

3M

Tegaderm™

CHG Chlorhexidine Gluconate
I.V. Securement Dressings

CLINICAL EVIDENCE SUMMARY

**The
evidence
is clear.**



Table of contents

Topics key



Infection reduction

Measurable decrease in catheter-related bloodstream infection (CRBSI) rate.



Antimicrobial protection

Microbial colonisation and *in vitro* zone of inhibition.*



Ease of use

Product usability and clinician preference.



Health economics

Cost savings and overall economic impact.

META-ANALYSIS

Chlorhexidine-impregnated dressing for the prophylaxis of central venous catheter-related complications: a systematic review and meta-analysis.



pg. 6

Wei L, Li Y, Li X, Bian L, Wen Z, Li M. *BMC Infect Dis.* 2019;19:(1).
<https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-019-4029-9>.

Chlorhexidine-impregnated dressing for prevention of catheter-related bloodstream infection: a meta-analysis.



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Safdar N, O'Horo JC, Ghufran A, et al. *Crit Care Med.* 2014;42(7):1703-1713.

RANDOMISED CONTROLLED TRIAL

Effectiveness of a chlorhexidine dressing on silver-coated external ventricular drain-associated colonisation and infection: a prospective single-blinded randomised controlled clinical trial.



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Roethlisberger M, Moffa G, Fisch U, et al. *Clin Infect Dis.* 2018;67(12):1868-1877.

A randomised trial on chlorhexidine dressings for the prevention of catheter-related bloodstream infections in neutropenic patients.



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Biehl LM, Huth A, Panse J, et al. *Ann Oncol.* 2016;27(10):1916-1922.

Tegaderm CHG Dressing significantly improves catheter-related infection rate in hemodialysis patients.



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Righetti M, Palmieri N, Bracchi O, et al. *J Vasc Access.* 2016;17(5):417-422.

Randomised controlled trial of chlorhexidine dressing and highly adhesive dressing for preventing catheter-related infections in critically ill adults.



pg. 11

Timsit JF, Mimoz O, Mourvillier B, et al. *Am J Respir Crit Care Med.* 2012;186(12):1272-1278.

*No clinical correlations intended.

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RANDOMISED CONTROLLED TRIAL (CONT.)

Suppression of regrowth of normal skin flora under chlorhexidine gluconate dressings applied to chlorhexidine gluconate-prepped skin.



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Bashir MH, Olson LK, Walters SA. *Am J Infect Control.* 2012;40:344-348.

PEER REVIEWED

Sustained reduction of catheter-associated bloodstream infections with enhancement of catheter bundle by chlorhexidine dressings over 11 years.



pg. 13

Eggimann P, Pagani JL, Dupuis-Lozeron E, et al. *Intensive Care Med.* (2019) 45:823-833.
<https://doi.org/10.1007/s00134-019-05617-x>.

Chlorhexidine-impregnated transparent dressings decrease catheter-related infections in hemodialysis patients: a quality improvement project.



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Apata IW, Hanfelt J, Bailey JL, Niyyar VD. *J Vasc Access.* 2017;18(2):103-108.

Significant reduction of external ventricular drainage-associated meningoventriculitis by chlorhexidine-containing dressings: a before-after trial.



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Scheithauer S, Schulze-Steinen H, Höllig A, et al. *Clin Infect Dis.* 2016;62(3):404-405.

Clinical evaluation of a chlorhexidine intravascular catheter gel dressing on short-term central venous catheters.



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Karpanen TJ, Casey AL, Whitehouse T, Nightingale P, Das I, Elliott TS. *Am J Infect Control.* 2016;44(1):54-60.

*No clinical correlations intended.

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PEER REVIEWED (CONT.)

Transparent film intravenous line dressing incorporating a chlorhexidine gluconate gel pad: a clinical staff evaluation.



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Karpanen TJ, Casey AL, Das I, Whitehouse T, Nightingale P, Elliott TSJ. *J Assoc for Vasc Access*. 2016;September:21(3):133-138.

Economic impact of Tegaderm chlorhexidine gluconate (CHG) dressing in critically ill patients.



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Thokala P, Arrowsmith M, Poku E, Martyn-St. James M, Anderson J, Foster S, Elliott T, Whitehouse T. *J Infect Prev*. 2016;17(5):216-223.

Cost-effectiveness analysis of a transparent antimicrobial dressing for managing central venous and arterial catheters in intensive care units.



pg. 19

Maunoury F, Motrunich A, Palka-Santini M, Bernatchez SF, Ruckly S, Timsit JF. *PLoS One*. 2015;10(6):e0130439.

Chlorhexidine gluconate dressings reduce bacterial colonisation rates in epidural and peripheral regional catheters.



pg. 20

Kerwat K, Eberhart L, Kerwat M, et al. *Biomed Res Int*. 2015;2015:149785. doi: 10.1155/2015/149785.

Reduction of central venous line-associated bloodstream infection rates by using a chlorhexidine-containing dressing.



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Scheithauer S, Lewalter K, Schröder J, et al. *Infection*. 2014;42(1):155-159.

Use of a 1-piece chlorhexidine gluconate transparent dressing on critically ill patients.



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Pfaff B, Heithaus T, Emanuelsen M. *Crit Care Nurse*. 2012;32(4):35-40.

Topics key



Infection reduction

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Health economics

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POSTER

Fitness of use of Biopatch® and Tegaderm™ CHG for protecting central venous catheters and arterial lines in critically ill patients.



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Eggimann P, Joseph C, Thévenin MJ. Oral presentation at: 3rd International Conference on Prevention and Infection Control; June, 2015; Geneva, Switzerland.

A different experience with two different chlorhexidine gluconate dressings for use on central venous devices.



pg. 24

Kohan CA, Boyce JM. Poster presented at Association for Professionals in Infection Control and Epidemiology (APIC) and published in *Am J Infect Control*. 2013;41(6):S142–S143.

Growth inhibition of microorganisms involved in CRBSIs by an antimicrobial transparent I.V. dressing containing chlorhexidine gluconate (CHG).



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Hensler JP, Schwab DL, Olson LK, Palka-Santini M. Poster session presented at: 19th Annual Conference of the European Society of Clinical Microbiology and Infectious Diseases 2009; May 16-19, 2009.

Antimicrobial activity of a CHG-impregnated gel pad for I.V. site protection.



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Schwab D, et al. Poster presented at: the conference of Infusion Nursing Society; May, 2008.

A novel integrated chlorhexidine-impregnated transparent dressing for prevention of vascular catheter-related bloodstream infection: a prospective comparative study in healthy volunteers.



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Maki D, Stahl J, Jacobson C, et al. 2008. Poster presentation at The Society for Healthcare Epidemiology of America annual conference.

ADDITIONAL INFORMATION

Instructions for Use

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*No clinical correlations intended.

“Chlorhexidine-impregnated dressing is beneficial to prevent CVC-related complications.”

Wei L, Li Y, Li X, Bian L, Wen Z, Li M. Chlorhexidine-impregnated dressing for the prophylaxis of central venous catheter-related complications: a systematic review and meta-analysis. *BMC Infect Dis.* 2019;19:(1). <https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-019-4029-9>.

TOPIC(S)



Infection reduction

DESIGN

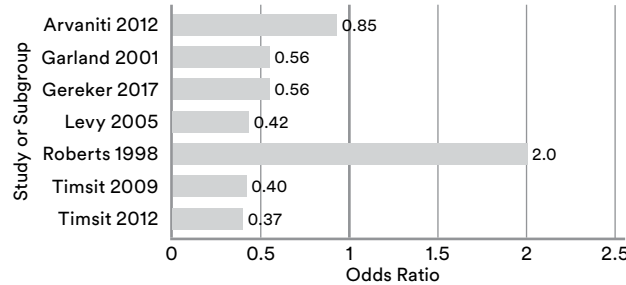
Meta-analysis of 12 randomised controlled trials with 6,028 patients that met inclusion criteria.

