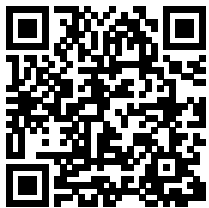


ETHICON

Plus Antibacterial Sutures



ETHICON

Johnson & Johnson SURGICAL TECHNOLOGIES

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Brilliant as ever, a gem like no other



ETHICON Plus Antibacterial Sutures

Unicity of the range

Plus Sutures – the only sutures with Triclosan available worldwide with antibacterial protection offered by IRGACARE^{®†} MP (Triclosan)*.¹

Plus Sutures were associated with a nearly 30%[‡] reduction in the risk of surgical site infection.²

Always **EXPECT MORE** from ETHICON.



[†] Trademark of BASF

[‡] Refers to VICRYL[™] Plus, MONOCRYL[™] Plus and PDS[™] Plus sutures only in NICE 2021 Guidance MTG59.

* There are no competitive Triclosan coated sutures that have both FDA clearance and CE Mark as of June 2022.

Unicity of the range



WHAT VALUE DOES IT BRING?

For more than 130 years, ETHICON have been offering high quality Sutures which have always been a “gem” in the broad ETHICON portfolio.

In 2003, the portfolio was enriched by the launch of the first ETHICON Plus Antibacterial Suture, VICRYL™ Plus Antibacterial Suture.

Plus Sutures – the only sutures with Triclosan available worldwide with antibacterial protection offered by IRGACARE®# MP (Triclosan)*. 1

COMPREHENSIVE RANGE FOR ALL LAYERS

ETHICON’s commitment to innovation has brought forth a wide variety of sutures, including multifilament braided, monofilament, and barbed, dependably providing antibacterial protection† without affecting handling or performance.**†§3-10

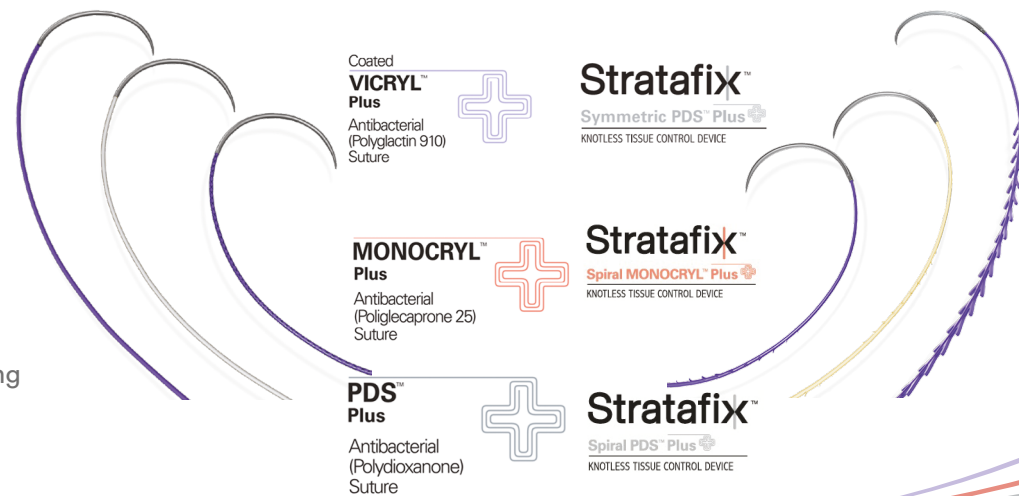


Figure 1. ETHICON Plus technology is available in a range of ETHICON suture polymers, sizes and designs, including monofilament, braided and barbed sutures.

Trademark of BASF

* There are no competitive Triclosan coated sutures that have both FDA clearance and CE Mark as of June 2022.

** Ford (clinical paper) supports handling

† de Jonge (clinical paper) supports SSI risk reduction

† Pre-clinical test data are not necessarily indicative of clinical performance. (Pre-clinical studies: Ming 2007, Ming 2008, Rothenburger 2002 and Storch 2004)

§ When compared to traditional ETHICON Sutures

From surface to deep-down protection



ETHICON Plus Antibacterial Sutures

Plus Sutures have been shown in vitro to inhibit bacterial colonization of the suture for 7 days or more** 3,5-7

Plus Sutures were associated with a nearly 30%* reduction in the risk of surgical site infection. 2

Always **EXPECT MORE** from ETHICON.

* The following bacteria have been evaluated: Staphylococcus aureus, Staphylococcus epidermis, Methicillin-resistant Staphylococcus aureus (MRSA), Methicillin-resistant Staphylococcus epidermis (MRSE), Escherichia coli, Klebsiella pneumoniae

† Pre-clinical test data are not necessarily indicative of clinical performance

‡ Refers to VICRYL™ Plus, MONOCRYL™ Plus and PDS™ Plus sutures only in NICE 2021 Guidance MTG59.



