n = 9)	3 (33)	6 (67)
Appropriate storage of gel bottles when not in use (n = 9)	1 (11)	8 (89)
Disposal of gel bottles when empty (n = 9)	6 (67)	3 (33)
Refilling policy, including cleaning and disinfection (n = 3)†	0 (0)	3 (100)
Disinfection of gel warmer on a weekly basis (n = 3)	3 (100)	0 (0)

For the data, n = number of departments (not all practices are applicable to every department) and % = percentage of departments in compliance or noncompliance with the recommended practice.

*For bottles that are not disposed, the exterior surface was wiped with a disinfectant cloth.

†For the 3 departments that used bulk dispensers for refilling individual gel bottles.

Provenzano DA et al Regional Anesthesia and Pain Medicine 2013;38:416

TABLE 2. Summary of Previous Case Reports in Which Ultrasound Gel Was a Source of Nosocomial Infection

Author	Identified Microorganism	Source of Contamination	Associated Procedure	Type of Nosocomial Infection
Chittick et al[24]	*Pseudomonas aeruginosa*	In-use and unopened gel bottles	Transesophageal echocardiography	Respiratory tract infection
Olshtain-Pops et al[4]	*Achromobacter xylosoxidans*	250-mL in-use gel bottles	Transrectal prostate biopsy	Bacteriuria and septicemia
Marigliano et al[13]	*Burkholderia cepacia*	Not indicated	Echocardiography procedures	Not indicated
Jacobson et al[1]	*Burkholderia cepacia*, *Klebsiella oxytoca*, *Stenotrophomonas maltophilia*, *Ralstonia pickettii*, *Pantoea agglomerans*, *Enterobacter ictaluri*, *Burkholderia stabilis*	250-mL in-use gel bottles	Diagnostic ultrasonography	Respiratory tract infection, bacteriuria, and skin wound
Hutchinson et al[3]	*Burkholderia cepacia*, *Enterobacter cloacae*	Intrinsically contaminated gel during the manufacturing process	Transrectal prostate biopsy	Urinary tract infection and septicemia
Weist et al[6]	Methicillin-susceptible *S. aureus*	Dispensing spatula and 500-mL in-use gel bottle	Neonate hip-joint sonography	Pyoderma
Gaillot et al[2]	*Klebsiella pneumoniae* producing extended-spectrum β-lactamase	Wide-mouthed bulk container	Emergency department ultrasound scan	Urinary tract infection and skin lesion
Keizur et al[23]	*Pseudomonas cepacia*	Portable dispensing bottles and opened bulk dispensers	Transrectal prostate biopsy	Urinary tract infection

Provenzano DA et al Regional Anesthesia and Pain Medicine 2013;38:416

OPEN ACCESS Freely available online

PLOS | ONE

Persistence of Microbial Contamination on Transvaginal Ultrasound Probes despite Low-Level Disinfection Procedure

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M'zali et al.PLoS ONE2014;9:e93368

Funn på desinfiserte ultralydprober

- HPV DNA: 13 %
- C. trachomatis DNA 20 % (2 % etter nuklease)
- Mycoplasma DNA 8 % (4 % etter nuklease)
- Kommensale mikrober: 86 %
- S. aureus: 4 % (10-560 CFU/probe

M'zali et al.PLoS ONE2014;9:e93368

The Joint Commission.

QuickSafety

An advisory on safety & quality issues

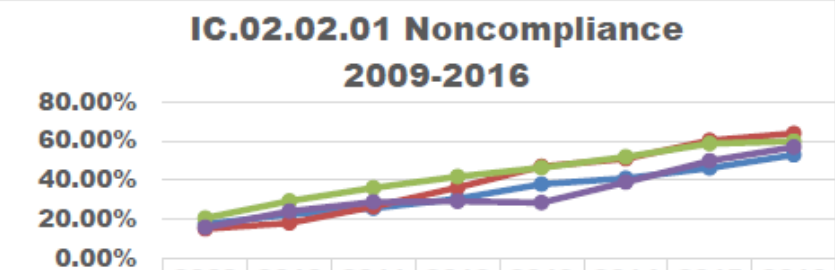
Issue 33 May 2017

Improperly sterilized or HLD equipment – a growing problem

Issue:

In 2014, The Joint Commission addressed improperly sterilized or high-level disinfected (HLD) equipment in *Quick Safety* Issue 2. Three years later, improperly sterilized or HLD equipment continues to be a frequently scored noncompliant standard — Infection Control (IC) 02.02.01. The Joint Commission encourages leadership to carefully oversee these processes and ensure that staff is properly trained and has the resources needed to adequately perform these critical functions. This *Quick Safety* replaces the May 2014 issue, and includes updated and expanded safety actions to help leaders address this growing problem.