METHODS

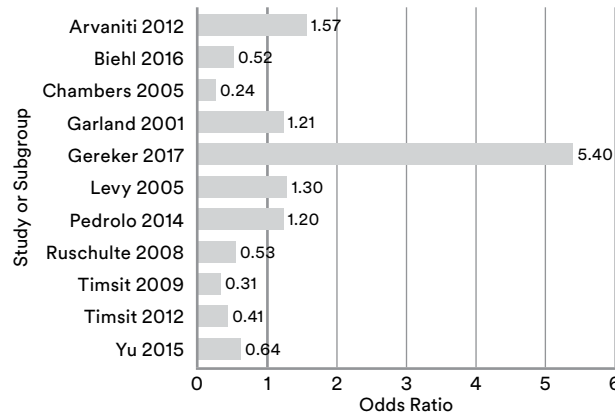
Studies were randomised controlled trials comparing chlorhexidine-impregnated dressing versus other dressing or no dressing for prophylaxis of central venous catheter (CVC)-related complications.

RESULTS

Risk of Catheter Colonisation



Incidence of CRBSI



Ratios <1 favor chlorhexidine-impregnated dressing.
Ratios >1 favor other dressing or no dressing.

KEY FINDINGS

Chlorhexidine-impregnated dressing is beneficial to **reduce the risk of catheter colonisation** for catheter-related bloodstream infections (CRBSI) for patients with CVC.

Chlorhexidine-impregnated dressings were conducive to **reduce the incidence of CRBSI.**

Chlorhexidine transparent dressing could effectively **reduce the frequency of dressing changes** to ease workload of nursing staff.

[CLICK HERE to view Full Clinical Study](#)

A chlorhexidine-impregnated dressing is beneficial in preventing catheter colonisation and, more importantly, CRBSI.

Safdar N, O'Horo JC, Ghufran A, et al. Chlorhexidine-impregnated dressing for prevention of catheter-related bloodstream infection: a meta-analysis. *Crit Care Med.* 2014;42(7):1703–1713.

TOPIC(S)



Infection reduction

DESIGN

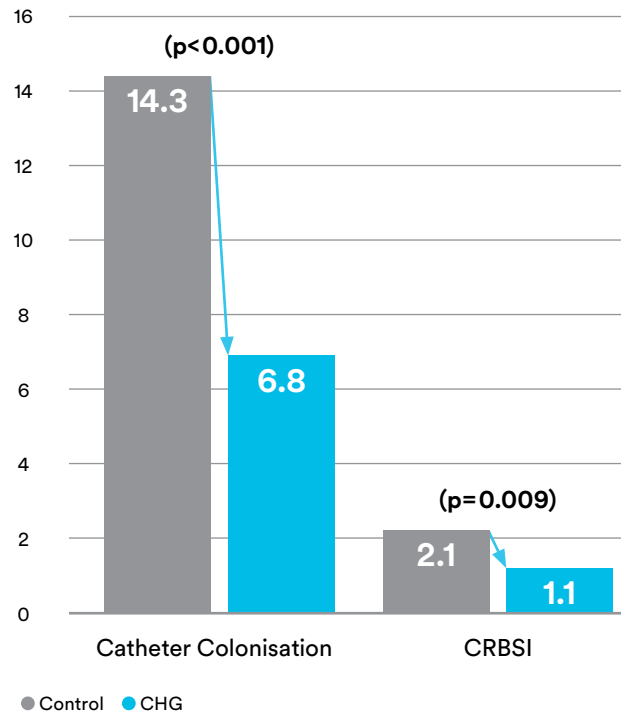
Meta-analysis of nine randomised controlled trials that met inclusion criteria.

METHODS

Studies were randomised controlled trials comparing a chlorhexidine-impregnated dressing with conventional site care to assess the efficacy of a chlorhexidine-impregnated dressing for prevention of central venous (CVC) and arterial catheter-related colonisation and catheter-related bloodstream infection (CRBSI).

RESULTS

Catheter Colonisation (% of catheters) and CRBSI (% of patients)



KEY FINDINGS

There was **significant benefit** to using a chlorhexidine-impregnated dressing for **CVC and arterial catheters.**

There was a **low incidence rate** of contact dermatitis using a chlorhexidine-impregnated dressing in adults.

[CLICK HERE to view Abstract](#)

3M™ Tegaderm™ CHG Dressing helps reduce the risk of EVD exit site contamination and EVDAs.

Roethlisberger M, Moffa G, Fisch U, et al. Effectiveness of a chlorhexidine dressing on silver-coated external ventricular drain-associated colonisation and infection: a prospective single-blinded randomised controlled clinical trial. *Clin Infect Dis.* 2018;67(12):1868–1877.

TOPIC(S)



Antimicrobial protection

DESIGN

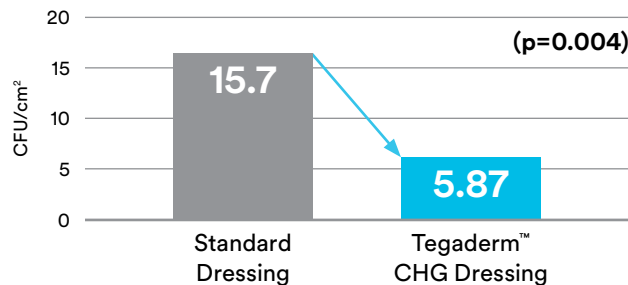
Randomised controlled trial comparing bacterial regrowth at external ventricular drain (EVD) site five days post-op between control (standard dressing) and chlorhexidine gluconate dressings (Tegaderm CHG Dressing).

METHODS

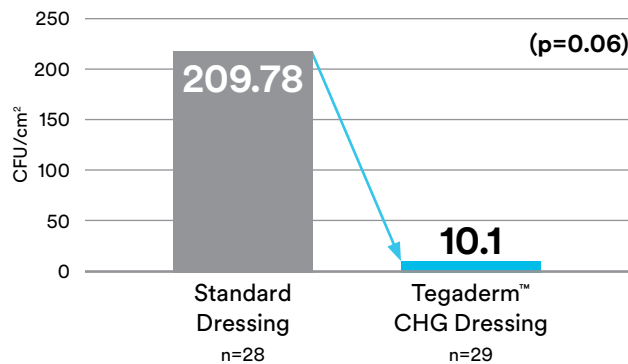
Study assessed 57 subjects (29 in the Tegaderm CHG Dressing group and 28 in the standard dressing group). Secondary endpoints included sonicated EVDs, EVD-associated infections and surgical treatment of hydrocephalus.

RESULTS

Cutaneous Bacterial Regrowth at EVD Entry Site Five Days Post-op



Subcutaneous EVD Segment Sonification



KEY FINDINGS

Cutaneous bacterial regrowth at the EVD site was **lower** for Tegaderm CHG Dressing versus standard dressing.

Bacterial colonisation of the subcutaneous EVD segment and tip was **95% less** for Tegaderm CHG Dressing versus standard dressing.

[CLICK HERE](#) to view Full Clinical Study

3M™ Tegaderm™ CHG Dressing demonstrated an antimicrobial benefit during the complete long-term catheter therapy.

Biehl LM, Huth A, Panse J, et al. A randomised trial on chlorhexidine dressings for the prevention of catheter-related bloodstream infections in neutropenic patients. *Ann Oncol.* 2016;27(10):1916-1922.

TOPIC(S)



Infection reduction



Ease of use

BACKGROUND

In neutropenic patients, mortality due to catheter-related bloodstream infections (CRBSI) has been reported to be as high as 36%.

Luft D, Schmoor C, Wilson C, et al. Central venous catheter-associated bloodstream infection and colonisation of insertion site and catheter tip. What are the rates and risk factors in haematology patients? *Ann Hematol.* 2010;89:1265–1275.

DESIGN

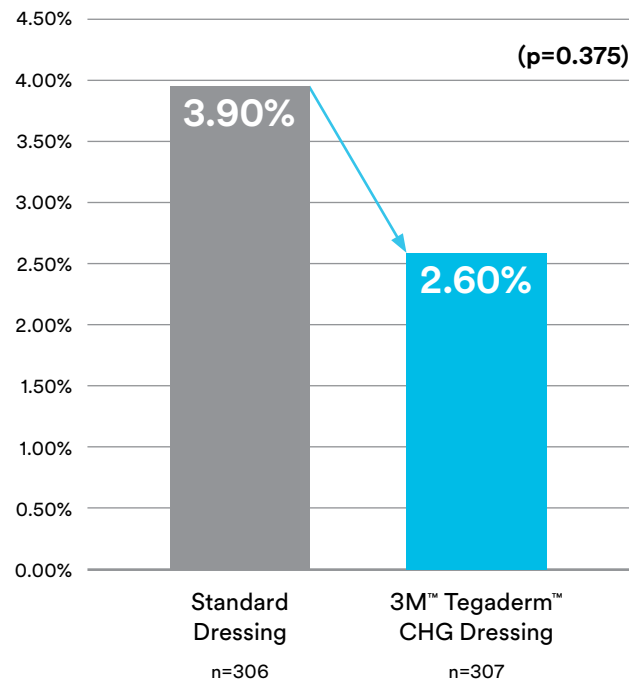
Open-label randomised, multi-centre trial in 10 German hematological departments measuring definite catheter-related bloodstream infections (CRBSI) with the first 14 days of central venous catheter (CVC) placement.

