ConvaTec

AQUACEL™ Surgical AQUACEL™ Ag Surgical

Hydrofiber® Technology Post-Operative Dressing Portfolio

Prevention is better than cure:

The first step in the treatment of Surgical Site Complications is their prevention.

SurgicalSolutions
From ConvaTec

Hydrofiber® Technology

Surgical Site Complications

An ongoing problem

Despite increasing infection control practices and advanced preventative steps, like ventilation, surgical technique and sterilization methods, post-operative Surgical Site Complications (SSCs) have a huge impact across all surgeries and remain a significant cause of morbidity, prolonged hospitalization and death.[1]

The best way to treat SSCs is to prevent them

Avoiding healthcare-associated conditions such as surgical site infections, medical errors, and other preventable complications are an increasing focus within our health systems.[2,3]

Increased awareness has contributed to greater scrutiny from regulators, purchasers, and the public.[4]

There is a need for post-op dressings such as AQUACEL™ SURGICAL Portfolio to provide an ideal healing environment and help to reduce the clinical and economic burden of current care such as the need for frequent dressing changes.

The right dressing

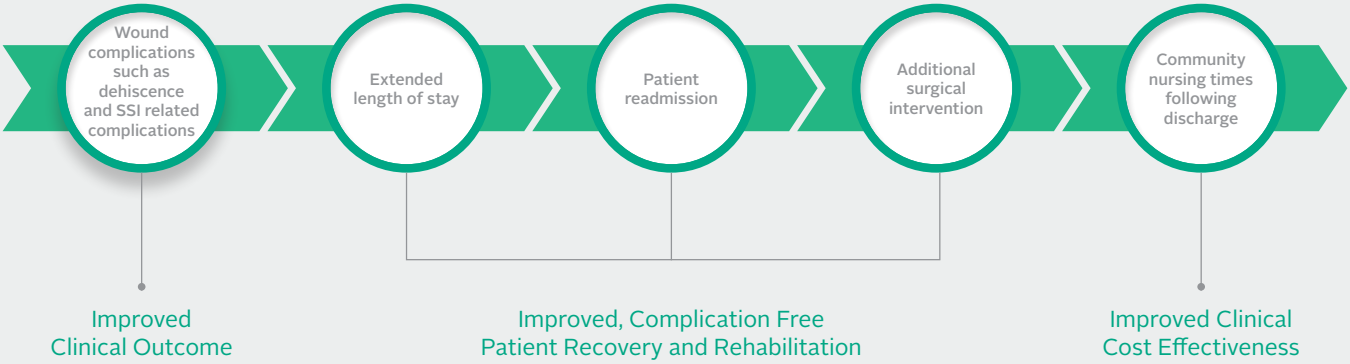
The right post-op dressing at the right time reduces complication and plays an **integral role** in successful recovery.

Consequences of wound complications

Wound complications are one of the major sources of morbidity after orthopedic procedures and can prolong the inpatient stay or lead to re-admission.

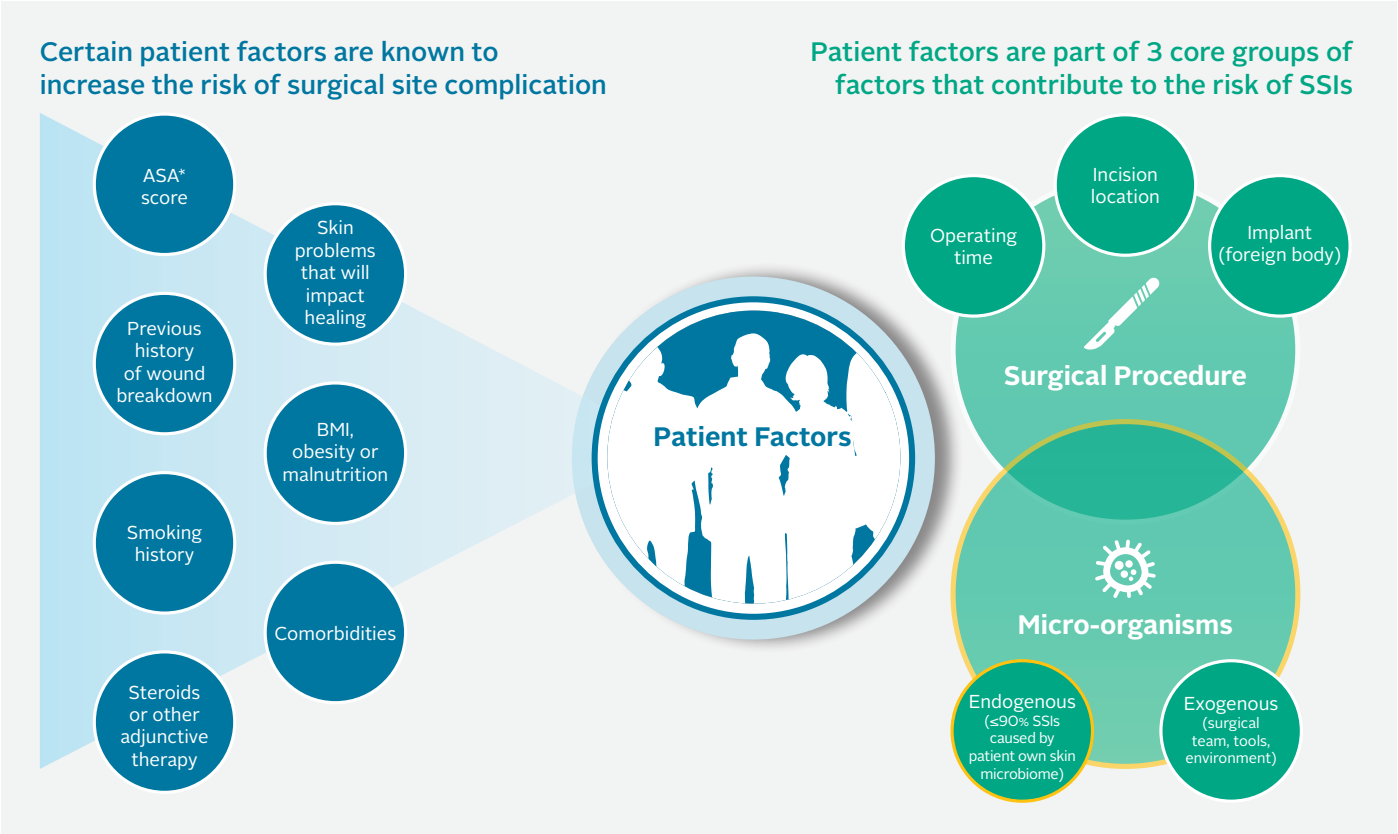
Recognizing the potential for Surgical Site Infection (SSI) and complications may be the most important issue to address when discharging a post-surgical patient.[5]

AQUACEL™ Surgical and AQUACEL™ Ag Surgical post-op dressings could help you, your hospital and your patients reduce...



Tackling SSI risk factors

Steps can be taken to reduce bacterial colonization, thus minimize the risk of superficial SSI. AQUACEL™ Surgical and AQUACEL™ Ag Surgical can be an effective way to address known risk factor for SSIs and associated complications.



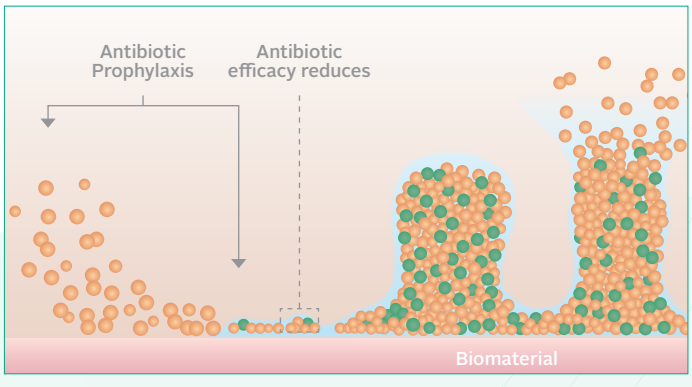
The role of biofilm in SSIs

Biofilms are microbial communities within a matrix of extracellular polymeric substances (EPS), aimed to protect microorganisms from outside attack such as[6] the immune system, antiseptics and antibiotics[7] – meaning they're very difficult to reduce or remove once in situ.

No current skin preparation regimen will kill all bacteria on the epidermis. Biofilm on the surface of the surgical wound may explain why our simple antimicrobials and strategies fail to prevent the wound from dehiscing and delay healing.

Data from the studies of marker organisms suggest that the infecting bacteria are present at the incision site at the time of surgery.

No current skin preparation regimen will kill all the bacteria on the epidermis nor kill the organisms.[8]



In 70%-90% of SSI cases, the pathogen source is the native flora of the patient's skin.

Challenges of Surgical Wound Care in Total Joint Arthroplasty

PJI is a serious complication of joint replacement surgery, resulting in a serious medical and financial burden on the patient and society. Treatment often requires multiple revision surgeries with a course of intravenous antibiotics and does not guarantee eradication of infection.

Surgical wound complications as a result of SSI, Surgical Wound Dehiscence (SWD) and blistering are one of the major sources of morbidity after hip and knee arthroplasty procedures and can prolong inpatient stay or increase readmissions.