Protection against bacterial colonization of the suture

WHAT VALUE DOES IT BRING?

Sutures, like all implanted materials can be a nidus for infection, because they lower the infective threshold; i.e. they decrease the amount of bacteria needed to cause an SSI.^{11,12} In fact, 67% of all SSIs are confined to the incision.^{11,13,14}

Antibacterial protection that starts on the inside^{#3-7}

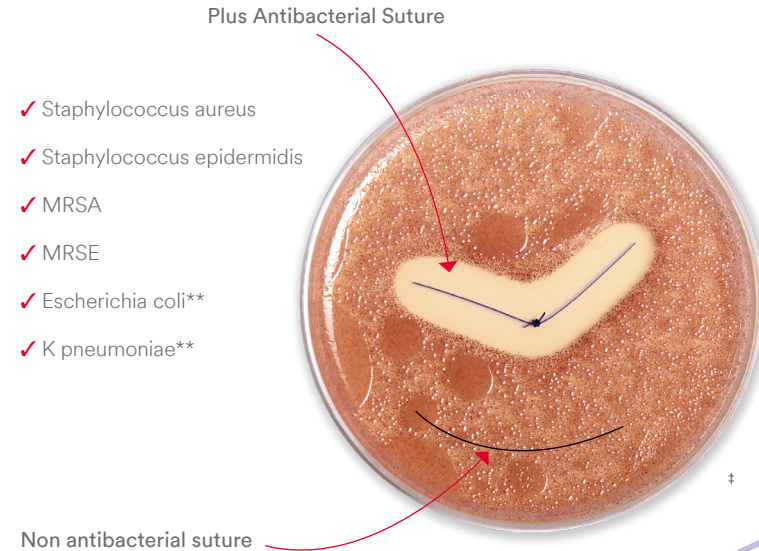
- Proven in vivo[†] to kill bacteria on the suture known to be associated with SSIs*[†]
- Creates zones of inhibition, as proven in vitro
- Bacterial inhibition continues >7 days in vitro

HOW IS IT OBTAINED?

Plus Antibacterial Sutures are coated with IRGACARE[®] MP*, the purest form of triclosan, which is a broad-spectrum antimicrobial agent that's been used extensively since the 1960s and has a well-established safety profile.¹⁵ This technology is available in a range of ETHICON suture polymers, sizes and designs, including monofilament, braided, and barbed sutures.

Qualitative method to measure antibacterial efficacy.

Plus Antibacterial Sutures have been shown in vitro to inhibit bacterial colonization of the suture for 7 days or more and are effective against the most common organisms associated with SSIs.^{15,5,6}



Quantitative method to measure antibacterial efficacy.

99.999%

MONOCRYL™ Plus reduced suture colonization by common SSI pathogens by 99% up to 99.99% as compared to non-antimicrobial sutures.^{§¶¶¶¶ 16}

Figure 2: [†]Triclosan has in vitro activity that inhibits bacterial colonization of the suture. For illustration purposes only.

*Trademark of BASF

[†]In vivo data is from animal models

[‡]Pre-clinical test data are not necessarily indicative of clinical performance

[§]Tested in a 2-0 MONOCRYL™ Plus suture.

[¶]Log Reduction - Staphylococcus aureus 3.69, Staphylococcus epidermidis 1.84, MRSA 3.10, MRSE 4.92, Escherichia coli 4.54, Klebsiella pneumonia 3.64 - Log Reduction 1 = 90% reduction, Log Reduction 2 = 99% reduction, Log Reduction 3 = 99.9% reduction, Log Reduction 4 = 99.99% reduction

* Staphylococcus aureus, Staphylococcus epidermidis, MRSA, MRSE, Escherichia coli, K pneumoniae (Escherichia coli, K pneumoniae - PDS™ Plus Antibacterial (polydioxanone) Suture and MONOCRYL™ Plus Antibacterial (poliglecaprone 25) Suture only)

** PDS™ Plus Antibacterial (polydioxanone) Suture and MONOCRYL™ Plus Antibacterial (poliglecaprone 25) Suture only.

[‡]Based on benchtop testing and clinical effect is unknown.