METHODS

Study assessed 613 neutropenic patients (307 in the Tegaderm™ CHG Group and 306 in the standard dressing group).

RESULTS

Definite CRBSI within First 14 Days of CVC Placement



KEY FINDINGS

Tegaderm CHG Dressing was well tolerated and **significantly reduced** definite and probable CRBSI.

[CLICK HERE](#) to view Full Clinical Study

First evidence-based study to show that 3M™ Tegaderm™ CHG Dressing significantly reduces CRBSI rates in hemodialysis patients.

Righetti M, Palmieri N, Bracchi O, et al. Tegaderm™ CHG Dressing significantly improves catheter-related infection rate in hemodialysis patients. *J Vasc Access.* 2016;17(5):417–422.

TOPIC(S)



Infection reduction



Health economics

DESIGN

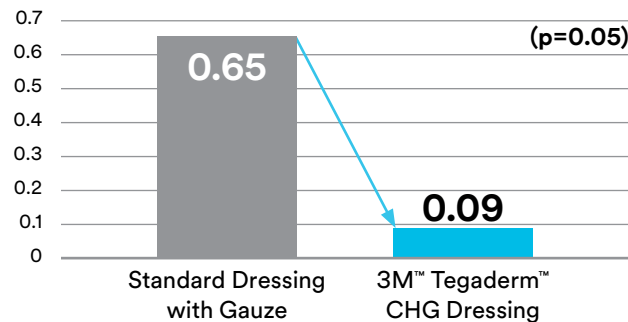
Prospective randomised cross-over trial measuring catheter-related infections (CRI) and catheter-related bloodstream infections (CRBSIs) in prevalent hemodialysis patients in inpatient and outpatient settings.

METHODS

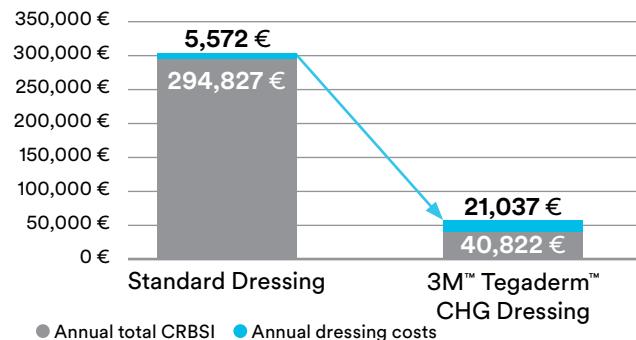
Study compared two treatments – Tegaderm™ CHG Dressing (n=29) changed weekly versus a standard dry gauze dressing (n=30) changed three times/week at every dialysis session (n=59).

RESULTS

CRBSI Incidence Rate (per 1,000 Catheter Days)



Annual Healthcare Cost Savings



KEY FINDINGS

86% reduction in CRBSI incidence rate with Tegaderm CHG Dressing.

€237,940 annual healthcare cost savings on CRBSIs when using Tegaderm CHG Dressing versus standard dressings.

[CLICK HERE to view Abstract](#)

3M™ Tegaderm™ CHG Dressing decreased the CRBSI rate in ICU patients with intravascular catheters.

Timsit JF, Mimoz O, Mourvillier B, et al. Randomised controlled trial of chlorhexidine dressing and highly adhesive dressing for preventing catheter-related infections in critically ill adults. *Am J Respir Crit Care Med.* 2012;186(12):1272–1278.

TOPIC(S)



Infection reduction



Antimicrobial protection

DESIGN

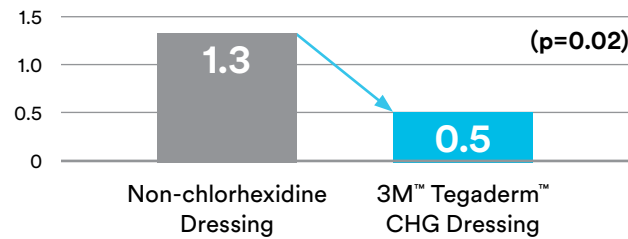
Multi-centre randomised controlled trial comparing major catheter-related infections (CRI) with or without catheter-related bloodstream infections (CRBSI) and catheter colonisation rates within central venous (CVC) and arterial catheters.

METHODS

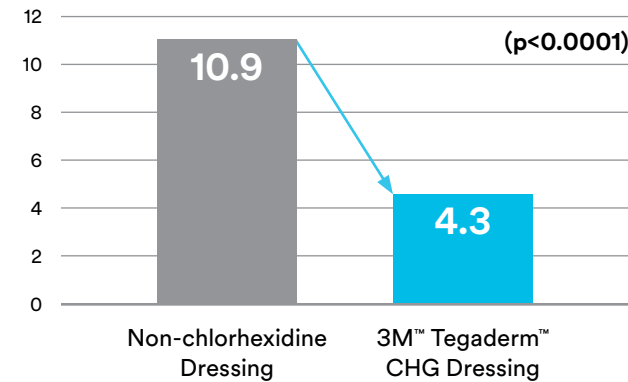
Trial compared chlorhexidine to non-chlorhexidine dressings to determine if Tegaderm™ CHG Dressing decreases catheter colonisation and CRBSI rates in CVC and arterial catheters. Studies were conducted in 12 French ICUs with a total of 1,879 patients evaluated.

RESULTS

CRBSI Rate (per 1,000 Catheter Days)



Catheter Colonisation Incidence (per 1,000 Catheter Days)



KEY FINDINGS

CRBSI rate was **60% lower** with Tegaderm CHG Dressing versus non-chlorhexidine dressing.

61% reduction in catheter colonisation incidence with Tegaderm CHG Dressing.

[CLICK HERE](#) to view Full Clinical Study

3M™ Tegaderm™ CHG Dressings suppress regrowth better than BIOPATCH® Disks on prepped skin after 7-day wear time.

Bashir MH, Olson LK, Walters SA. Suppression of regrowth of normal skin flora under chlorhexidine gluconate dressings applied to chlorhexidine gluconate-prepped skin. *Am J Infect Control.* 2012;40:344–348.

TOPIC(S)



Antimicrobial protection

DESIGN

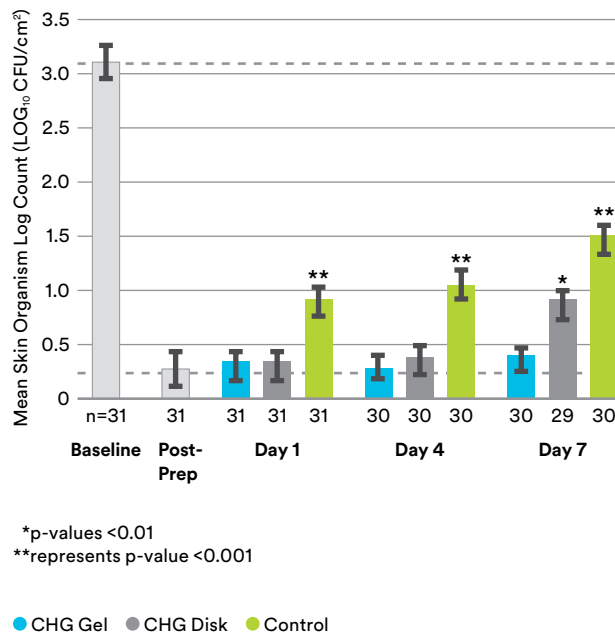
Randomised controlled trial comparing suppression of microbe regrowth on CHG-prepped skin between control, CHG gel dressings and CHG disks.

METHODS

Trial compared the skin organism suppression performance of CHG gel dressings and CHG disks on the backs of 30 healthy subjects.