***500,000** people affected by SSIs in the EU per year[4], accounting for **~20%** of all healthcare-acquired infections.[1]*

***€19 billion** costs attributed to SSIs in the EU per year.[4]*

***60%** of SSIs occur post discharge.[9]*

Patients with SSIs are:

***5X** more likely to be readmitted.[10]*

***2X** as likely to die.[1]*

***7-11** additional days hospitalized.*

Increased use of antibiotics and other medications.[10]

Burden of SSI

Due to increased hospitalization, length of stay and readmission, an SSI can cost a hospital **up to £34,509.**[11]

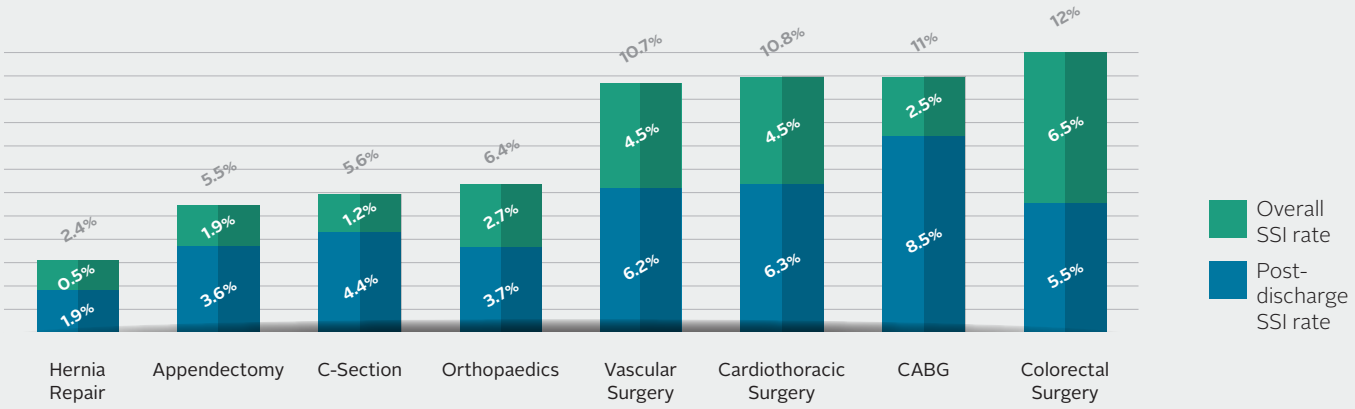
Decreased patient safety and quality of care[12]

SSIs extend length of stay by 7-11 days and substantially increase mortality risk.[13] 77% of deaths in patients with SSI are directly attributable to SSI.[7]

Policies placing increasing pressure

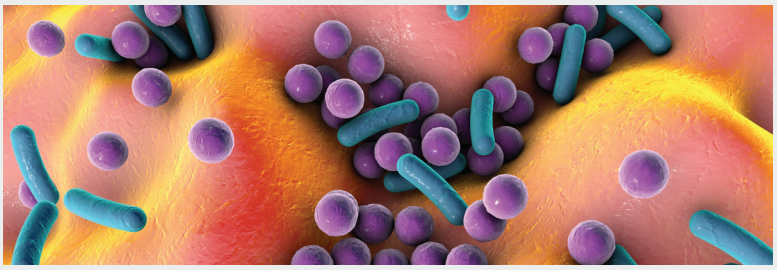
New reimbursement and reporting policies place increasing pressure on hospitals to avoid SSIs.[5]

Post-discharge surgical site infections (SSI) by type of surgery[14]



SSIs occur across ALL surgical specialties

If we can't solve the problem of biofilms with antibiotics, we need an earlier intervention to reduce bioburden.



The dangers of the patient's own skin

80% of SSIs (*S. aureus*) originate from the patients' own flora[15-17]. **Prophylactic reduction of this bioburden can reduce risk of associated surgical wound complications** such as SSIs and SWD.

(Image: polymicrobes located on skin)

SWD costs the community[18]

In outpatient and community settings, the instance and costs of SWD continue to be significant.

Technical issues

Failure, e.g. unravelling of suture knots, poor closure technique.

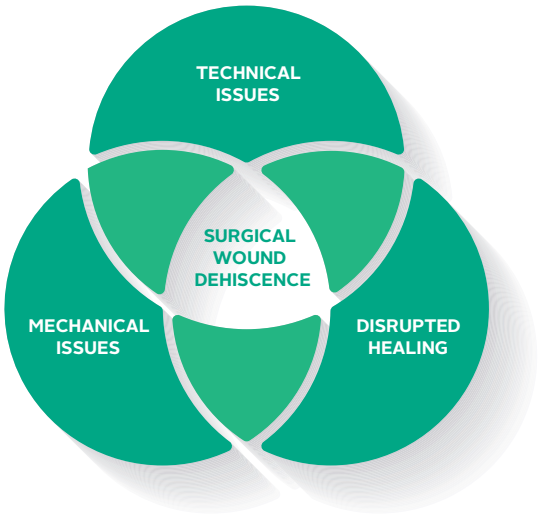
Mechanical stress

Coughing can cause suture breakage or incisional rupture. Incisional Mechanical Stress may result in SWD.

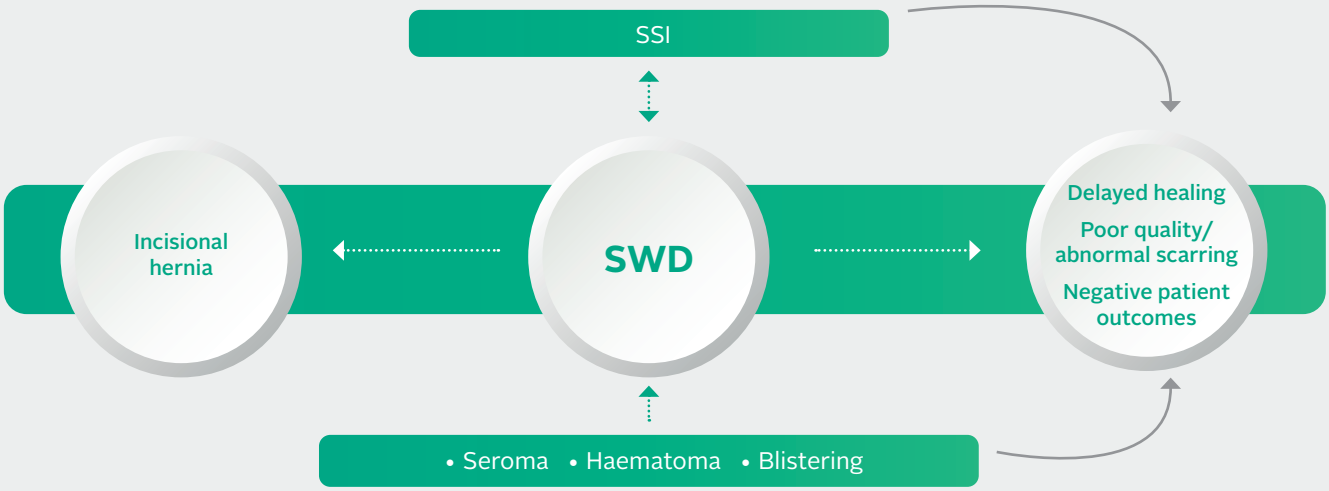
- Closure over tension – minimal tissue mobilization
- Oedema (inflammatory response to infection)
- Incisional haematoma or seroma[14]
- External trauma

Disrupted healing

Comorbidities or treatments impacting healing, or as a result of a SSI.



SSI can be a cause, of and a risk factor, for SWD[18]



Why you need AQUACEL™ Ag Surgical

The right dressing can make all the difference **AQUACEL™ Surgical and AQUACEL™ Ag Surgical** dressings form part of a range of ConvaTec dressings that have been clinically proven to improve surgical outcomes. Combining flexible, skin-friendly hydrocolloid technology; patented, micro-contouring Hydrofiber® technology with ionic silver; and waterproof polyurethane film.

AQUACEL™ Ag Surgical helps improve outcomes by creating an optimum healing environment and providing fast broad-spectrum antimicrobial activity against SSI causing pathogens.

Protect your patients

Enhance patient satisfaction and comfort through:

- Easier self-care
- Less pain at removal[19]
- Less frequent need for dressing changes[20]
- Shower immediately after a procedure, if directed by their healthcare practitioner

IONIC SILVER™ Technology provides:

- **Reduction of bacteria**[22]
- Broad spectrum efficacy[11, 23, 24]
- Sustained antimicrobial activity against SSI causing pathogens[11, 23, 24]

AQUACEL Ag Surgical

Antimicrobial Efficacy

Clinically Proven and Trusted:

- Reduced SSI[19, 25]
- Reduced PJI[26. 27]
- Reduced blistering[20, 28]
- Reduced costs[11, 19-22, 23-30]
- Improved patient satisfaction[11, 19-22, 23-30]

Clinical Heritage

- Improved wear time[11, 19-22, 23-30]
- Effective total fluid management reducing dressing changes vs SOC[28]
- Durable and reliable hydrocolloid adhesive[30]
- Reduced nursing time[28]

Improve Costs & Efficiency

Your post-op dressing selection can be the difference between healthy healing and an infected surgical site.[21]

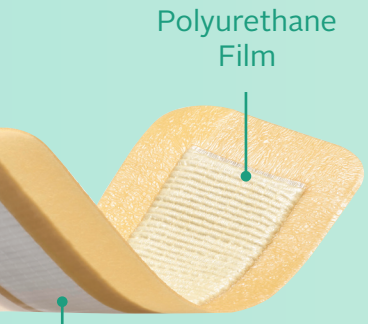
Protect the incision site

Optimum management of the incision environment promotes healing with fewer complications.