Standard IC.02.02.01 requires organizations to reduce the risk of infections associated with medical equipment, devices and supplies. This standard is applicable to Joint Commission-accredited hospitals (HAP), critical access hospitals (CAH), ambulatory (AHC) and office-based surgery (OBS) facilities. Of these, the most vulnerable locations for lapses in sterilization or HLD of equipment are ambulatory care sites (including office-based surgery facilities) and decentralized locations in hospitals, even though the data shows higher noncompliance rates for critical access hospitals and hospitals. The noncompliance rate by accreditation program for 2009-2016 is shown in the graph.



	2009	2010	2011	2012	2013	2014	2015	2016
AHC	17.65	22.60	25.79	30.61	38.11	41.00	46.29	53.00
CAH	15.23	18.18	26.52	36.36	47.19	51.00	60.49	64.00
HAP	20.76	29.49	36.12	41.85	46.46	52.00	58.67	60.00
OBS	15.91	24.19	28.87	29.23	28.57	39.00	50.00	57.00

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0301-5629/$ - see front matter
http://dx.doi.org/10.1016/j.ultrasmedbio.2016.09.004

● *Original Contribution*

POTENTIAL INFECTION CONTROL RISKS ASSOCIATED WITH ULTRASOUND EQUIPMENT – A BACTERIAL PERSPECTIVE

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- 60 % av transabdominale prober var kontaminerte etter bruk
- 14 % av transvaginale prober var kontaminerte etter bruk og etter fjerning av trekk/kondom
- 4 % av probene var fortsatt forurenset etter desinfeksjon

Westerway SC. Austral J Ultrasound 2017;20:26

Dekontaminering av ultralydapparat og kabler

Table 3. Frequency of cleaning the ultrasound machine keyboard and cords

Cleaning frequency	Machine keyboard response % (number)	Machine cords' response % (number)
After each patient	15.14 (28)	44.09 (82)
Once a day	57.30 (106)	34.95 (65)
Once a week	14.59 (27)	10.22 (19)
Once a month	3.78 (7)	3.23 (6)
Once every six months	1.62 (3)	1.08 (2)
Never	7.57 (14)	6.45 (12)
Total	185[a]	186[b]

Westerway SC. Austral J Ultrasound 2017;20:26

MEDICAL ULTRASOUND DISINFECTION AND HYGIENE PRACTICES: WFUMB GLOBAL SURVEY RESULTS

SUSAN CAMPBELL WESTERWAY,[*,‡] JOCELYNE M. BASSEAL,[†] and JACQUES S. ABRAMOWICZ[‡,§]

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(*Received* 20 *March* 2018; *revised* 19 *September* 2018; *in final from* 19 *September* 2018)