RESULTS

Mean Skin Organism Log Count Over Time



KEY FINDINGS

CHG gel had significantly **lower skin organism regrowth** than a standard transparent adhesive dressing.

At 7 days, CHG gel had **significantly lower skin organism regrowth** than CHG disks.

[CLICK HERE to view Abstract](#)

“This large real-world data study further supports the current recommendations for the systematic use of CHG dressings on all catheters of ICU patients.”

Eggimann P, Pagani JL, Dupuis-Lozeron E, et al. Sustained reduction of catheter-associated bloodstream infections with enhancement of catheter bundle by chlorhexidine dressings over 11 years. *Intensive Care Med.* (2019) 45:823-833. <https://doi.org/10.1007/s00134-019-05617-x>.

TOPIC(S)



Infection reduction

DESIGN

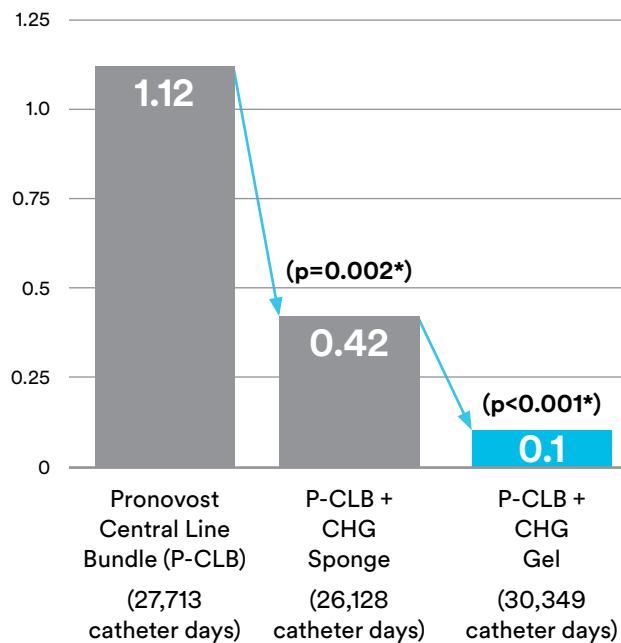
Real-world data study from 2006 to 2014 at a 35-bed mixed adult ICU in the Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland, a primary and referral hospital for a population of 250,000 and 1,500,000, respectively.

METHODS

11-year study evaluated the impact of incrementally introducing CHG dressings (sponge or gel) to an ongoing catheter bundle on the rates of catheter-related bloodstream infections (CRBSI). This was measured as part of a surveillance program and expressed as incidence density rates per 1,000 catheter-days for every central venous catheter (CVC), including dialysis catheters and introducer sheaths for pulmonary artery (PA) catheters, and arterial catheters.

RESULTS

CRBSI Rates (per 1,000 CVC and Arterial Catheter Days) – 18,286 Patients



*p-values represent comparisons to standalone P-CLB

KEY FINDINGS

Chlorhexidine dressings were associated with a **sustained 11-year reduction** of CRBSIs.

Data indicates the skin reaction rates for **CHG gel and CHG sponge were equivalent** at 0.3 /1,000 device days.

[CLICK HERE](#) to view Full Clinical Study

3M™ Tegaderm™ CHG Dressing helps reduce the risk of CRI rates for hemodialysis patients with tunneled CVC.

Apata IW, Hanfelt J, Bailey JL, Niyyar VD. Chlorhexidine-impregnated transparent dressings decrease catheter-related infections in hemodialysis patients: a quality improvement project. *J Vasc Access*. 2017;18(2):103–108.

TOPIC(S)



Infection reduction

DESIGN

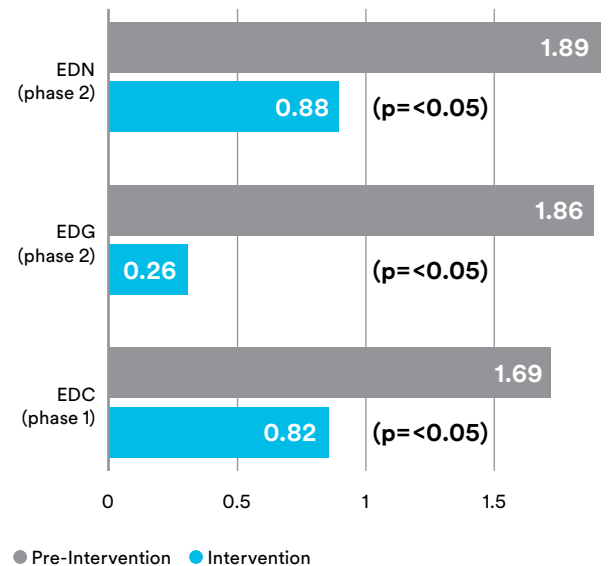
Prospective before and after intervention study measuring catheter-related infection (CRI) rates in patients with dialysis catheters.

METHODS

Comparison of CRI rates in two dressing regimens – Tegaderm CHG Dressing and adhesive dry gauze dressings with an antibiotic ointment in hemodialysis patients having tunneled central venous catheters (CVC). The study was conducted in two phases: Phase 1 assessed the impact of Tegaderm CHG Dressing on one dialysis unit (EDC) versus two control dialysis units (EDG and EDN); Phase 2 introduced Tegaderm CHG Dressing to the two control dialysis units.

RESULTS

CRI Rates (per 1,000 Catheter Days) per Respective Outpatient Units During Intervention Change



KEY FINDINGS

Tegaderm CHG Dressing was associated with a **substantial reduction in CRIs** across 3 hemodialysis units.

In one unit, there was an **86% reduction** in infection rate.

[CLICK HERE to view Full Clinical Study](#)

Use of 3M™ Tegaderm™ CHG Dressing helps reduce the risk of EVD-associated MV rates without increasing costs or workloads.

Scheithauer S, Schulze-Steinen H, Höllig A, et al. Significant reduction of external ventricular drainage-associated meningoventriculitis by chlorhexidine-containing dressings: a before-after trial. *Clin Infect Dis.* 2016;62(3):404-405.

TOPIC(S)



Infection reduction



Health economics

BACKGROUND

Additional studies assessing the safety and application of CHG for neurovascular devices include:

Ho KM, Litton E. Use of chlorhexidine-impregnated dressing to prevent vascular and epidural catheter colonisation and infection: a meta-analysis. *J Antimicrob Chemother.* 2006;58(2):281-287.

Scheithauer S, Möller M, Hollig A, Marx G, Thoroe S, Lopez-Gonzalez L, Reinges MHT, Lemmen SW. Are chlorhexidine-containing dressings safe for use with ventricular drainages? *Infection.* 2014;42:545-548.

Sviggum HP, Jacob AK, Arendt KW, Mauermann ML, Horlocker TT, Hebl JR. Neurologic complications after chlorhexidine antiseptics for spinal anesthesia. *Reg Anesth Pain Med.* 2012;37(2):139-144.

DESIGN

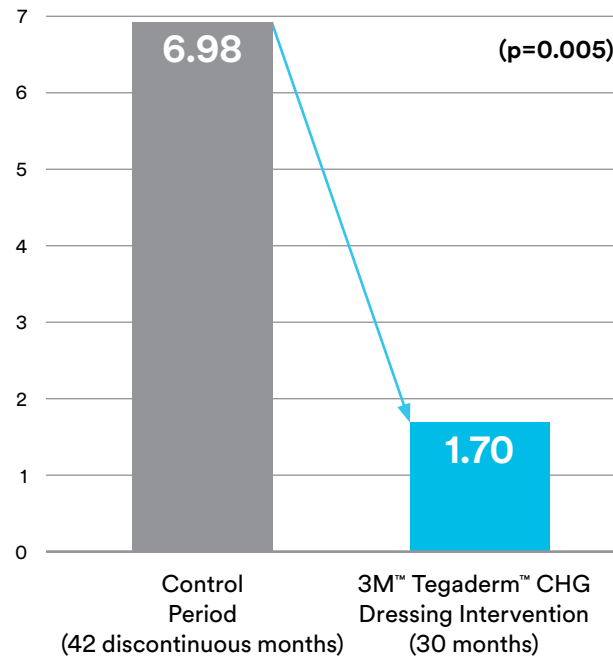
Before and after intervention study comparing external ventricular drainage (EVD)-associated meningoventriculitis (MV).