- Managing bacterial balance is essential for decreasing SSI risk and SWD.
- Prophylactic antibiotics can effectively decrease bacterial load and infection risk. However, they need to be used responsibly against the rise of antibiotic-resistant bacteria such as MRSA and VISA/VRSA.

Preventing bacteria from entering and critically[31-35] colonizing incision tissue in the first instance is key. This is where advanced wound products have an advantage over wet gauze dressings, which don't prevent bacterial penetration of the wound as well.[36]

ial Efficacy
UACEL™
rgical



Improve *Quality of Life*

- **Hydrocolloid** moves with the skin – matches the range of motion of the joint[37]
- Aids in patient rehabilitation regime protocol
- Reduces risk of dehiscence through design
- Minimises peri-wound blistering and allows patients to undergo physiotherapy programs to aid recovery
- **Extends** along the incision line to reduce the risk of dehiscence and aid skin movement

Promote *Healing*

- **Hydrofiber® Technology** locks in bacteria, micro-contours and gels creating a moist wound environment for healing
- Proven to optimize healing environment [38, 39]
- Clinically proven wound interface for over 20 years

Occlusive *Barrier*

- **Bacteria, viral and waterproof construct**
- Polyurethane film is bacterial-proof, viral-proof and water-proof which prevents contamination and improves patient satisfaction

Not all post-op dressings are created equal

The only post-op dressing powered by Hydrofiber® Technology

AQUACEL™ Surgical and AQUACEL™ Ag Surgical has a critical difference: **The Hydrofiber® Difference**.

Hydrofiber® Technology is an interactive wound contact layer specially engineered to optimise moist wound healing, which is combined with Ionic Silver antimicrobial technology.

Locks in
wound exudate and traps bacteria[40-45]

Contours
to the wound bed[46-48]

Responds
to wound conditions by forming cohesive gel[49-51]

Extends
along the incision line

Mode of Action	Technology Feature	Clinical Benefit
Fast Gelling Contours and responds	Swells into available spaces[52-54]	• Reduced risk of infection[9] • Moist wound healing[59, 60] • Reduced risk of maceration[27, 61] • Less pain in-situ[39, 62-65] • Non-traumatic removal[39, 55, 56, 58, 61, 69]
	Removes free fluid[1,2]	
	Resists wicking fluid[52, 53]	
	Non-adherent in gelled form[55-58]	
Retentive Gel Locks in	Locks in fluid[52, 53]	• Reduced risk infection[59, 60, 65, 66] • Reduced risk of maceration[61, 69] • Removal of inflammatory agents[59, 62]
	Traps enzymes[43]	
	Traps bacteria[43, 60, 66-68]	

Hydrofiber® Technology makes up the wound contact layer within AQUACEL™ Surgical and AQUACEL™ Ag Surgical

Engineered to reduce bioburden

In-vitro studies show Hydrofiber® Technology dressings retain 68%-70% of *S. aureus* and *P. aeruginosa* through sequestration[60]. As the fibers gel, they lock in wound fluid and bacteria, which can reduce the risk of SSCs.

AQUACEL™ Surgical and AQUACEL™ Ag Surgical offers more than other post-op dressings

Hydrofiber® TECHNOLOGY

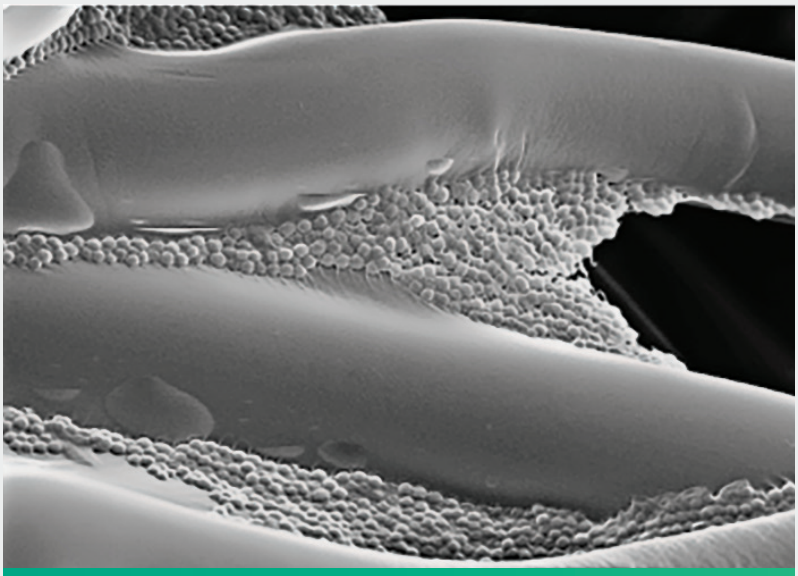
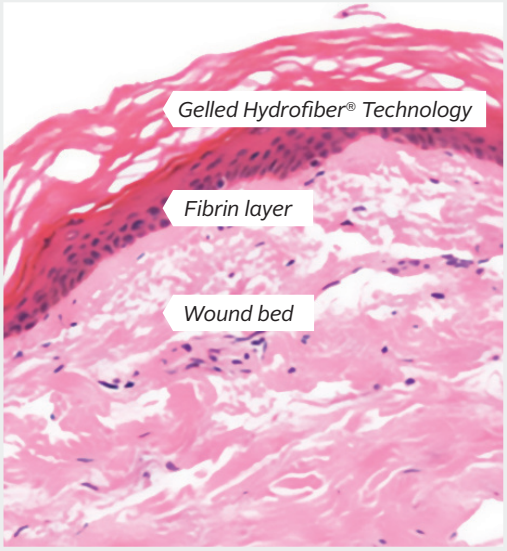


Image of S. Aureus trapped within the gelled Hydrofiber® Technology

Proven to support the healing process

Hydrofiber® Technology specific mode of action is proven to benefit healing.

The physical properties of Hydrofiber® Technology help change the inflammatory reaction, resulting in a much more gentle healing process without excess inflammation. The separation of cells necessary for defence (granulocytes) and for repair (macrophages) is crucial for improving the quality of the wound-healing process and scar formation.

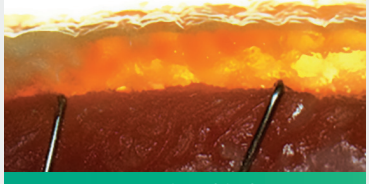


When Hydrofiber® Technology is used, a layer of fibrin builds up between the dressing and the wound, but fibrin absorption by the dressing is minimal. Therefore, tissue ingrowth does not occur, resulting in pain free removal and greater patient satisfaction.

Hydrofiber® Technology is proven to demonstrate limiting levels of inflammation, which improves the healing process, resulting in good scar quality.[64]

AQUACEL™ Surgical portfolio applied to the simulated wound surface

Gelling commences as AQUACEL™ Surgical portfolio absorbs exudate



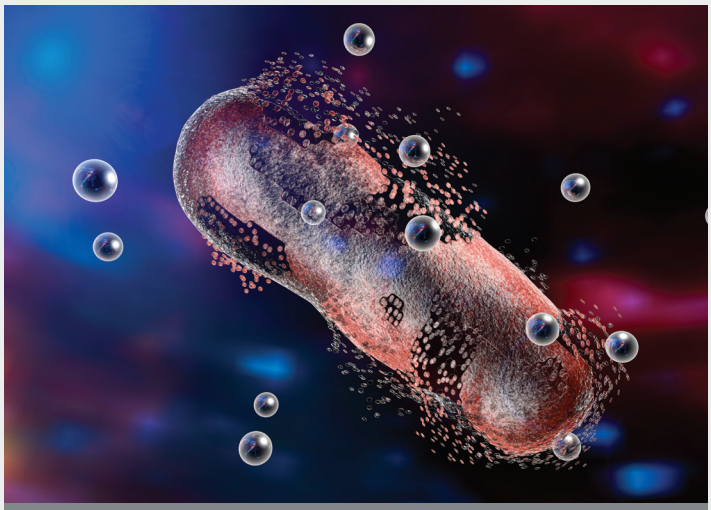
AQUACEL™ Surgical portfolio forms an intimate contact with the simulated wound surface and around staples, limiting spaces where bacteria thrive

AQUACEL™ Ag Surgical

The power of silver

Clinicians have taken advantage of the antimicrobial and antifungal properties of inorganic silver compounds throughout history[70-72]. The microbiocidal efficacy of silver can be accounted for by two primary mechanisms of action:

- Bind to the bacterial cell wall, disrupting polysaccharide integrity and membrane fluidity[73].
- Bind directly to DNA, interfering with cell replication and transcription.



Ionic Silver destroying bacteria

Stopping SSIs at the source

Did you know?