[†]The study was executed following protocol 100883589 and 100207824 Test Method for Bacterial Attachment rev 1. Based on a two-sample t-test, efficacy was demonstrated for Staphylococcus

aureus (p-value 0.000), Staphylococcus epidermidis (p-value 0.000), MRSA (p-value 0.000), Escherichia coli (p-value 0.000), and Klebsiella pneumoniae (p-value 0.000) using 10% Trypticase Soy Broth (TSB). Efficacy was not observed for MRSE using the same conditions (10% TSB). MRSE is a slow growing bacterium and the recovery from control sutures was in the range of 3.5-4.24 log CFUs, which is 1-2 logs lower than other challenge bacteria, suggesting the media used (10% TSB) may not be suitable for this slow growing bacterium. It was thought that increasing concentration of TSB from 10- 50% would provide additional nutrients and hence support robust growth of the bacterium. The study was repeated with inoculum prepared in 50% TSB and results are reported (p-value 0.000).

The same... but different

ETHICON Plus Antibacterial Sutures

Appearing the same,
providing additional
protection

Plus Antibacterial Sutures were supported by a wide range of evidence showing:

- Inhibition of gram-positive and gram-negative bacteria
- Excellent physical handling properties
- Safety and biocompatibility of the triclosan used.^{6,8,17,18}

Plus Sutures were associated with a nearly 30%[‡] reduction in the risk of surgical site infection.²

Maybe you can't tell the difference, but bacteria certainly can.

Always **EXPECT MORE** from ETHICON.



Appearing the same, providing additional protection

WHAT VALUE DOES IT BRING?

Surgeons may not tell the difference between ETHICON traditional sutures and ETHICON Plus Antibacterial Sutures, but bacteria can!

Plus Antibacterial Sutures were supported by a wide range of evidence showing:

- Inhibition of gram-positive and gram-negative bacteria
- Excellent physical handling properties
- Safety and biocompatibility of the triclosan used^{6,8,17,18}

Nurses and Surgeons can continue to rely on the features they appreciate of ETHICON Plus Antibacterial Sutures without any need for additional surgical skills, experiencing the additional protection offered by the Plus Antibacterial Range.

HOW IS IT OBTAINED?

The triclosan coating on Plus Sutures was shown to have an excellent safety profile and did not impact intraoperative handling.^{6,8,17,18} The tensile strength retention and absorption profile of ETHICON

Plus sutures is equivalent to that of traditional ETHICON sutures.¹⁹⁻²⁴

A simple golden line on the box and a shield (for MONOCRYL™ only), on top of the brand name, will help OR staff to easily identify ETHICON Plus Antibacterial Suture range (Fig.4).

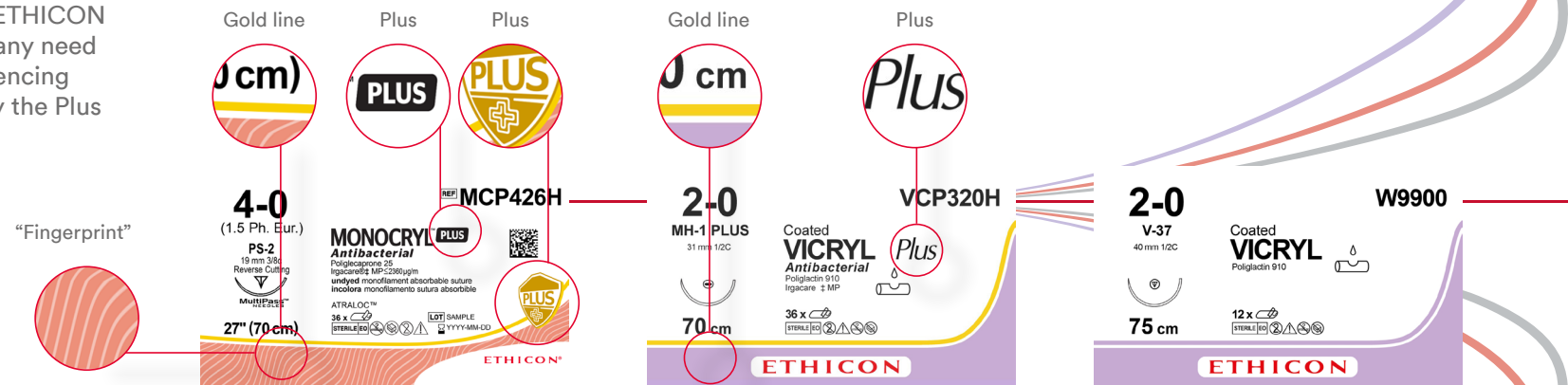
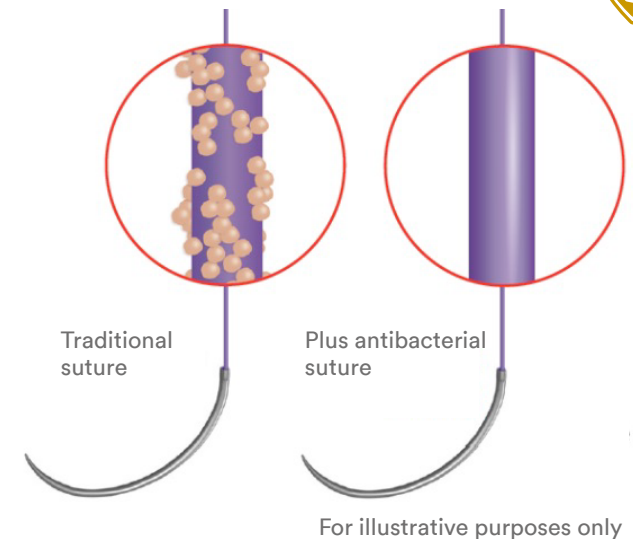