METHODS

Study replaced standard gauze dressings with Tegaderm™ CHG Dressing. Evaluation and calculation of the EVD-associated MV rates were performed by an interdisciplinary and interprofessional health team twice weekly during infectious disease rounds.

RESULTS

EVD-Associated MV Rate (per 1,000 EVD Days)



KEY FINDINGS

No adverse events (e.g., skin reactions) occurred.

There was a **68% reduction** in MV rates.

The intervention **significantly reduced rates** without increasing costs or workloads.

[CLICK HERE to view Full Clinical Study](#)

3M™ Tegaderm™ CHG Dressing group saw a significant reduction in the number of microorganisms recovered from the CVC insertion site compared to non-antimicrobial dressings.

Karpanen TJ, Casey AL, Whitehouse T, Nightingale P, Das I, Elliott TS. Clinical evaluation of a chlorhexidine intravascular catheter gel dressing on short-term central venous catheters. *Am J Infect Control.* 2016;44(1):54–60.

TOPIC(S)



Antimicrobial protection

DESIGN

Prospective, cross-over, comparative, non-blinded, single-centre clinical study.

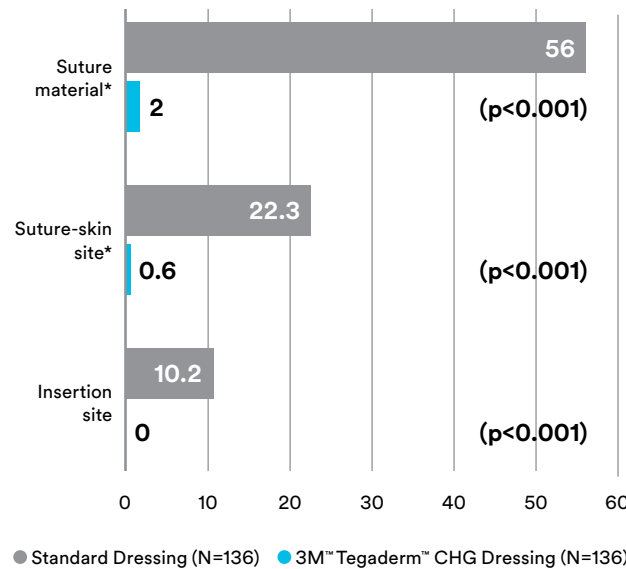
METHODS

Study assessed the antimicrobial efficacy of Tegaderm CHG Dressing in patients with an antimicrobial central venous catheter (CVC). Comparator was a standard dressing with an antimicrobial CVC. All patients except two had an antimicrobial CVC inserted. CVCs were secured with braided silk sutures.*

*Tegaderm CHG Dressing is not indicated to reduce bacterial colonisation of sutures and suture sites.

RESULTS

CVC Microbes Median CFU/cm²



KEY FINDINGS

Tegaderm CHG Dressing significantly reduced the number of microorganisms on the catheter insertion site and catheter device insertion site.

Microbes collected from underneath Tegaderm CHG Dressing did not exhibit resistance or susceptibility to CHG.

[CLICK HERE to view Abstract](#)

99% of clinical staff surveyed recommended continuing the use of 3M™ Tegaderm™ CHG Dressing.

Karpanen TJ, Casey AL, Das I, Whitehouse T, Nightingale P, Elliott TSJ. Transparent film intravenous line dressing incorporating a chlorhexidine gluconate gel pad: A clinical staff evaluation. *J Assoc Vasc Access.* 2016;September:21(3):133–138.

TOPIC(S)



Ease of use

DESIGN

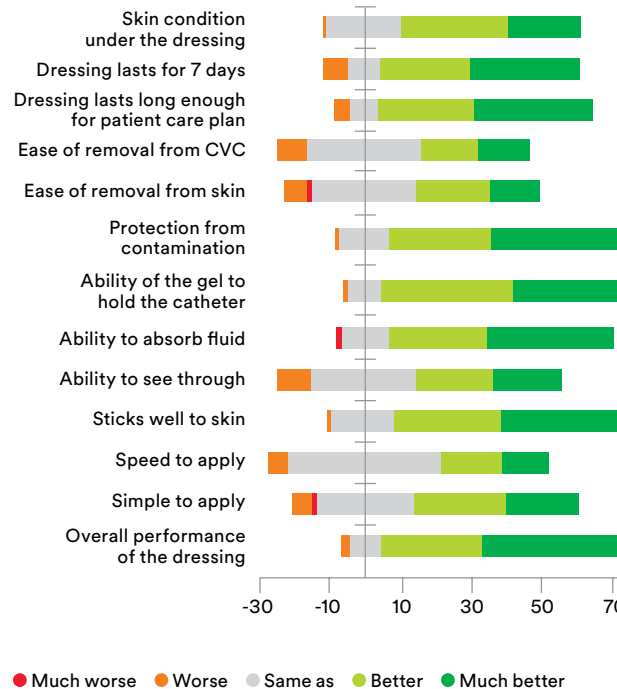
Clinical staff evaluation of a Tegaderm CHG Dressing compared to a standard dressing (n=81).

METHODS

The study group was from the Critical Care unit and followed patients (>14,200) with short-term central venous catheter (CVC) or vascular access catheter (VAC) for dialysis. Study was divided into two phases: 9 months of Tegaderm CHG Dressing use was compared to 12 months of standard dressing use. Staff completed evaluation following implementation of Tegaderm CHG Dressing.

RESULTS

3M™ Tegaderm™ CHG Dressing Ratings Relative to a Standard Dressing



KEY FINDINGS

86% of the clinical staff surveyed rated the performance of the Tegaderm CHG Dressing as **better or much better** than the standard dressing.

The Tegaderm CHG Dressing **performed well** in a **diverse group** of critical care patients.

98.7% of clinicians **recommended continued use** of Tegaderm CHG Dressing.

[CLICK HERE to view Abstract](#)

The use of 3M™ Tegaderm™ CHG Dressing results in an overall cost savings of £77,427 per 1,000 adult patients compared to standard care.

Thokala P, Arrowsmith M, Poku E, Martyn-St. James M, Anderson J, Foster S, Elliott T, Whitehouse T. Economic impact of Tegaderm chlorhexidine gluconate (CHG) dressing in critically ill patients. *J Infect Prev.* 2016;17(5):216–223.

TOPIC(S)



Health economics

DESIGN

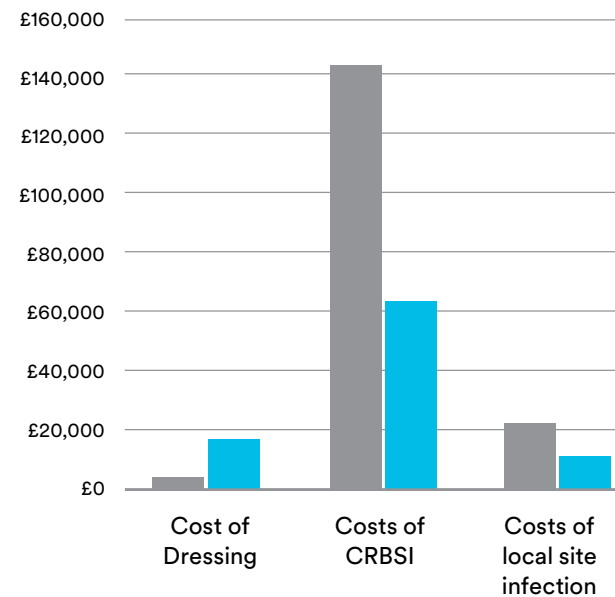
Analytical cost-consequence model populated with data from published sources.

METHODS

Estimation of the economic impact of a Tegaderm CHG Dressing compared with a standard dressing.

RESULTS

Breakdown of Different Costs for Standard and 3M™ Tegaderm™ CHG Dressing (for a Cohort of 10,000 Patients)



● Standard Dressing ● 3M™ Tegaderm™ CHG Dressing

KEY FINDINGS

Tegaderm CHG Dressing has a **98.5% probability** of saving **£77,000** per year per 1,000 patients.

CRBSI risk with Tegaderm CHG Dressing was **0.6 per 1,000** catheter days, versus **1.48 per 1,000** catheter days with a standard dressing.

[CLICK HERE to view Full Clinical Study](#)

The 3M™ Tegaderm™ CHG Dressing is more cost-effective than a non-chlorhexidine dressing in this base case scenario.