Polymicrobial biofilms are found to be present in surgical incision wounds within 4-6 hours.

Antibiotics alone will rarely be successful against biofilms, 39-51% of SSI pathogens are resistant to standard prophylactic antibiotics[3].

Surgical antiseptics such as skin preparation solution have been shown to disrupt biofilm on obese patients pre-op rather than reduce bioburden. Biofilm can be present at the time of incision, especially for obese patients.[74]

Effective against SSI-associated pathogens

AQUACEL™ Surgical and AQUACEL™ Ag Surgical is highly effective against the most common SSI-associated pathogens, including:

- ✓ *Staphylococcus aureus* (S. aureus)
- ✓ Methicillin-resistant *S. epidermidis* (MRSE)
- ✓ Methicillin-resistant *S. aureus* (MRSA)
- ✓ *Escherichia coli (E. coli)**
- ✓ *Staphylococcus epidermidis (S. epidermidis)*
- ✓ *Enterbacteriacae*
- ✓ *Klebsiella pneumoniae*
- ✓ *(K. pneumoniae)**

Type of surgery[94]	Common pathogens causing SSIs
Placement of graft, prothesis or implant	*Staphylococcis aureus*; CoNS
Cardiac	*S. aureus*; CoNS
Neurosurgery	*S. aureus*; CoNS
Breast	*S. aureus*; CoNS
Ophthalmic	*S. aureus*; CoNS; streptococci; Gram-negative bacilli
Orthopedic	*S. aureus*; CoNS; Gram-negative bacilli
Non-cardiothoracic	*S. aureus*; CoNS; *streptococci; pneumoniae*; Gram-negative bacilli
Vascular	*S. aureus*; CoNS
Appendectomy	Gram-negative bacilli; anaerobes
Biliary tract	Gram-negative bacilli; anaerobes
Colorectal	Gram-negative bacilli; anaerobes
Gastroduodenal	Gram-negative bacilli; streptococci; oropharyngeal anaerobes (e.g. peptostreptococci)
Head and neck	*S. aureus*; CoNS; streptococci; oropharyngeal anaerobes (e.g. peptostreptococci)
Obstetric and gynaecological	S. aureus; CoNS; enterococci; Group B streptococci; anaerobes
Urological	Gram-negative bacilli

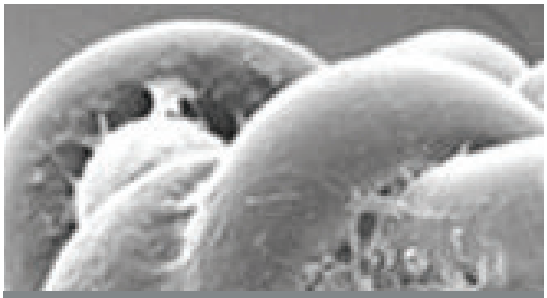
[a] CoNS, coagulase-negative staphylococci.

Support antibiotic stewardship

One-third of antibiotic prescriptions in hospitals involve potential prescribing errors such as giving an antibiotic without proper testing or evaluation, prescribing an antibiotic when it is not needed, or giving an antibiotic for too long.[75]

Staples and sutures – lower the infective threshold

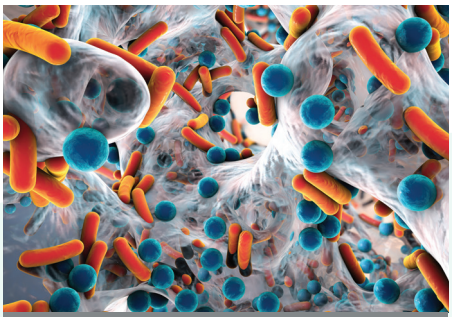
Studies show that sutures and staples can decrease the dose of bacteria necessary to cause an SSI, from >100,000 per gram of tissue to 100 per gram of tissue.[76]



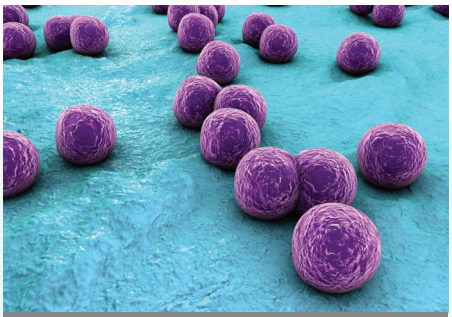
Biofilm formation increases the difficulty of treating an infection, even in the presence of antibiotics

Proven – AQUACEL™ Surgical and AQUACEL™ Ag Surgical post-op dressings enables a faster reduction in SSI causing bacteria when compared to just ionic silver.[77]

Carbapenem-resistant Enterobacteriaceae



Biofilm of antibiotic resistant bacteria



Bacteria Staphylococcus aureus

AQUACEL™ Surgical and AQUACEL™ Ag Surgical post-op dressings reduces the risk of surgical site complications and supports existing SSC reduction care prevention measures.

Engineered to reduce risk mechanical force - related SWD

The design of a dressing plays an important role in patient outcomes. Especially regarding reducing risk of delicate incisions from mechanical strain.

AQUACEL™ Surgical and AQUACEL™ Ag Surgical is engineered to reinforce the tissues and closure mechanism more than other dressings, to achieve a balance between longitudinal extension and mediolateral extension. This reduces the risk of mechanical force-induced SWD in linear incisions.

Highly conformable to the incision area, AQUACEL™ Surgical and AQUACEL™ Ag Surgical also helps reduce the rate of blistering, especially over mobile areas of high tension (e.g. abdomen) and mobility (e.g. joints).

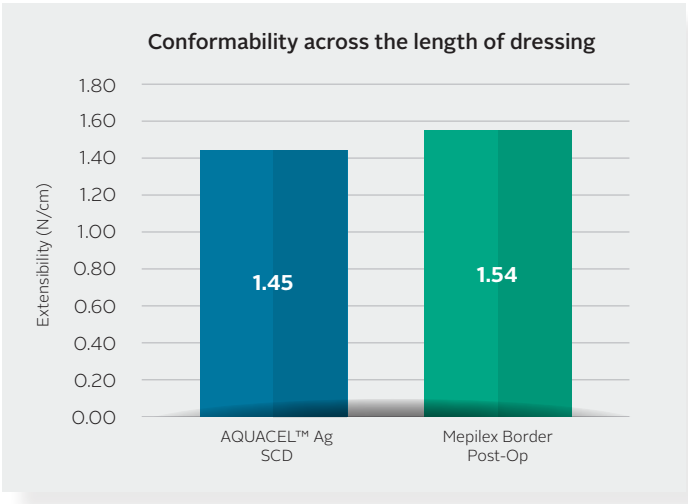
Reduces the risk of SWD through design

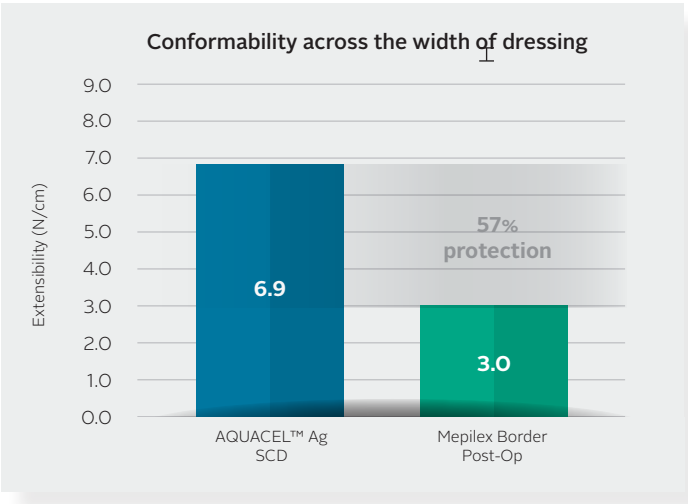
Examples of SWD rates[18]	
Surgical domain	**Incidence**
Laparotomy	0.4%–3.8%
Cardiothoracic (sternotomy)	0.65%–2.1%
Orthopaedic surgery	1.1%–3.6%
Caesarean section	1.9%–7.6%
Oncoplastic breast reconstruction	4.6%–13.3%
Saphous vein harvesting	8.9%
Pilonidal sinus (primary closure)	16.9%–41.8%
Abdominoplasty following bariatric surgery	18.7%–21.5%

Tissue strength during healing[18]	
Time after incision	**% of pre–incision breaking strength**
1 week	3
2 weeks	30
3 months	80

Protection against mechanical induced SWD during week 1 is a key consideration when trying to reduce SWD incidence across a variety of surgical procedures.

Reduces risk of dehiscence through design[77]





Test methodology mimics that ROM seen in TKR wounds demonstrate dynamic morphology and strains of over 20% with normal knee flexion.

AQUACEL™ Surgical and AQUACEL™ Ag Surgical has been proven to exhibit suitable material properties to accommodate this skin movement but other comparative dressings do not.

This biomimicry can reduce the risk of blistering and increase durability of the dressing over 7 days.