Ultrasound in Med. & Biol., Vol. 45, No. 2, pp. 344–352, 2019

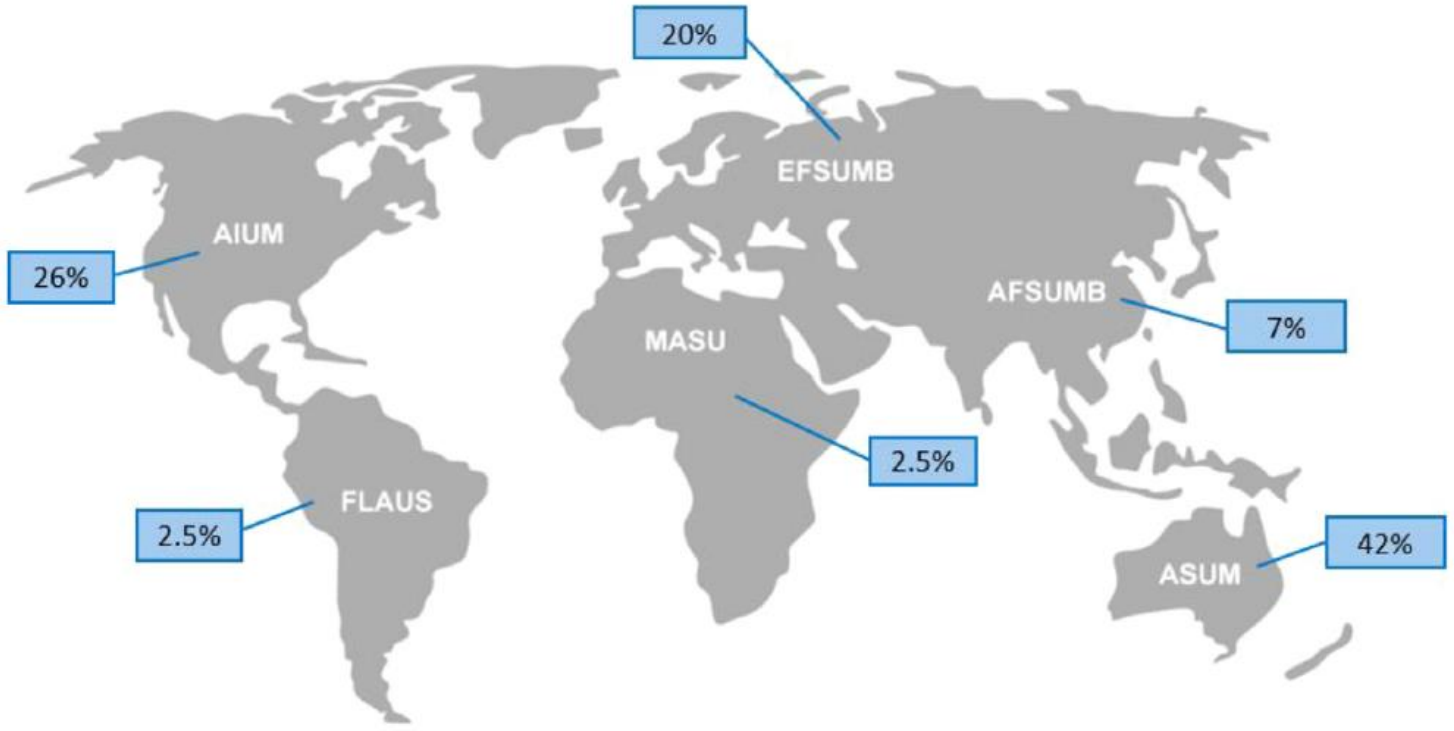

Fig. 1. Percentage of respondents from each World Federation for Ultrasound in Medicine and Biology sister organization.

Ultrasound in Med. & Biol., Vol. 45, No. 2, pp. 344–352, 2019

Table 1. Statements regarding the use of approved and non-approved agents for disinfection of ultrasound probes

Statement	Never (0%)	Rarely (1%–19%)	Occasionally (20%–39%)	Sometimes (40%–59%)	Frequently (60%–79%)	Usually (80%–99%)	Every time (100%)	Total no. of responses (out of 1029)
At the end of every external scan I wipe the transducer with an alcohol-based wipe	35.71% (280)	8.93% (70)	6.25% (49)	5.87% (46)	4.46% (35)	6.25% (49)	32.53% (255)	784
At the end of every endocavity scan I wipe the transducer with an alcohol-based wipe	52.03% (321)	7.46% (46)	2.92% (18)	2.43% (15)	1.78% (11)	4.38% (27)	29.01% (179)	617
At the end of every endocavity scan, I disinfect the transducer with an approved high-level disinfectant	8.27% (65)	1.02% (8)	1.15% (9)	0.89% (7)	1.15% (9)	2.93% (23)	84.61% (665)	786
When blood comes into direct contact with any transducer, I disinfect with an approved high-level disinfectant	6.24% (56)	1.67% (15)	1.90% (17)	2.56% (23)	2.12% (19)	6.47% (58)	79.04% (709)	897
I perform quality control tests on my high-level disinfection methods	37.95% (285)	4.26% (32)	2.26% (17)	3.33% (25)	2.13% (16)	6.13% (16)	43.94% (330)	751