Maunoury F, Motrunich A, Palka-Santini M, Bernatchez SF, Ruckly S, Timsit JF. Cost-effectiveness analysis of a transparent antimicrobial dressing for managing central venous and arterial catheters in intensive care units. *PLoS One*. 2015;10(6):e0130439.

TOPIC(S)



Health economics

DESIGN

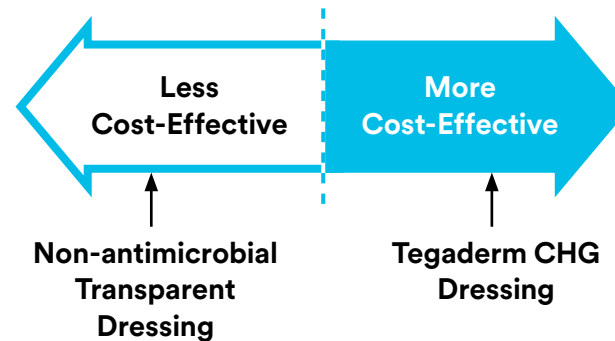
A novel health economic model (30-day time non-homogenous Markov model).

METHODS

Study used to estimate cost-effectiveness of using Tegaderm CHG Dressing compared to non-chlorhexidine dressings in a multi-centre French ICU scenario (12) based on the number of catheter-related bloodstream infections (CRBSI) avoided.

RESULTS

Using a 3M™ Tegaderm™ CHG Dressing is more cost effective than using a non-antimicrobial transparent dressing.



KEY FINDINGS

Tegaderm CHG Dressing was associated with **11.8 fewer infections** per 1,000 patients.

The incremental cost-effectiveness ratio is **€12,046 per CRBSI** reduction.

The incremental net monetary benefit per patient is **€344.88.**

[CLICK HERE](#) to view Full Clinical Study

3M™ Tegaderm™ CHG Dressing helps reduce the risk of bacterial colonisation of the tip and the insertion site of epidural and local regional catheters used in anesthesia.

Kerwat K, Eberhart L, Kerwat M, et al. Chlorhexidine gluconate dressings reduce bacterial colonisation rates in epidural and peripheral regional catheters. *Biomed Res Int.* 2015;2015:149785. doi: 10.1155/2015/149785.

TOPIC(S)



Antimicrobial protection

DESIGN

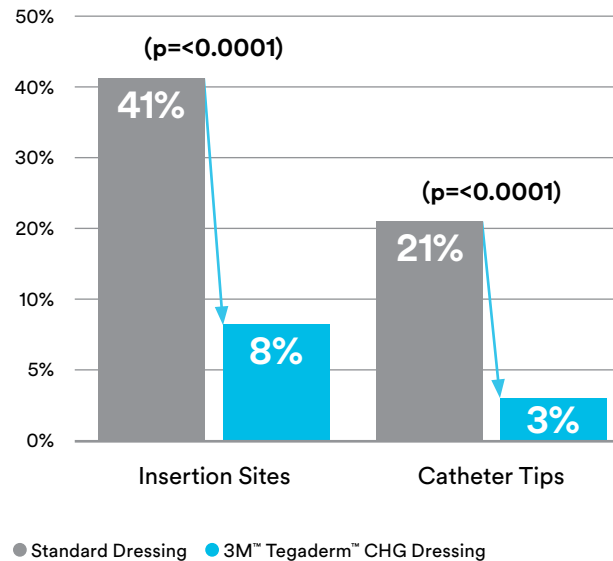
Prospective study that included a total of 337 anesthesia catheters from 308 patients in a routine clinical setting.

METHODS

Examination of the effect of Tegaderm CHG Dressing applied to two separate patient groups requiring local regional or epidural anesthesia. Catheter tips and insertion sites were assessed for colonisation after treatment was discontinued.

RESULTS

Positive Culture Results



KEY FINDINGS

80% reduction in insertion site colonisation with use of Tegaderm CHG Dressing.

86% reduction in catheter tip colonisation with use of Tegaderm CHG Dressing.

[CLICK HERE to view Full Clinical Study](#)

3M™ Tegaderm™ CHG Dressing helps reduce the risk of CLABSI.

Scheithauer S, Lewalter K, Schröder J, et al. Reduction of central venous line-associated bloodstream infection rates by using a chlorhexidine-containing dressing. *Infection*. 2014;42(1):155–159.

TOPIC(S)



Infection reduction

DESIGN

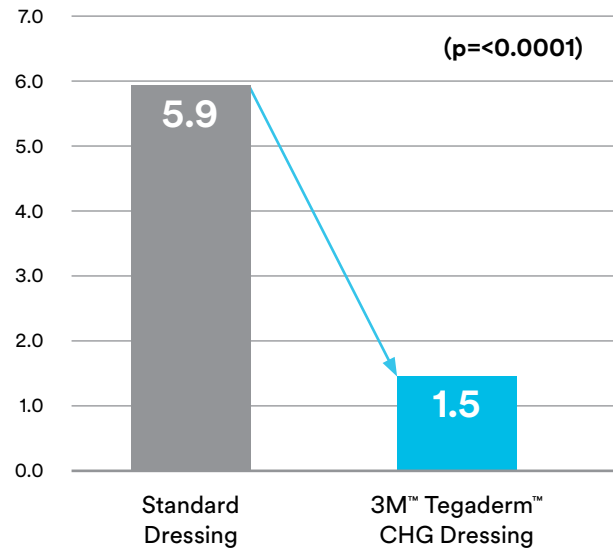
Before and after historical central line-associated bloodstream infection (CLABSI) study of 1,298 patients at two intensive care units (ICUs) from November 2010 to May 2012.

METHODS

Studies compared the number of CLABSIs and infection rates between patients with standard dressings and Tegaderm CHG Dressing. The results were also compared to historical data.

RESULTS

CLABSI Rate (per 1,000 Catheter Days)



KEY FINDINGS

74% reduction
in CLABSIs using Tegaderm CHG Dressing compared to standard dressings in the observation phase.

The **low rate of adverse events** associated with Tegaderm CHG Dressing was a positive result.

The durability of Tegaderm CHG Dressing was confirmed to be **7 days.**

[CLICK HERE to view Abstract](#)

“A low rate of catheter-related bloodstream infections can be maintained, nurses’ satisfaction achieved, and cost savings realised with the dressing.”

Pfaff B, Heithaus T, Emanuelson M. Use of a 1-piece chlorhexidine gluconate transparent dressing on critically ill patients. *Crit Care Nurse* 2012;32(4):35-40.

TOPIC(S)



Ease of use



Health economics

DESIGN

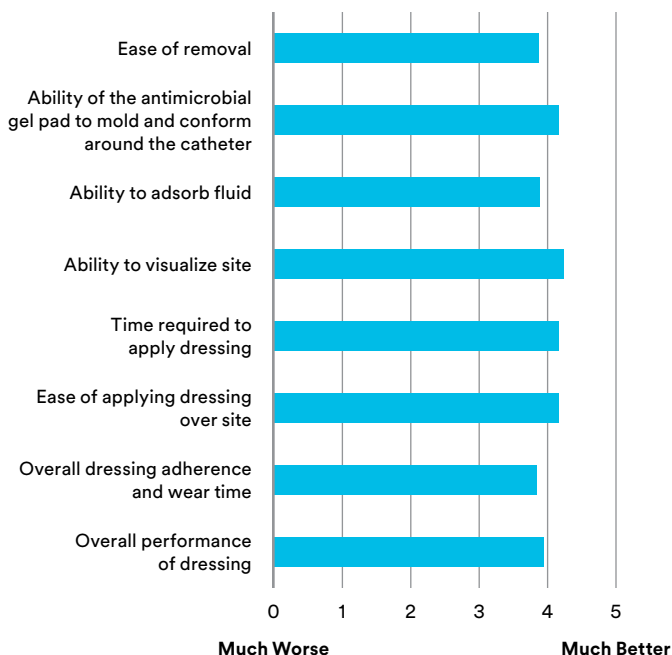
Quality improvement observation study completed in an adult medical-surgical intensive care unit (ICU) in a 714-bed tertiary care facility during a period of 1,881 device days.