Competitor review

In vitro studies have shown that AQUACEL™ Surgical and AQUACEL™ Ag Surgical offers distinct advantages over other silver-impregnated dressings. The Hydrofiber® Technology locks in wound exudate and safely removes it from the wound bed and surrounding area.[52, 53] This protects those surfaces from potential maceration.[61, 69]

Hydrofiber® Technology transforms into a clear, soft gel once it absorbs fluid, allowing it to micro-contour to the wound bed and fill space where bacteria can proliferate.[52-59, 62] This gelling feature also allows AQUACEL™ Surgical and AQUACEL™ Ag Surgical to respond effectively to different wound conditions, maintaining a favorable wound-healing environment and providing increased silver ion availability "on demand."

Against the competition

	AQUACEL™ Ag Surgical	AQUACEL™ Surgical	Mepilex® Border Post-Op Ag	Silverlon® Antimicrobial Island Dressing	Acticoat® 7	Opsite Post-Op Visible	Dermabond Prineo
Silver-impregnated	✓		✓	✓	✓		
Sustains antimicrobial activity for up to 7 days	✓		✓	✓	✓	✓	Sustains microbial barrier for 72 hours
Waterproof	✓	✓	✓		✓	✓	✓
Fully occlusive	✓	✓					
Hydrofiber® Technology	✓	✓					
Micro-contours to wound bed, locking in fluid and sequestering bacteria	✓	✓					
Responds to changing wound conditions by forming a cohesive gel	✓	✓					
Hydrocolloid adhesive manages moisture from skin transpiration	✓	✓					

The clinical evidence

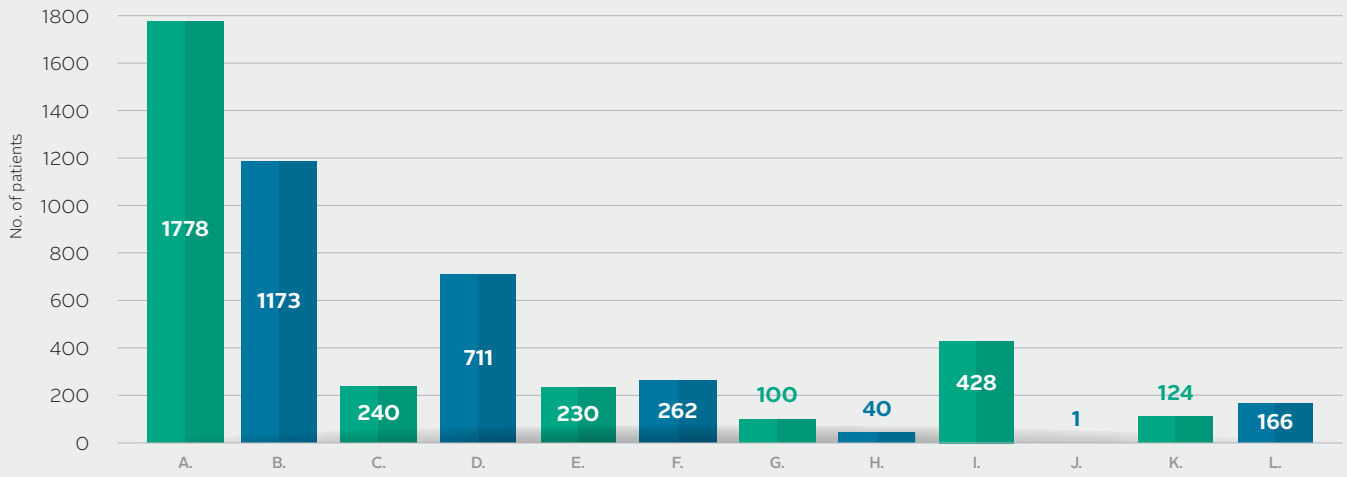
Proven to help surgeons treat their patients better

Over the past 20 years, more than 30 randomized trials have been conducted, and 365 pieces of evidence have been collated to demonstrate the benefits of Hydrofiber® Technology family of surgical dressings.

Research indicates that **AQUACEL™ Surgical and AQUACEL™ Ag Surgical dressings play an important role in reducing the Surgical Site Complications, optimizing healing and improving post-op patient outcomes**.

Reduce complications and improve outcomes

A-F = AQUACEL™ Ag Surgical



Key	A.	B.	C.	D.	E.	F.
Author	*Cai et al, 2014*[26] –	*Grosso et al, 2017*[27] –	*Kuo et al, 2017*[19] –	*Schubach et al, 2015*[29] –	*Struik et al, 2017*[25] –	*Springer et al, 2015*[20] –
Thearpy area	**Ortho - TJA**	**Ortho - TKA**	**Ortho - TKA**	**Cardiac**	**Breast reconstruction**	**Ortho - TJA**
Key findings	4x decrease in acute PJI	4x decrease in acute PJI speciality	10x decrease in SSI Wear time increased from 1.7 to 5.2 days Decreased pain	No wound infections	6x lower rate of SSI	8x decrease in blistering reduction in dressing changes

Key	G.	H.	I.	J.	K.	L.
Author	*Hopper et al, 2012*[28] –	*Bocchiotti et al, 2016*[30] –	*Clarket et al, 2009*[78] –	*Gregson, 2011*[79] –	*Burke et al, 2012*[80] –	*Siah and Yatim, 2011*[81] –
Thearpy area	**Ortho - TJA**	**Plastics - thigh lifts**	**Ortho - TJA**	**Obs & gyne - C section**	**Ortho - TJA**	**Colorectal / Abdominal**
Key findings	80% reduction in blister rate Increased wear time Reduced number of dressing changes Quicker discharge rate	Less traumatic to remove Easier to apply Improved adherence	3x decrease in SSI 9x decrease in blistering Increase in wear time	Reduction in SSI rate	73% reduction in blistering Reduction in dressing changes 3x reduction in dressing leakage	Reduction in mean length of hospital stay Reduction in colonisation of swab cultre

NEW International Consensus Guidelines[82]

Ionic silver helps prevent Surgical Site Infections

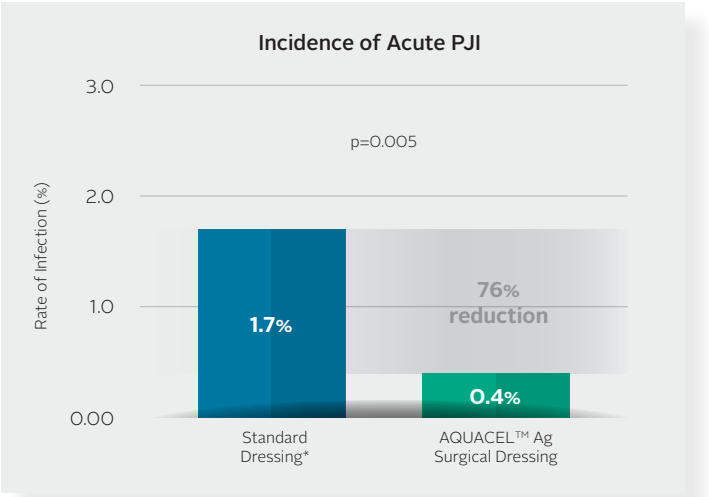
Silver-based dressings have been proven time and again to reduce wound complication, SSI and PJI compared with standard gauze. They should therefore be considered for routine use after surgery.

3 out of 4 clinical studies that support silver dressings were conducted with AQUACEL™ Ag Surgical.

Rothman Institute comparative dressing study of patients undergoing TJA[83]

A retrospective study of 1778 patients was conducted at the Rothman Institute by performing chart reviews to compare the overall incidence of Periprosthetic Joint Infection in 2 groups of patients who had undergone Total Joint Arthroplasty (TJA).

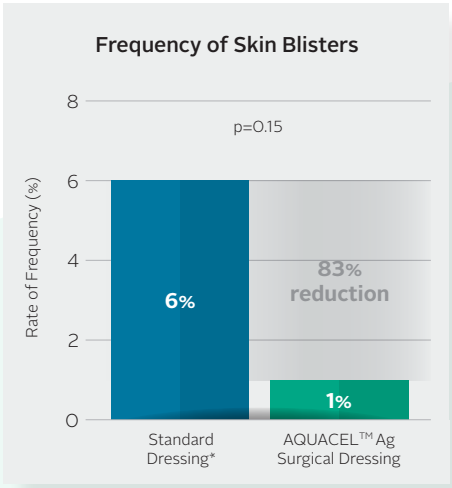
903 patients who received the AQUACEL™ Ag Surgical dressing were compared to 875 patients who received the standard dressing.*

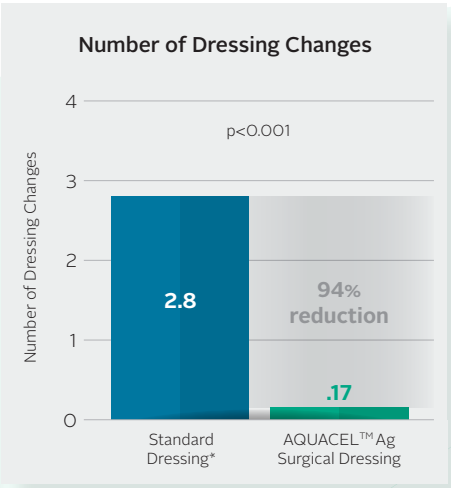


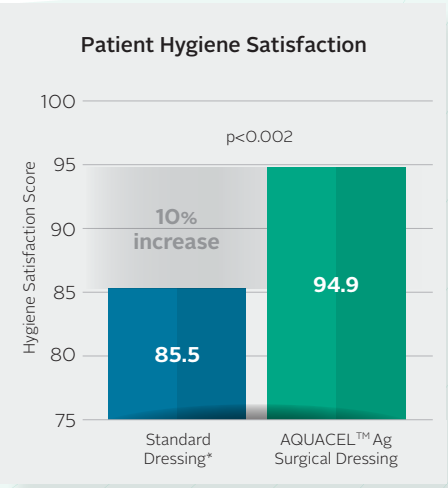
*The standard dressing consisted of sterile gauze secured with adhesive tape