Figure 4: Identifying Plus Antibacterial Sutures

Figure 3: Illustrative comparison between a traditional suture and a Plus antibacterial suture.



Seal of approval Triclosan-coated sutures Evidence and guidelines*



ETHICON Plus Antibacterial Sutures



Plus Sutures were associated with a nearly 30%[‡] reduction in the risk of surgical site infection.²

The clinical value of triclosan-coated sutures for wound closure is well-established and supported by Level 1A evidence as well as multiple evidence-based clinical practice guidelines.*^{9,25-30}

Always **EXPECT MORE** from ETHICON.

[‡]Refers to VICRYL™ Plus, MONOCRYL™ Plus and PDS™ Plus sutures only in NICE 2021 Guidance MTG59.

*CDC, WHO, ACS/SIS, NICE, KRINKO and EUnetHTA guidelines on reducing the risk of surgical site infections are general to triclosan-coated sutures and are not specific to any one brand. Recommendations for different types of surgery may not be consistent across authorities.

Triclosan-coated sutures evidence and guidelines



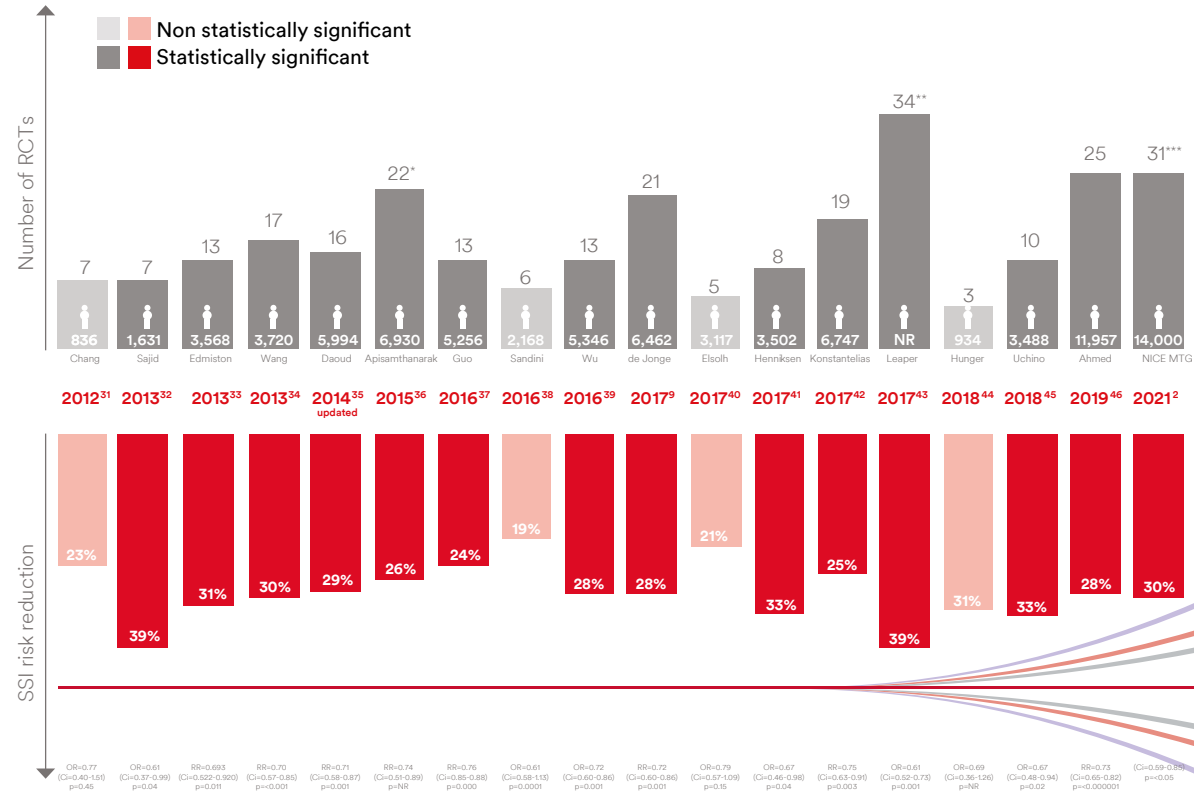
WHAT VALUE DOES IT BRING?