Ultrasound in Med. & Biol., Vol. 45, No. 2, pp. 344–352, 2019

Table 2. Statements regarding the use of non-sterile gel and probe covers

Statement	Never (0%)	Rarely (1%–19%)	Occasionally (20%–39%)	Sometimes (40%–59%)	Frequently (60%–79%)	Usually (80%–99%)	Every time (100%)	Total No. of responses (out of 1,029)
I use non-sterile gel when performing a biopsy	88.79% (602)	2.21% (15)	0.44% (3)	1.47% (10)	0.44% (3)	0.88% (6)	5.75% (39)	678
I use non-sterile gel when scanning open wounds	87.30% (660)	3.31% (25)	1.59% (12)	1.06% (8)	1.32% (10)	0.93% (7)	4.50% (34)	756
I use a single latex condom to cover the probe for transvaginal scans	37.74% (251)	3.01% (20)	1.50% (10)	2.56% (17)	2.71% (18)	12.18% (81)	40.30% (268)	665
I use a single latex condom to cover the probe for transrectal scans	51.59% (65)	1.59% (2)	3.17% (4)	1.59% (2)	1.59% (2)	5.56% (7)	34.92% (44)	126
I use a dedicated commercial latex probe cover for transvaginal scans	54.89% (348)	5.36% (34)	2.68% (17)	3.15% (20)	1.10% (7)	8.52% (54)	24.29% (154)	634
I use a dedicated commercial latex probe cover for transrectal scans	48.74% (58)	5.88% (7)	4.20% (5)	2.52% (3)	0.84% (1)	7.56% (9)	30.25% (36)	119
I use a dedicated commercial vinyl probe cover for transvaginal scans	30.61% (206)	14.71% (99)	7.43% (50)	6.69% (45)	0.59% (4)	3.86% (26)	36.11% (243)	673
I use a dedicated commercial vinyl probe cover for transrectal scans	51.24% (62)	9.09% (11)	4.96% (6)	0.83% (1)	0.83% (1)	1.65% (2)	31.40% (38)	121
I cover surface probes with a sterile probe cover for an interventional procedure	4.68% (34)	2.34% (17)	2.07% (15)	4.82% (35)	4.55% (33)	10.19% (74)	71.35% (518)	726
I cover surface probes with a probe cover if blood and bodily fluids are present	4.85% (39)	2.36% (19)	2.49% (20)	4.35% (35)	3.23% (26)	11.44% (92)	71.27% (573)	804
I cover surface probes with a probe cover when scanning open wounds	4.33% (33)	2.62% (20)	3.15% (24)	3.28% (25)	2.36% (18)	7.60% (58)	76.67% (585)	763
I cover surface probes with a probe cover when scanning a patient with a skin infection	10.72% (86)	4.74% (38)	2.37% (19)	5.36% (43)	3.62% (29)	11.97% (96)	61.22% (491)	802

Ultrasound in Med. & Biol., Vol. 45, No. 2, pp. 344–352, 2019

Ultralydgel

Bruk av ultralydgel (1)

Steril gel skal brukes

- Til invasive prosedyrer, f.eks. nålebiopsi
- Til alle aseptiske prosedyrer som benytter sterilt utstyr eller til ikke-intakt hud
- Til alle undersøkelser av nyfødte
- Til prosedyrer på slimhinner (øsofagus, ventrikkel, rectalt, vaginalt)
- For prosedyrer som krever bruk av steril gel, må man forsikre seg om at bare uåpnede beholdere merket "steril" brukes.
- Er det ubrukt gel igjen i en steril engangsbeholder må den kastes og ikke benyttes til en annen pasient.