OrthoCarolina comparative dressing study of patients undergoing TKA[5]

150 total knee arthroplasty patients at the OrthoCarolina Hip & Knee Center were randomized to receive either the AQUACEL™ Ag Surgical dressing or a standard surgical dressing.*







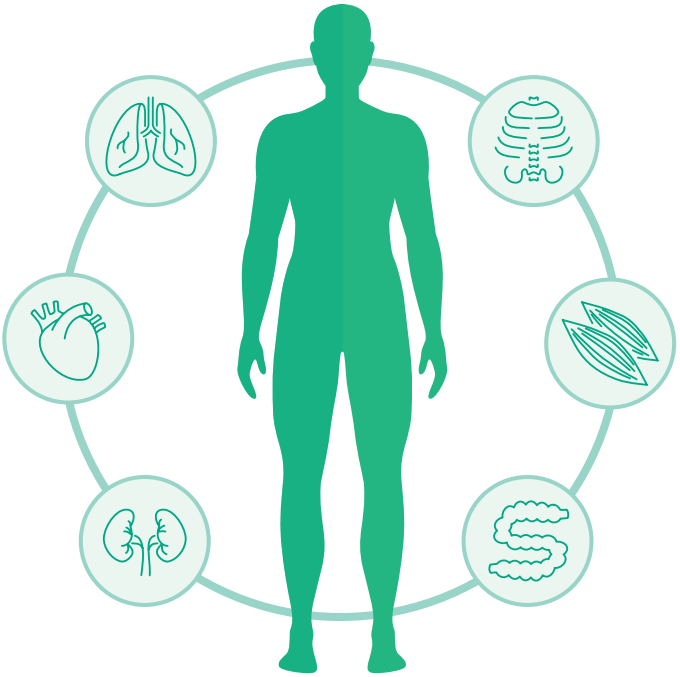
*The standard surgical dressing used was Primapore, Smith and Nephew, Memphis, TN.

Indication guide

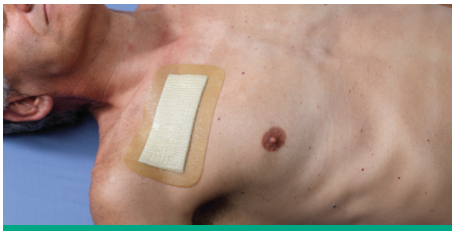
Choosing the right dressing

AQUACEL™ Surgical and AQUACEL™ Ag Surgical is indicated for managing surgical incisions resulting from a vast variety of surgical procedures.

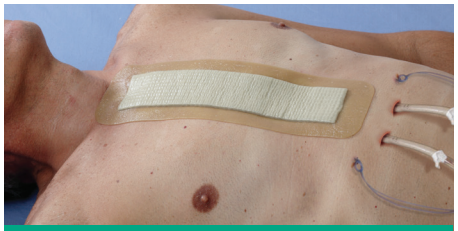
From orthopaedic surgery to C-sections, vascular surgery to cardiothoracic surgery and more, you can rely upon AQUACEL™ Ag Surgical to manage bacteria, minimise the risk of infection, and create an optimal healing environment.



Choosing the right surgical dressing

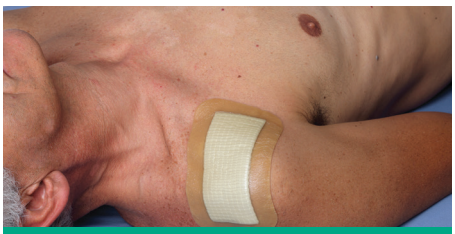


Cardiac Implantable Devices

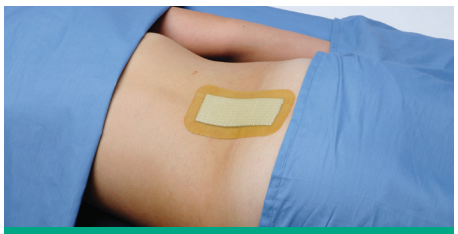


Sternum

Vein Harvesting



Shoulder



Spine

Hip Fracture

Abdomen

Caesarean Section

Hip

Application & removal guide

Simple steps for effective incision treatment

It is simple, quick and painless to apply and remove AQUACEL™ Surgical and AQUACEL™ Ag Surgical.

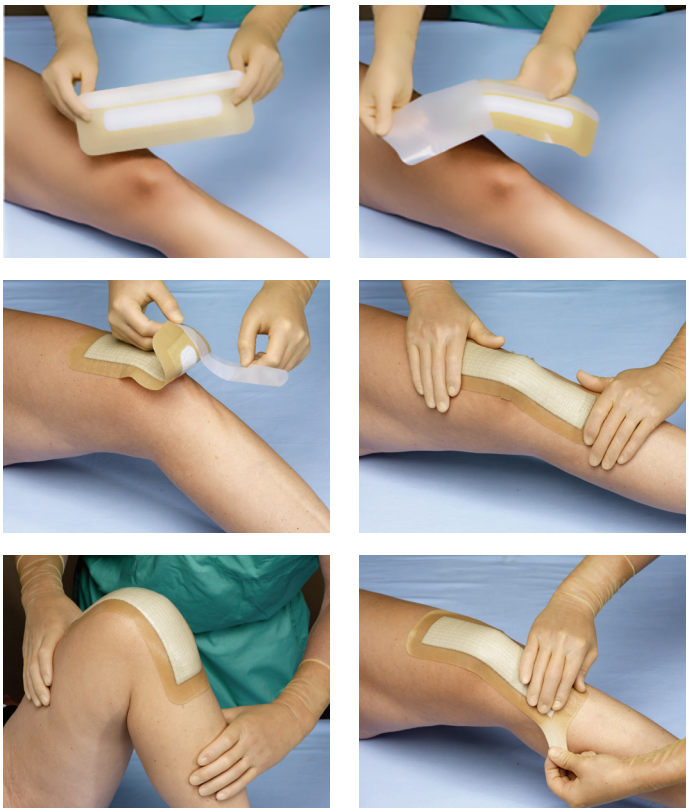
Just follow the steps below:

Application

1. Remove the large backing film (leaving the secondary film in place). Avoid finger contact with the pad and adhesive.
2. Remove half of the remaining backing, and place the dressing directly over the incision line, making sure the adhesive does not come into contact with the incision line. Do not stretch the dressing.
3. Mould the dressing into place to secure adhesion.

Removal

1. Press down on the skin with one hand and carefully lift an edge of the dressing with your other hand.
2. Stretch the dressing to break the adhesive seal and remove.



Key points to note

The dressing can be left in place for up to seven days subject to regular clinical assessment and local dressing protocol.

The translucent hydrocolloid backing allows monitoring of the Hydrofiber® Technology pad.

The dressing will absorb some blood and fluid initially post-operation. The dressing will require changing.

Remove the dressing when clinically indicated (leakage, excessive bleeding, suspicion of infection or at seven days).

ConvaTec Surgical Solutions

Meeting the needs of our surgeons and their patients

ConvaTec - your first choice in post-operative wound management powered by **Hydrofiber® Technology.**

SurgicalSolutions
From ConvaTec

Hydrofiber TECHNOLOGY

For every risk level

ASA ASSESSMENT*

ASA<III[3]

ASA≥III[3]

Does your patient have any of the following risk factors for Surgical Site Complications?

- Previous history of wound breakdown
- Skin problems that will impact healing
- High BMI (≥40)
- Malnutrition
- Smoker
- Lung Disease
- Autoimmune Disease
- Steroids
- Adjunctive Therapy
- Renal Failure

YES

NO

AQUACEL Ag Advantage

+/-

High Risk

Avelle™ Negative Pressure Wound Therapy System

Low-medium Risk

AQUACEL™ Surgical

AQUACEL™ Ag Surgical

Add AQUACEL™ Surgical and AQUACEL™ Ag Surgical to your practice to reduce the risk of infection and complication due to bacterial colonization.