Plus Sutures were associated with a nearly 30%[‡] reduction in the risk of surgical site infection.² This adds a significant piece to the prevention of SSI measures, by contributing to the reduction of the risk, as displayed by the results of several meta-analyses.^{2,9,31-46}

Triclosan-coated sutures are supported by the highest level of clinical evidence (1A) and by health authorities around the world.^{*} § 9,25-30

HOW IS IT OBTAINED?

Since their launch to the market back in 2003, ETHICON Plus Antibacterial Sutures have been extensively studied, from the pre-clinical in vitro studies to RCTs and meta-analyses, level 1a of evidence.



[‡]CDC, WHO, ACS/SIS, NICE, KRINKO and EunetHTA guidelines on reducing the risk of surgical site infections are general to triclosan-coated sutures and are not specific to any one brand. Recommendations for different types of surgery may not be consistent across authorities.

^{*}Refers to VICRYL™ Plus, MONOCRYL™ Plus and PDS™ Plus sutures only in NICE 2021 Guidance MTG59.

^{*} One publication is duplicated

^{**} Leaper's meta-analysis include both observational studies and RCTs

^{***} Meta-analysis as per NICE MTG for Plus Sutures, June 2021



Triclosan-coated sutures evidence and guidelines^{***}

de Jonge (2017) Meta-Analysis⁹

Key features:⁹

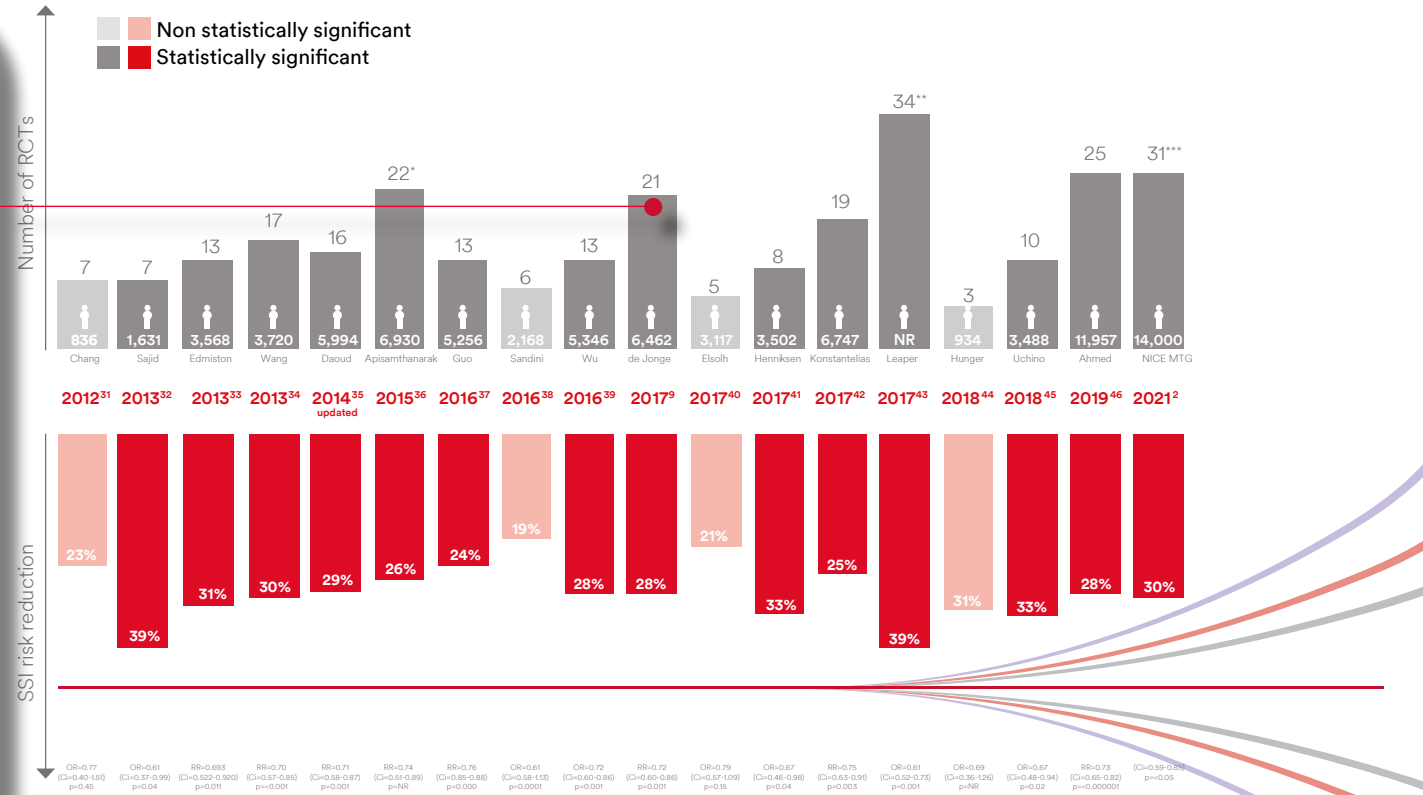
- 21 RCTs (identified through a systematic literature research of PubMed, MEDLINE, Embase and the Cochrane Library database (January 1990) through November 2015).
- 6,462 patients
- All triclosan coated sutures used in the RCTs were ETHICON Plus Antibacterial Sutures.