Bruk av ultralydgel (2)

Usteril gel

- Det skal brukes engangsbeholdere
- Hvis det brukes flergangsbeholdere, skal de tømmes helt, rengjøres, desinfiseres og tørkes før de fylles på nytt
- Skadede beholdere må kasseres
- Utløpsdato på bulk-konteinere må overholdes
- Gel skal ikke aspireres fra bulk-konteinere, men fordeles til flergangsbeholdere
- Tuten på flergangsbeholdere skal ikke komme i kontakt med pasienter, personell, utstyr eller miljøet.
- Gel skal fordeles til en kopp eller engangsklut/kompress e.l., ikke direkte fra beholder til hud

Bruk av ultralydgel (3)

- Ultralydgel i multidoseholdere skal merkes med åpningsdato.
- Multidosebeholdere må oppbevares som anbefalt av produsenten .
- Ubrukt gel kastes hvis beholder eller innholdet blir forurenset, eller beholder ikke er merket med åpningsdato.
- Gelbeholder desinfiseres utvendig ved begynnelsen og slutten av hver arbeidsdag.
- På grunn av risiko for vekst av bakterier og sopp i varme omgivelser, anbefales ikke oppvarming av gelbeholdere for flergangsbruk. Ved oppvarming bør det brukes en tørr varmekilde (ikke vannbad).
- Før rengjøring og desinfeksjon/sterilisering av ultralydprober må all ultralydgel fjernes manuelt med en fuktet, lofri klut.

Bruk av ultralydgel (4)

Holdbarhet etter anbrudd (brukstid) av *steril* gel

- Engangsbruk

Holdbarhet etter anbrudd (brukstid) av *usteril* gel

- Ukonservert: Kan oppbevares i 1 uke i kjøleskap
- Konservert: Kan oppbevares i 4 uker i romtemperatur

Trekk til ultralydprober

Assessment of Condoms as Probe Covers for Transvaginal Sonography

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Received 13 September 1999; accepted 29 February 2000

Kondomer brukt til beskyttelse av ultralydprober hadde en lav frekvens av perforasjoner. Desinfeksjon med isopropylalkohol reduserte risikoen ytterligere.

Amis S et al. J Clin Ultrasound 2000;28:295

Ineffectiveness of Latex Condoms in Preventing Contamination of the Transvaginal Ultrasound Transducer Head

JOHN M. STORMENT, MD, MANJU MONGA, MD, and JORGE D. BLANCO, MD, Houston, Tex

ABSTRACT: The efficacy of condoms in preventing contamination of the transvaginal ultrasound transducer head and possible transmission of blood-borne pathogens is unknown. Our objective was to determine the rate of contamination of the transvaginal ultrasound probe after use in the emergency department. After indicated transvaginal ultrasound scans, the latex condom was removed and the transducer head was inspected for contamination. The presence of vaginal bleeding and the duration of the ultrasound scan were noted. Ten milliliters of hydrogen peroxide (H_2O_2) was placed in the condom. Bubbling, which occurs in the presence of blood or cervicovaginal secretions, was considered a positive test. Exposure of a clean condom or co

206 February 1997 • SOUTHERN MEDICAL JOURNAL • Vol. 90, No. 2
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and Student's *t* tests were used for statistical analysis. Of 173 cases, 8 (5%) had a positive H_2O_2 test for contamination. In only 3 of these 8 cases was gross contamination seen. Latex condoms are ineffective in preventing contamination of the transvaginal ultrasound transducer head. Visual inspection of the transducer head often fails to identify the presence of blood or body fluids. This suggests that additional measures should be taken to prevent transmission of blood-borne pathogens.

8/173 prober (5 %) var forurenset med blod etter bruk med kondom.
Bare 3 var visuelt synlige.

Storment JM et al. Southern Med J 1997;90:206

Int Urol Nephrol (2007) 39:1121–1124
DOI 10.1007/s11255-007-9213-y

ORIGINAL ARTICLE

Condom perforation during transrectal ultrasound guided (TRUS) prostate biopsies: a potential infection risk

Junaid Masood · Stelios Voulgaris · Olisa Awogu · Choudhary Younis · Andrew J. Ball · Tom W. Carr

9 % perforasjonsrate av kondom brukt på ultralydprober ved prostatabiopsi

Masood J et al. Int Urol Nephrol 2007;39:1121

Comparison of Probe Sheaths for Endovaginal Sonography

VERONICA J. ROOKS, MD, MICHAEL K. YANCEY, MD, STEVEN A. ELG, MD, AND LISA BRUESKE, RDMS

Perforasjon ble registrert i 15 av 180 (8,3%) probetrekk og 3/180 (1,7 %) kondomer