References

1. Centers for Disease Control and Prevention (CDC). Surgical Site Infection (SSI) Event :Procedure-associated Module 2016. www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf. **2.** Thompson KM, Oldenberg WA, Deschamps C, Rupp WC, Smith CD. Chasing zero: The drive to eliminate surgical site infections. Ann Surg. 2011;254:430_437. **3.** Anderson DJ, Kirkland KB, Kaye KS, et al. Under resourced hospital infection control and prevention programs: penny wise, pound foolish? Infect Contr Hosp Epidemiol. 2007;28(7):767_773. **4.** The healthcare executive's role in ensuring quality and patient safety. ACHE website. https://www.aNWche.org/about-ache/our-story/our-commitments/policy-statements/healthcareexecutives-role-in-ensuring-quality-and-safety. Accessed January 31, 2019. **5.** Orsted HL, McNaughton V, Whitehead C. Management and care of clients with surgical sounds in the community. In: Krasner DL, Rodeheaver GT, Sibbald RG, (eds.). Chronic Wound Care (4th edition). Malvern, PA: HMP Communications. 2007. p. 701–710. **6.** Ryan P. Merkow ; Underlying Reasons Associated With Hospital Readmission Following Surgery in the United States;JAMA. 2015;313(5):483-495. doi:10.1001/jama.2014.18614. **7.** Costerton, J. W., Stewart, P. S. & Greenberg, E. P. Bacterial biofilms: a common cause of persistent infections. Science. 284, 1318–1322 (1999). **8.** Oliver, J. D. Recent findings on the viable but nonculturable state in pathogenic bacteria. FEMS Microbiol. Rev. 34, 415–425 (2010). **9.** Surg Infect (Larchmt). 2016 Oct;17(5):510-9. doi: 10.1089/sur.2015.241. Epub 2016 Jul 27. Proportion of Surgical Site Infections Occurring after Hospital Discharge: A Systematic Review. Woelber E1, Schrick EJ2, Gessner BD3, Evans HL. **10.** De Lissovoy G, Fraeman K, Hutchins V, et al. Surgical site infection: Incidence and impact on hospital utilization and treatment costs. Am J Infect Control. 2009;37:387_397. **11.** P.J. Jenks et al. Clinical and economic burden of surgical site infection (SSI) and predicted financial consequences of elimination of SSI from an English hospital Journal of Hospital Infection 86 (2014) 24-33. **12.** de Lissovoy G, Pan F, Patkar AD, Edmiston CE Jr, Peng S. Surgical site infection incidence and burden assessment using multiinstitutional real-world data. **13.** Anderson DJ, Podgorny K, Berrios-Torres SI, et al. Strategies to prevent surgical site infections in acute care hospitals: 2014 update. Infect Control Hosp Epidemiol. 2014;35(6):605_627. **14.** Woelber et al; Proportion of Surgical Site Infections Occurring after Hospital Discharge: A Systematic Review; SURGICAL INFECTIONS Volume 17, Number 5, 2016. **15.** Kluytmans JA, Mouton JW, Ijzerman EP, Vandenbroucke-Grauls CM, Maat AW, Wagenvoort JH, et al. Nasal carriage of Staphylococcus aureus as a major risk factor for wound infections after cardiac surgery.J Infect Dis. 1995;171(1):216-9. **16.** von Eiff C, Becker K, Machka K, Stammer H, Peters G. Nasal carriage as a source of Staphylococcus aureus bacteremia. New Engl J Med. 2001;344(1):11-6. **17.** Wertheim HF, Vos MC, Ott A, van Belkum A, Voss A, Kluytmans JA, et al. Risk and outcome of nosocomial Staphylococcus aureus bacteraemia in nasal carriers versus non-carriers. Lancet. 2004;364(9435):703-5. **18.** World Union of Wound Healing Societies (WUWHS) Consensus Document. Closed surgical incision management: understanding the role of NPWT. Wounds International, 2016. **19.** Kuo, F.C., et al., AQUACEL(R) Ag Surgical Dressing Reduces Surgical Site Infection and Improves Patient Satisfaction in Minimally Invasive Total Knee Arthroplasty: A Prospective, Randomized, Controlled Study. Biomed Res Int, 2017. 2017: p. 1262108. **20.** Springer, B.D., et al., Role of Surgical Dressings in Total Joint Arthroplasty: A Randomized Controlled Trial. Am J Orthop (Belle Mead NJ), 2015. 44(9): p. 415-20. **21.** 10. National Institute for Health and Clinical Excellence (NICE). Surgical Site Infection:Evidence Update June 2013. Available from: www.nice.org.uk/guidance/cg74/evidence/evidence-update-241969645. **22.** Bowler PG, Parsons, D. Combatting wound biofilm and recalcitrance with a novel anti-biofilm HydrofiberR wound dressing. Wound Medicine 14 (2016) 6–11. **23.** Antimicrobial activity and prevention of biofilm reformation by AQUACELR Ag+ Extra™ dressing. Scientific Background Report. WHRI3857 MA236, 2013, Data on file, ConvaTec Inc. **24.** Antimicrobial activity against CA-MRSA and prevention of biofilm reformation by AQUACELR Ag+ Extra™ dressing. Scientific Background Report. WHRI3875 MA239, From AP–020063-US 2013, Data on file, ConvaTec Inc. **25.** Struik, G.M., et al., A randomized controlled trial on the effect of a silver carboxymethylcellulose dressing on surgical site infections after breast cancer surgery. European Surgical Research, 2017.58:p.2 **26.** Cai, J., et al., Aquacel surgical dressing reduces the rate of acute PJI following total joint arthroplasty: a case-control study. J Arthroplasty, 2014. 29(6): p. 1098-100. **27.** Grosso, M.J., et al., Silver-Impregnated Occlusive Dressing Reduces Rates of Acute Periprosthetic Joint Infection After Total Joint Arthroplasty. J Arthroplasty, 2017. 32(3): p. 929-932. **28.** Hopper, G.P., et al., Enhancing patient recovery following lower limb arthroplasty with a modern wound dressing: a prospective, comparative audit. J Wound Care, 2012. 21(4): p. 200-3. **29.** Schubach S., a.M.J. Aquacel Ag dressing reduces deep sternal wound infection after cardiac surgery. in International Society for Minimally Invasive Cardiac Surgery. 2015. Lippincott Williams and Wilkins. **30.** 18.Bocchiotti, M.A., et al., Aquacel Surgical Dressing after Thigh Lift: A Case-Control Study. Plast Reconstr Surg Glob Open, 2016. 4(9):p. e863. **31.** Okan D, Woo K, Ayello EA, Sibbald G. The role of moisture balance in wound healing. Advances in Skin and Wound Care. 2007;20(1):39–53. **32.** Sibbald RG, Orsted HL, Coutts P, Keast D. Best practice recommendations for preparing the wound bed update 2006. Advances In Skin and Wound Care. 2007;20(7):390–405. **33.** Sibbald RG, Orsted HL, Schultz G, Coutts P, Keast D. Preparing the wound bed 2003: Focus on infection and inflammation. Ostomy/Wound Management. 2003;49(11): 24–51. **34.** Gray M, Black JM, Baharestani MM, Bliss DZ, Colwell JC, Goldberg M, et al. Moisture associated skin damage: Overview and pathophysiology. J Wound, Ostomy, Cont Nurs.2011:38(3):233–241. **35.** Sibbald RG, Williamson D, Orsted HL, Campbell K, Keast D, Krasner D, Sibbald RD. Preparing the wound bed – debridement, bacterial balance, and moisture balance. Ostomy/Wound Management. 2000;46(11):14–35. **36.** Ovington LG. Hanging wet-to-dry dressingsout to dry. Advances in Skin and Wound Care. 2002;15(2):79–85. **37.** J.M Dillon et al, Correlation of total knee replacement wound dynamic morphology and dressing material properties, Journal of Biomechanics, S61, Vol 40, Supp 2, 2007. **38.** Walker M, Bowler PG, Cochrane CA. In vitro studies to show sequestration of matrix metalloproteinases by silver-containing wound care products. Ostomy/Wound Management. 2007;53(9):18–25. **39.** Armstrong SH, Brown DA, Hill E, Ruckley CV. A randomized trial of a new Hydrofiber dressing, AQUACEL, and an alginate in the treatment of exuding leg ulcers. Presented at: 5th European Conference on Advances in Wound Management; Harrogate, UK: November 1995. **40.** Newman GR, Walker M, Hobot JA, Bowler PG, 2006. Visualization of bacterial sequestration and bacterial activity within hydrating Hydrober™ wound dressings. Biomaterials; 27:1129-1139. **41.** Walker M, Hobot JA, Newman GR, Bowler PG, 2003. Scanning electron microscopic examination of bacterial immobilization in a carboxymethyl cellulose (AQUACEL™) and alginate dressing. Biomaterials; 24: 883-890. **42.** Bowler PG, Jones SA, Davies BJ, Coyle E, 1999. Infection control properties of some wound dressings. J. Wound Care;8: 499-502. **43.** Walker M, Bowler PG, Cochrane CA, 2007. In vitro studies to show sequestration of matrix metalloproteinases by silver-containing wound care products. Ostomy/Wound Management. 2007; 53: 18-25. **44.** Walker M and Parsons D, 2010. Hydrofiber Technology: its role in exudate management. Wounds UK; 6: 31-38. **45.** Parsons D, Bowler PG, Myles V, Jones SA, 2005. Silver antimicrobial dressings in wound management: A comparison of antibacterial, physical and chemical characteristics. WOUNDS; 17: 222-232. **46.** Jones SA, Bowler PG, Walker M, 2005. Antimicrobial activity of silver-containing dressings is influenced by dressing conformability with a wound surface. WOUNDS; 17: 263-270. **47.** Bowler P, Jones S, Towers V, Booth R, Parsons D, Walker M, 2010. Dressing conformability and silver-containing wound dressings. Wounds UK; 6: 14-20. **48.** Walker M, Jones S, Parsons D, Booth R, Cochrane C, Bowler P, 2011. Evaluation of lowadherent antimicrobial dressings. Wounds UK; 7: 32-45. **49.** Barnea Y, Armir A, Leshem D, Zaretski A, Weiss J, et al, 2004. Clinical comparative study of Aquacel and para. n gauze dressing for split-skin donor site treatment. Ann Plast Surg; 53: 132-136. **50.** Kogan L, Moldavsky M, Szvalb S, Govrin-Yehudain J, 2004. Comparative study of Aquacel and Silverol treatment in burns. Ann Burns Fire Disasters; 17: 201-207. **51.** Brunner U, Eberlein T, 2000. Experiences with hydrofibers in the moist treatment of chronic wounds, in particular of diabetic foot. VASA; 29: 253-257. **52.** Waring MJ, Parsons D. Physicochemical characterisation of carboxymethylated spun cellulose fibres. Biomaterials. 2000;22:903–912. **53.** Parsons D, Bowler PG, Myles V, Jones SA. Silver antimicrobial dressings in wound management: a comparison of antibacterial, physical and chemical characteristics. WOUNDS. 2005;17:222–232. **54.** Jones SA, Bowler PG, Walker M. Antimicrobial activity of silver-containing dressings is influenced by dressing conformability with a wound surface. WOUNDS. 2005;17:263–270. **55.** Kwon Lee S. Clinical experiences with technologies: case reports on the use of two HydrofiberR dressings. Ostomy/Wound Management. 2003;49(8 Suppl):6–9. **56.** Jurczak F, Dugre T, Johnstone A, Offori T, Vujovic Z, Hollander D. Randomised clinical trial of Hydrofiber dressing with silver versus povidone-iodine gauze in the management of open surgical and traumatic wounds. Int Wound J. 2007;4:66–76. **57.** Harding KG, Price P, Robinson B, Thomas S, Hofman D. Cost and dressing evaluation of Hydrofiber and alginate dressings in the management of community-based patients with chronic leg ulceration. WOUNDS. 2001;13(6):229–236. **58.** Vanscheidt W, Lazareth I, Routkovsky-Norval C. Safety evaluation of a new ionic silver dressing in the management of chronic ulcers. WOUNDS. 2003;15:371–378. **59.** Richters CD, DuPont JS, Mayen L, Kamperdijk EWA, Dutriex PR, Kreis RW, Hoekstra MJ. Effects of a HydrofiberR dressing on inflammatory cells in rat partial-thickness wounds. WOUNDS. 2004;16(2):63–70. **60.** Walker M, Hobot JA, Newman GR, Bowler PG. Scanning electron microscopic examination of bacterial immobilisation in a carboxymethyl cellulose (AQUACELR) and Alginate Dressing. Biomaterials. 2003;24:883–890. **61.** Coutts P, Sibbald RG. The effect of a silver-containing Hydrofiber dressing on superficial wound bed and bacterial balance of chronic wounds. Int Wound J. 2005;2(4):348–356. **62.** Hoeskstra MJ, Hermans MHE, Richters CD, Dutrieux RP. A histological comparison of acute inflammatory responses with a Hydrofiber or tulle gauze dressing. J Wound Care. 2002;11(2):113–119. **63.** Barnea Y, Amir A, Leshem D, et al. Clinical comparative study of Aquacel and paraffin gauze dressing for split-skin donor site treatment. Ann Plast Surg. 2004;53(2):132–136. **64.** Caruso DM, Foster KN, Blome-Eberwein SA, et al. Randomized clinical study of Hydrofiber dressing with silver or silver sulfadiazine in the management of partial-thickness burns. J Burn Care Res. 2006;27(3):298–309. **65.** Kogan L, Moldavsky M, Szvalb S, Govrin-Yehudain J. Comparative study of Aquacel and Silverol treatment in burns. Ann Burns Fire Disasters. 2004;17(4):201–207. **66.** Bowler PG, Jones SA, Davies BJ, Coyle E. Infection control properties of some wound dressings. J Wound Care. 1999;8(10): 499–502. **67.** Newman GR, Walker M, Hobot JA, Bowler PG. Visualisation of bacterial sequestration and bacterial activity within hydrating HydrofiberR wound dressings. Biomaterials. 2006;27(7):1129–1139. **68.** Tachi M, Hirabayashi S, Yonehara Y, Suzuki Y, Bowler PG. Comparison of bacteria-retaining ability of absorbent wound dressings. Int Wound J. 2004;1:177–181. **69.** Robinson BJ. The use of a hydrofiber dressing in wound management. J Wound Care. 2000;9(1):32–34. **70.** Lansdown AB. 2002. Its antibacterial properties and mechanism of action. J Wound Care 11:125–130. http://dx.doi.org/10.12968/jowc.2002.11.4.26389. **71.** Lansdown AB. 2002. Silver 2: toxicity in mammals and how its products aid wound repair. J Wound Care 11:173–177. http://dx.doi.org/10.12968/jowc.2002.11.5.26398. **72.** Dowsett C. 2004. The use of silver-based dressings in wound care. Nurs Stand 19:56–66. http://dx.doi.org/10.7748/ns2004.10.19.7.56.c3736. **73.** Markowitz SM, Smith SM, Williams DS. 1983. Retrospective analysis of plasmid patterns in a study of burn unit outbreaks of infections due to Enterobacter cloacae. J Infect Dis 148:18–23. http://dx.doi.org/10.1093/infdis/148.1.18. **74.** Rood, et al; Skin Microbiota in Obese Women at Risk for Surgical Site Infection After Cesarean Delivery; www.nature.com/scientificreports; June 2018. **75.** Hecker MT, Aron DC, Patel NP, Lehmann MK, Donskey CJ. Unnecessary use of antimicrobials in hospitalized patients: current patterns of misuse with an emphasis onthe anti-anaerobic spectrum of activity. Arch Intern Med 2003;163:972–8. **76.** Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR, Hospital Infection Control Practices Advisory Committee. Guideline for Prevention of Surgical Site Infection, 1999. Infect Control Hosp Epidemiol. 1999;20(4):250 278. **77.** Convatec data on file. **78.** Clarke, J.V., et al., A prospective clinical audit of a new dressing design for lower limb arthroplasty wounds. J Wound Care, 2009. 18(1): p. 5-8, 10-1. **79.** Gregson, H., Reducing surgical site infection following caesarean section. Nurs Stand, 2011. 25(50): p. 35-40. **80.** Burke, N.G., et al., A prospective randomised study comparing the jubilee dressing method to a standard adhesive dressing for total hip and knee replacements. J Tissue Viability, 2012. 21(3): p. 84-7. **81.** Siah, C.J. and J. Yatim, Efficacy of a total occlusive ionic silver-containing dressing combination in decreasing risk of surgical site infection: an RCT. J Wound Care, 2011. 20(12): p. 561-8. **82.** The Role of Policy in HAI Reporting and Prevention. Centers for Disease Control and Prevention website. https://www.cdc.gov/hai/pdfs/toolkits/hai-policy-case-studieslesssons-learned.pdf. Accessed January 31, 2019.
82. General Assembly, Prevention, Wound Management: Proceedings of International Consensus on Orthopedic Infections. Al-Houraibi,Reema K. et al. The Journal of Arthroplasty, Volume 34, Issue 2, S157 - S168. **83.** The Role of Policy in HAI Reporting and Prevention. Centers for Disease Control and Prevention website. https://www.cdc.gov/hai/pdfs/toolkits/hai-policy-case-studieslesssons-learned.pdf. Accessed January 31, 2019.