Objective:⁹

To evaluate the efficacy of triclosan-coated sutures for the prevention of SSI.

Key Findings:⁹

- Demonstrates a 28% reduction in SSI risk with the use of triclosan-coated sutures
 - 29% reduction in SSI risk in clean (CDC Wound Class I) procedures
 - 26% reduction in SSI risk in non-clean (CDC Wound Classes II-IV) procedures
- Trial sequential analysis confirms that the meta-analysis results were robust and additional data is unlikely to change the result that triclosan-coated sutures reduce the risk of SSIs
- Meta-regression analysis demonstrated that the effect of triclosan-coated sutures in reducing the risk of SSI does not vary by CDC wound classification[†] or suture type^{††}



* One publication is duplicated

** Leaper's meta-analysis include both observational studies and RCTs

*** Meta-analysis as per NICE MTG for Plus Sutures, June 2021

†† 21 RCTs, 6462 patients, 95% CI: (14, 40%), P< 0.001.

ETHICON Plus Antibacterial Sutures

Triclosan-coated sutures evidence and guidelines*



ETHICON Plus Antibacterial Sutures

Clinical Evidence and Guidelines



Trust Plus

More than 15 health organizations around the world recommended including triclosan-coated sutures as part of an SSI prevention care bundle.**† 25-29, 47-57

Always **EXPECT MORE** from ETHICON.

* The CDC, WHO, ACS/SIS, KRINKO and NICE Guidelines on reducing the risk of Surgical Site Infections are general to Triclosan-coated sutures and are not specific to any one brand. EunetHTA REA is general to Triclosan-coated sutures and are not specific to any one brand.

**Guidelines on reducing the risk of surgical site infections are general to triclosan coated sutures and are not specific to any one brand.

†The strength of recommendations varies from one organization to another

Triclosan-coated sutures evidence and guidelines*



More than 15 health organizations around the world recommended including triclosan-coated sutures as part of an SSI prevention care bundle.*** 25-29, 47-57

| Organization | Country/Region | Year | Organization | Country/Region | Year |
|---|----------------|------|---|----------------|------|
| ACS/SIS | US | 2016 | NICE | UK | 2019 |
| CDC | US | 2017 | ASPIC | Asia Pacific | 2019 |
| EUNETHTA | EU | 2017 | Australian Guidelines for the Prevention and Control of Infection in Healthcare | Australia | 2019 |
| College of Public Health University of the Philippines Manila | Philippines | 2017 | Chinese Society of Surgical Infection and Intensive Care | China | 2019 |
| WHO | Global | 2018 | Ministry of Health and Family Welfare; Government of India | India | 2020 |
| KRINKO | Germany | 2018 | Surgical Infection Society of Thailand. | Thailand | 2020 |
| The Japanese Orthopedic Association | Japan | 2018 | ACOI Surgical Site Infections Management Academy | Italy | 2022 |
| The Japan Society for Surgical Infection | Japan | 2018 | | | |

*The CDC, WHO, ACS/SIS, KRINKO and NICE Guidelines on reducing the risk of Surgical Site Infections are general to Triclosan-coated sutures and are not specific to any one brand. EunetHTA REA is general to Triclosan-coated sutures and are not specific to any one brand

**Guidelines on reducing the risk of surgical site infections are general to triclosan coated sutures and are not specific to any one brand.

†The strength of recommendations varies from one organization to another



Triclosan - the facts

The optimal approach to preventing surgical site infections (SSIs) is by using several proven interventions in care bundles, including triclosan-coated sutures.