Rooks VJ et al. Obstet Gynecol 1996;87:27

Journal of Assisted Reproduction and Genetics, Vol. 12, No. 9, 1995

High Rates of Perforation Are Found in Endovaginal Ultrasound Probe Covers Before and After Oocyte Retrieval for *in Vitro* Fertilization-Embryo Transfer[1]

MICHAEL HIGNETT,[2,3] and PAUL CLAMAN[2,4]

Table I. Perforations Found in Used Probe Covers

	Old Cook	New Cook	Swemed
Perforated	10 (77)[a]	5 (25)	61 (81)
Intact	3 (23)	15 (75)	14 (19)
			$P = 0.000005$

[a] Numbers in parentheses are percentages (%).

Hignett M J Assist Reprod Genet 1995;12:

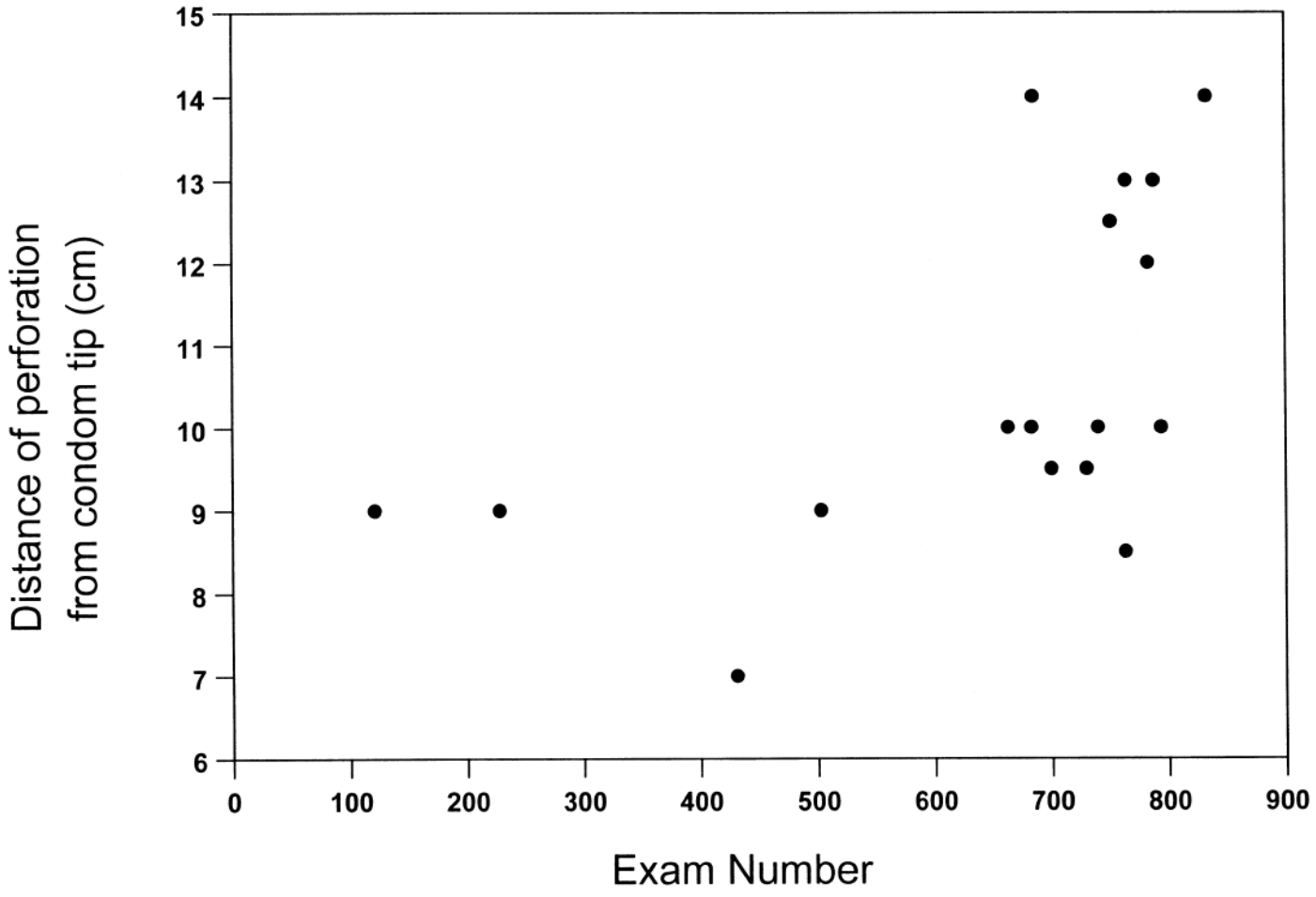
Vaginal ultrasound probe cover leakage: implications for patient care

Amin A. Milki, M.D. and Jeffrey D. Fisch, M.D.