Ordering information

SurgicalSolutions
From ConvaTec

AQUACEL™ Ag Surgical

AQUACEL™ Ag Surgical

Dressing Size	Incisions Length	Total Fluid Management in vitro (g/24hr)	Dressings Per box	Product Code
3.5" x 4" (9cm x 10cm)	1.5" (4cm)	21.7	10	422603
3.5" x 6" (9cm x 15cm)	3.5" (9cm)	37.2	10	422604
3.5" x 10" (9cm x 25cm)	6.5" (17cm)	62.0	10	422605
3.5" x 12" (9cm x 30cm)	8.5" (22cm)	77.5	10	422606
3.5" x 14" (9cm x 35cm)	10.5" (27cm)	93.0	10	422607

Avelle™ Negative Pressure Wound Therapy System

Avelle™ Negative Pressure Wound Therapy System

Dressing Size	Pack Size	Max. Incision Length	Product Code
Avelle™ Pump	N/A	1	422285
16 x 16 cm	8 x 8 cm	5	421552
16 x 21 cm	8 x 13 cm	5	421553
12 x 21 cm	4 x 13 cm	5	421554
12 x 31 cm	4 x 23 cm	5	421555
12 x 41 cm	4 x 33 cm	5	422155
21 x 26 cm	13 x 18 cm	5	422156
26 x 26 cm	18 x 18 cm	5	422157
Pump Carry Bag	N/A	1	446650
			All dressing pouches include x6 Adhesive Film Fixation Strips

To find out more about the ConvaTec portfolio visit:
www.convatec.com

ConvaTec