METHODS

Comparison of the effectiveness of a one-piece Tegaderm CHG Dressing versus a dressing plus a BIOPATCH® Disk on patients with a central venous catheter in the ICU. Patients were monitored for catheter-related bloodstream infections. Evaluation of cost and nurses’ satisfaction (n=30) with the new dressing.

RESULTS

Performance Ratings for a One-piece 3M™ Tegaderm™ Dressing with Chlorhexidine Gluconate



KEY FINDINGS

Estimated savings in the ICU for a similar 6-month period would be **\$1,463.76** and estimated savings **hospital-wide** would be **\$19,511.91.**

Nurses **prefer Tegaderm CHG Dressing** over BIOPATCH® Disks.

[CLICK HERE to view Abstract](#)

BIOPATCH® was replaced with 3M™ Tegaderm™ CHG for all central venous catheters and arterial lines for all ICU patients because healthcare workers reported significant improvement in fitness of use.

Eggimann P, Joseph C, Thévenin MJ. Fitness of use of Biopatch® and Tegaderm™ CHG for protecting central venous catheters and arterial lines in critically ill patients. Oral presentation at: 3rd International Conference on Prevention and Infection Control; June, 2015; Geneva, Switzerland.

TOPIC(S)



Ease of use

DESIGN

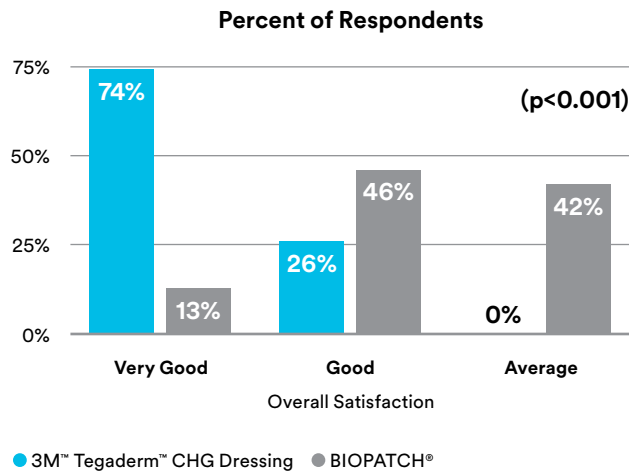
Clinical staff evaluation at 5 ICUs (2,000 admissions and 11,000 patient-days annually).

METHODS

Study compared the fitness of use of BIOPATCH® Disks (n=24) and Tegaderm CHG Dressings (n=42) in a mixed ICU based on a questionnaire given to healthcare workers.

RESULTS

Comparison of Staff Satisfaction Evaluation



KEY FINDINGS

There was significant improvement of the **ease of installation** reported for Tegaderm CHG Dressing compared to BIOPATCH® Disks.

In most cases, staff reported that Tegaderm CHG Dressing **improved coverage** of the insertion and suture sites.

[CLICK HERE](#) to view Poster

3M™ Tegaderm™ CHG Dressing is designed to ensure consistently correct placement with the CHG gel pad completely covering the catheter insertion site in 100% of tested applications.

Kohan CA, Boyce JM. A different experience with two different chlorhexidine gluconate dressings for use on central venous devices. Poster presented at Association for Professionals in Infection Control and Epidemiology (APIC) and published in *Am J Infect Control*. 2013;41(6):S142–S143.

TOPIC(S)



Ease of use

DESIGN

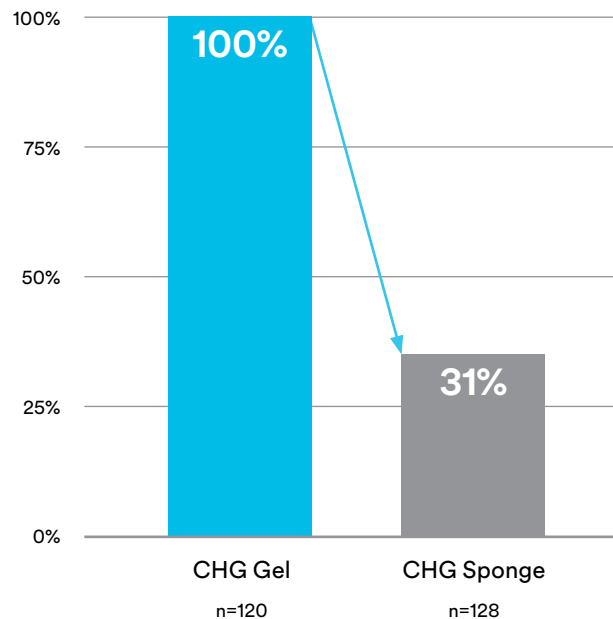
Clinical audits of dressing application and occlusiveness conducted in 2009 while using a BIOPATCH® Disk and in 2012 while using a Tegaderm CHG Dressing.

METHODS

Audit evaluated the frequency of correct application for BIOPATCH® Disks and Tegaderm CHG Dressing in 248 dressing applications.

RESULTS

Percentage of Dressings Correctly Placed at the Insertion Site



KEY FINDINGS

BIOPATCH® Disks were placed incorrectly at the insertion site **69% of the time** despite repeated educational sessions.

Inappropriate placement of the BIOPATCH® Disks included the disk placed on top of the catheter, disk upside down, radial slit not approximated, or disk too small for catheter size.

[CLICK HERE to view Abstract](#)

The 3M™ Tegaderm™ CHG Dressing demonstrated broad-spectrum antimicrobial activity against all 37 strains of microorganisms tested.

Hensler JP, Schwab DL, Olson LK, Palka-Santini M. Growth inhibition of microorganisms involved in CRBSIs by an antimicrobial transparent I.V. dressing containing chlorhexidine gluconate (CHG). Poster session presented at: 19th Annual Conference of the European Society of Clinical Microbiology and Infectious Diseases 2009; May 16–19, 2009.

TOPIC(S)



Antimicrobial protection

DESIGN

In vitro study to assess zone of inhibition and aged zone of inhibition (22 months aged dressings).*

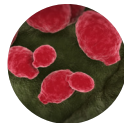
METHODS

The antimicrobial activity of the Tegaderm CHG Dressing gel pad was tested against a panel of 37 microorganism strains, comprised of 21 gram-positive and 14 gram-negative bacteria and two yeasts. The antimicrobial activity of Tegaderm CHG Dressing was evaluated against these microorganisms commonly associated with catheter-related bloodstream infections using *in vitro* zone of inhibition.*

*No clinical correlations intended.

RESULTS

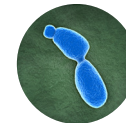
3M™ Tegaderm™ CHG Dressing demonstrates *in vitro* efficacy against 37 strains of microorganisms including gram-positive and gram-negative bacteria and yeasts.



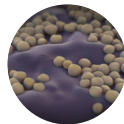
Enterococcus
(5 strains)



Pseudomonas aeruginosa
(5 strains)



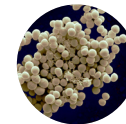
Candida
(2 strains)



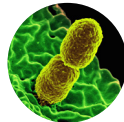
Staphylococcus aureus
(8 strains)



Escherichia coli
(1 strain)



Coag Neg Staph
(7 strains)



Klebsiella
(2 strains)



Enterobacter
(1 strain)



Other
(6 strains)

KEY FINDINGS

Many of the 37 strains tested were resistant organisms, including **MRSA, MRSE, VRE, and MDR** strains.

Tegaderm CHG Dressing **retains its antimicrobial properties** as demonstrated by the aged dressing's ability to produce similar zones of inhibition* compared to unaged dressings.

[CLICK HERE](#) to view Poster

3M™ Tegaderm™ CHG Dressing provides antimicrobial protection under the catheter.

Schwab D, et al. Antimicrobial activity of a CHG-impregnated gel pad for I.V. site protection. Poster presented at: the conference of Infusion Nursing Society; May, 2008.