Plus Sutures – the only sutures with Triclosan available worldwide with antibacterial protection offered by IRGACARE^{®†} MP (Triclosan).*¹

Suture 1x of triclosan
Toothpaste 29x of triclosan
Soap 100x of triclosan

Comparison of exposure to triclosan

The absorption of triclosan was 100 times greater from soap than from Plus Antibacterial Sutures*¹⁷

The absorption of triclosan was 29 times higher from consumer products like toothpaste than from Plus Antibacterial Sutures*¹⁷

The small amount of triclosan used in Plus Antibacterial Sutures does not accumulate in the body and is metabolized and excreted in a neutralized form^{17,58}

Triclosan-coated sutures have not been banned by the FDA, as per FDA final rule published in December 2017^{59,60}

- The clinical benefit of triclosan in consumer antiseptic washes and healthcare handwashes, scrubs, and skin preps was questioned—**not in antibacterial sutures**—because of insufficient evidence, not due to confirmed lack of safety or efficacy^{6,15}
- The clinical value of triclosan-coated sutures for wound closure is well established and supported by **Level 1A evidence** as well as multiple evidence based clinical practice guidelines^{9,25-30**}
- Triclosan has been used for **50 years** in consumer and professional products^{2,9,17,58}



The clinical impact of bacterial resistance to Triclosan

- The IRGACARE[®] MP[†] triclosan used in Plus Antibacterial Suture is an antiseptic, not an antibiotic, **with no known clinical connection to antibiotic cross-resistance.**⁶¹⁻⁶⁴
- Studies conducted over ten years (between 1989-2000) have **not shown any association between triclosan usage and antibiotic resistance**⁶⁴⁻⁶⁶
- **Daily use of triclosan products in the home setting has not resulted in bacterial resistance:** a comprehensive clinical survey showed a lack of antibiotic and antibacterial product cross-resistance in a range of bacteria in homes that used biocidal products^{18,25,59,60§}



Triclosan in Plus suture has a low environmental impact:

- Sutures that go unused are destroyed as medical waste, so any residual triclosan-coated suture is **not released into the environment**
- A lab study concluded that triclosan readily photodegraded in surface water and completely **degraded** in soil⁸⁸

[†] The amount compared in 5 meters of triclosan-coated suture in a 58kg patient to the amount in daily soap and other consumer products use.

* There are no competitive Triclosan coated sutures that have both FDA clearance and CE Mark as of June 2022.

** CDC, WHO, ACS/SIS, NICE, KRINKO and EUnetHTA guidelines on reducing the risk of surgical site infections are general to triclosan-coated sutures and are not specific to any one brand. Recommendations for different types of surgery may not be consistent across authorities.

§ Staphylococcus sp., Staphylococcus aureus, Enterococcus sp., Pseudomonas sp., Acinetobacter sp., Escherichia coli, and other members of the Enterobacteriaceae

† A trademark of BASF

Clear the way for your next patient

ETHICON Plus Antibacterial Sutures

Length of stay



Triclosan coated sutures may reduce the risk of extended length of stay associated with SSI.

SSIs are known to be associated with increased length of stay, additional cost, and hospital readmission.

Triclosan-coated sutures have been shown in multiple meta-analyses to reduce the risk of SSIs by 30%.

Reducing the risk of SSIs can release additional beds and allow for extra procedures to be performed. *** # 2,67

That is a reassuring Plus.

Always **EXPECT MORE** from ETHICON.

* Study conducted in NHS England found median additional LOS attributable to SSI was 10 days

** Plus Sutures – the only sutures with Triclosan available worldwide with antibacterial protection offered by IRGACARE®† MP (Triclosan) There are no competitive Triclosan coated sutures that have both FDA clearance and CE Mark as of June 2020.

† A trademark of BASF

Refers to VICRYL™ Plus, MONOCRYL™ Plus and PDS™ Plus sutures only in NICE 2021 Guidance MTG59

The sum of a
great many
parts



ETHICON Plus Antibacterial Sutures

Part of a care bundle



Plus Sutures were associated with a nearly 30%* reduction in the risk of surgical site infection.² ; Triclosan-coated sutures are supported by evidence-based recommendations from a number of global health authorities as part of the SSI bundle.*²⁵⁻³⁰

Isn't it time for Plus?

Always **EXPECT MORE** from ETHICON.

* Refers to VICRYL™ Plus, MONOCRYL™ Plus and PDS™ Plus sutures only in NICE 2021 Guidance MTG59.

* CDC, WHO, ACS/SIS, NICE, KRINKO and EUnetHTA guidelines on reducing the risk of surgical site infections are general to triclosan-coated sutures and are not specific to any one brand. Recommendations for different types of surgery may not be consistent across authorities.

Part of a care bundle



WHAT VALUE DOES IT BRING?