Department of Gynecology and Obstetrics, Stanford University, Stanford, California

Milki AA et al. Fertil Steril 1998;69:409

Perforasjon av kondom og avstand fra tuppen



Milki AA et al. Fertil Steril 1998;69:409

- Selv om det bare var lekkasje på 2 % av kondomene, var 65 % av lekkasjene på områder som kunne føre til intravaginal forurensning av proben.
- Studien understreker behovet for rutinemessig desinfeksjon av proben etter hver bruk

Milki et al. Fertil Steril 1998;69:409

Trekk til ultralydprober

- Trekk skal alltid brukes når proben kommer i kontakt med slimhinner
- Sterilt trekk og steril gel brukes ved aseptiske prosedyrer.
- Proben skal alltid rengjøres før desinfeksjon, selv etter bruk av trekk/kondom.

Dekontaminering av ultralydprober

Ultralydprober skal alltid rengjøres og deretter desinfiseres.

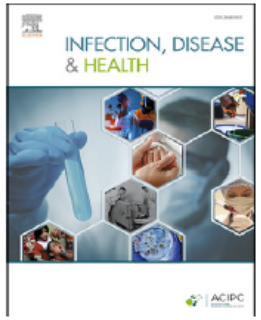
Maskinell desinfeksjon bør brukes for prober som kommer i kontakt med slimhinner.

Infection, Disease & Health (2020) 25, 77–81

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: http://www.journals.elsevier.com/infection-disease-and-health/



Research paper

Analysis of the integrity of ultrasound probe covers used for transvaginal examinations

Jocelyne M. Basseal [a,b,*], Susan Campbell Westerway [c], Jon A. Hyett [d]

Perforasjonsraten var 0,4 % - 13 % for kondomer, og 0 – 5 % for kommersielle probetrekk.

Basseal et al. Infection, Disease & Health 2020;25:77

Dekontaminering av ultralydprober

Rengjøring

- Ultralydprober skal alltid rengjøres grundig umiddelbart etter hver pasientundersøkelse, og før desinfeksjon, selv om det brukes trekk eller kondom.
- Hvis det brukes trekk, fjernes dette, og eventuell gel tørkes av med en myk klut.
- Bruk myk, fuktet klut med enzymatisk rengjøringsmiddel eller rengjøringsmiddel anbefalt av produsent.
- Rengjøringsmiddelet fjernes med ny klut fuktet med vann.
- Følg ultralydprodusentens anbefalte rengjøringsmetode nøye.

Desinfeksjon (1)

Manuell desinfeksjon

- Følg brukerveiledningen for desinfeksjonsmidlet nøye og sørg for korrekt konsentrasjon og virketid.
- Etter fullført desinfeksjon med korrekt virketid, skylles proben med rent vann for å fjerne rester av kjemikalier. Deretter tørkes proben med en myk, lofri klut.
- Prober til semikritiske (kontakt med slimhinner)og kritiske (sterile) prosedyrer skal etter desinfeksjon skylles av med sterilt eller deionisert vann for å fjerne rester av kjemikalier. Deretter tørkes proben av med en steril, lofri kompress.

Desinfeksjon (2)

Maskinell desinfeksjon

- Prober som brukes i kontakt med slimhinner bør desinfiseres maskinelt.
- Alternative metoder er UVC eller hygdrogenperoksidgass.
- Det forutsettes at den valgte metoden/maskinen er validert for aktuell probetype.

Sterilisering

- Prober som skal brukes til kritiske (sterile) prosedyrer skal steriliseres.
- Bruk anbefalt lavtemperatursteriliseringsmetode gitt av ultralydprodusenten.