TOPIC(S)



Antimicrobial protection

DESIGN

In vitro study to assess the zones of inhibition generated from surface CHG and diffused CHG.*

METHODS

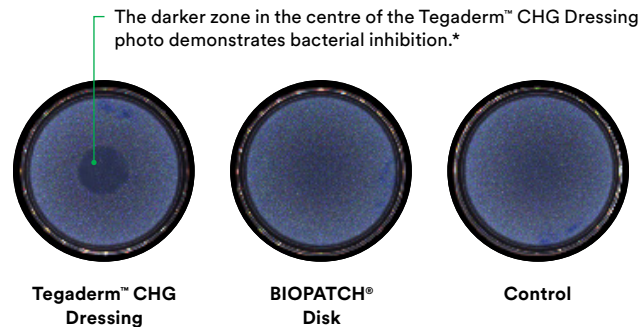
Multiple *in vitro* methodologies were used in this study:

- 1. Surface availability:** Evaluated the presence of CHG on the surface of Tegaderm CHG Dressing and BIOPATCH® in the absence of additional moisture.
- 2. CHG diffusion:** Visual comparison showing differences between two CHG antimicrobial products applied at catheter insertion site and dispersal of CHG. Readings performed at timed intervals measuring area of coverage.

RESULTS

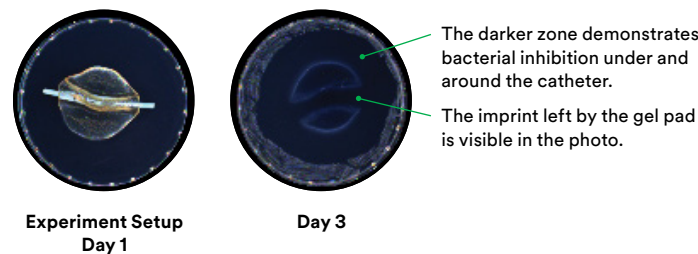
Method 1: Provides Antimicrobial Protection without Moisture

Images of agar plates inoculated with *S. epidermidis* at 24 hours



Method 2: Provides Antimicrobial Protection under the Catheter

Images of agar plates inoculated with *S. epidermidis*



*No clinical correlations intended.

KEY FINDINGS

Tegaderm CHG Dressing provides antimicrobial protection **without any additional moisture.**

CHG from the Tegaderm CHG Dressing is **diffused** under the catheter.

[CLICK HERE](#) to view Poster

3M™ Tegaderm™ CHG Dressing provides continuous antimicrobial activity.

Maki D, Stahl J, Jacobson C, et al. 2008. A novel integrated chlorhexidine-impregnated transparent dressing for prevention of vascular catheter-related bloodstream infection: a prospective comparative study in healthy volunteers. Poster presentation at The Society for Healthcare Epidemiology of America annual conference.

TOPIC(S)



Antimicrobial protection

DESIGN

In vivo trials in healthy volunteers of immediate and long-term cutaneous antimicrobial activity to analyze prevention of skin floral regrowth on alcohol prepped subclavian sites and cumulative kill of skin flora on unprepped sites over 10 days of exposure.

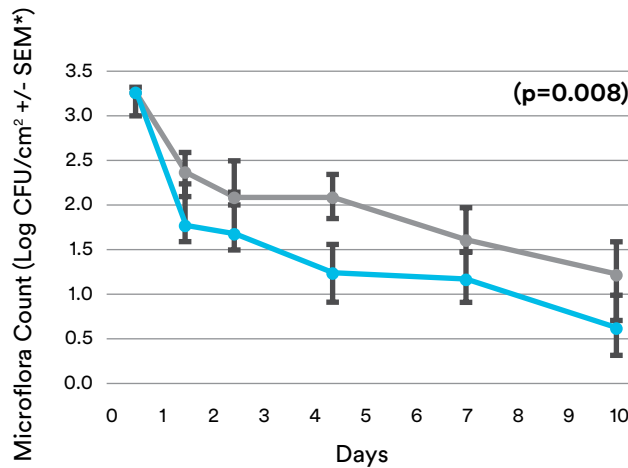
METHODS

Study compared the antimicrobial effectiveness of Tegaderm CHG Dressing to BIOPATCH® Disks on healthy adult volunteers.

RESULTS

Provides Immediate and Persistent Reduction of Microbes

In vivo kill time of normal flora on unprepped skin on healthy adult volunteers



● 3M™ Tegaderm™ CHG Dressing ● BIOPATCH® Disk

*SEM: Scanned Electron Microscopy

KEY FINDINGS

Tegaderm CHG Dressing is proven to be **as effective as or better than** BIOPATCH® Disks at persistently reducing microbes at each time point.

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Description

3M™ Tegaderm™ CHG Chlorhexidine Gluconate I.V. Securement Dressing is used to cover and protect catheter sites and to secure devices to skin. It is available in a variety of shapes and sizes.

Tegaderm CHG dressing consists of a transparent adhesive dressing and an integrated gel pad containing 2% w/w chlorhexidine gluconate (CHG), a well-known antiseptic agent with broad spectrum antimicrobial and antifungal activity. The gel pad absorbs fluid. The transparent film provides an effective barrier against external contamination including fluids (waterproof), bacteria, viruses* and yeast, and protects the I.V. site.

In vitro testing (time kill and zone of inhibition) demonstrates that the Tegaderm CHG gel pad in the dressing has an antimicrobial effect against a variety of gram-positive and gram-negative bacteria, and yeast. Tegaderm™ CHG dressing is transparent, allowing continual site observation, and is breathable, allowing good moisture vapor exchange.

*In vitro testing shows that the transparent film of the Tegaderm CHG dressing provides a viral barrier from viruses 27 nm in diameter or larger while the dressing remains intact without leakage. The barrier to viruses is due to the physical properties of the dressing, rather than the ancillary properties of CHG.

Indications

3M™ Tegaderm™ CHG Chlorhexidine Gluconate I.V. Securement Dressing can be used to cover and protect catheter sites and to secure devices to skin. Common applications include central venous and arterial catheters, other intravascular catheters and percutaneous devices. Tegaderm CHG Dressing is intended to reduce skin colonization and catheter colonization and to suppress regrowth of microorganisms commonly related to bloodstream infections. Tegaderm CHG is intended to reduce catheter-related bloodstream infections (CRBSI) in patients with central venous or arterial catheters.

Warnings

- ▶ DO NOT USE TEGADERM CHG DRESSINGS ON PREMATURE INFANTS OR INFANTS YOUNGER THAN 2 MONTHS OF AGE. USE OF THIS PRODUCT ON PREMATURE INFANTS MAY RESULT IN HYPERSENSITIVITY REACTIONS OR NECROSIS OF THE SKIN.
- ▶ THE SAFETY AND EFFECTIVENESS OF TEGADERM CHG DRESSINGS HAS NOT BEEN EVALUATED IN CHILDREN UNDER 18 YEARS OF AGE. FOR EXTERNAL USE ONLY. DO NOT ALLOW THIS PRODUCT TO CONTACT EARS, EYES, MOUTH OR MUCOUS MEMBRANES.
- ▶ DO NOT USE THIS PRODUCT ON PATIENTS WITH KNOWN HYPERSENSITIVITY TO CHLORHEXIDINE GLUCONATE.
- ▶ THE USE OF CHLORHEXIDINE GLUCONATE CONTAINING PRODUCTS HAS BEEN REPORTED TO CAUSE IRRITATIONS, SENSITIZATION, AND GENERALIZED ALLERGIC REACTIONS. IF ALLERGIC REACTIONS OCCUR, DISCONTINUE USE IMMEDIATELY, AND IF SEVERE, CONTACT A PHYSICIAN.

Hypersensitivity reactions associated with topical use of chlorhexidine gluconate have been reported in several countries. The most serious reactions (including anaphylaxis) have occurred in patients treated with lubricants containing chlorhexidine gluconate, which were used during urinary tract procedures. Caution should be used when using chlorhexidine gluconate containing preparations, and the patient should be observed for the possibility of hypersensitivity reactions.

Precautions

- ▶ 3M™ Tegaderm™ CHG dressing should not be placed over infected wounds. It is not intended to be used as a treatment of percutaneous device-related infections.
- ▶ In the case of clinical wound infection, systemic antibacterials should be used if indicated.
- ▶ Any active bleeding at the insertion site should be stabilized before applying the dressing.
- ▶ Do not stretch the dressing during application. Mechanical skin trauma may result if the dressing is applied with tension.
- ▶ The skin should be clean, dry and free of detergent residue. Allow all preps and protectants to dry completely before applying the dressing to prevent skin irritation and to ensure good adhesion.
- ▶ Do not reuse. Reuse may result in compromising product integrity and lead to device failure.

To learn more about 3M™ Tegaderm™ CHG Dressing
or to schedule a product evaluation, visit us at 3M.co.uk/tegadermchg



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