SSI is a multifactorial event and its prevention involves several stakeholders and implies the adoption of multiple measures and resources - the sum of a great many parts. It has been shown that the adoption of surgical care bundles reduces the risk for SSI in patients undergoing colorectal surgery by 45%.^{6,8}

Plus Sutures were associated with a nearly 30%[‡] reduction in the risk of surgical site infection.²

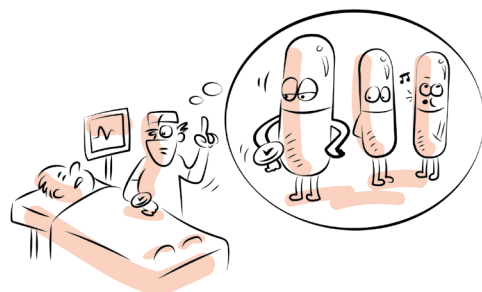
Recent evidence-based clinical practice guidelines include recommendations for the use of triclosan-coated sutures as part of their overall bundle recommendations for the prevention of SSI.^{* 25-30}

HOW IS IT OBTAINED?

Plus Antibacterial Sutures were supported by a wide range of evidence showing:^{6,8,17,18}

- Inhibition of gram-positive and gram-negative bacteria
- Excellent physical handling properties
- Safety and biocompatibility of the triclosan used.

As they have identical handling, tensile strength retention and absorption profile as traditional ETHICON sutures, the compliance to this prevention measure would not require any additional effort by the OR staff and surgeon.⁸



✓ Surgical antibiotic prophylaxis



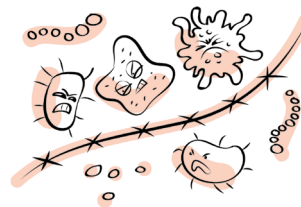
✓ Hair removal



✓ Patient body temperature



✓ Incisional wound irrigation



✓ Triclosan coated sutures

[‡] Refers to VICRYL™ Plus, MONOCRYL™ Plus and PDS™ Plus sutures only in NICE 2021 Guidance MTG59.

^{*} CDC, WHO, ACS/SIS, NICE, and KRINKO guidelines on reducing the risk of surgical site infections are general to triclosan-coated sutures and are not specific to any one brand. Recommendations for different types of surgery may not be consistent across authorities.

Figure 5: Non exhaustive example of some of the measures which may potentially be part of an SSI prevention care bundle. For illustrative purpose only.

Helping to save lives⁶⁹and money



ETHICON Plus Antibacterial Sutures

Economic benefit



Plus Sutures were associated with a nearly 30%* reduction in the risk of surgical site infection.²

Plus Sutures is cost saving compared with non-triclosan absorbable sutures by an average of £13.62 per patient in England*²

Always **EXPECT MORE** from ETHICON.

Economic benefit

WHAT VALUE DOES IT BRING?

ETHICON Plus Antibacterial Sutures deliver additional value to surgeons and patients compared with traditional sutures, addressing one known risk factor for SSI development, by inhibiting bacterial colonization on the suture.^{3,5-7,12} Even though Plus Sutures are more expensive than standard sutures, cost analyses show that it still leads to cost savings because of the reduction in surgical site infections.

HOW IS IT OBTAINED?

Plus Sutures is cost saving compared with non-triclosan absorbable sutures by an average of £13.62 per patient in England.*² These savings are from reduced surgical site infections. Cost savings will vary by surgery type and baseline risk of surgical site infection.

Even though Plus Sutures is more expensive than standard sutures, cost analyses show that it still leads to cost savings because of the reduction in surgical site infections.



Figure 6: Example of the estimated cost saving per procedure obtained in simulation with the Budget Impact Model Basecase Application. For illustrative purpose only. Numbers and Results vary depending on the input values.

Don't take our word for it...



ETHICON Plus Antibacterial Sutures

Guarantee



Plus Sutures were associated with a nearly 30%[‡] reduction in the risk of surgical site infection.²

ETHICON Plus Antibacterial Sutures can be evaluated risk-free by all new customers under the ETHICON Plus Sutures Guarantee.

The ETHICON Plus Sutures Guarantee is offered to all first time ETHICON Plus Sutures users. During a period of up to 12 months you can evaluate ETHICON Plus Sutures and assess their impact on your patients' Surgical Site Infection rate. After evaluation, if you are not fully satisfied, we will reimburse the difference between ETHICON Plus Sutures and ETHICON base sutures.

That is a reassuring Plus.

Always **EXPECT MORE** from ETHICON.

Expect More Efficiency

ETHICON Efficiency Programme

Addressing the challenges in managing sutures



At ETHICON, we understand the challenges in managing sutures and want to make it easy and efficient for you. Working together with surgeons, nurses, procurement, and hospital logistics, and reflecting their varying needs, we advise the right choice for everyone.

The ETHICON Efficiency Program, helps you to select, simplify, sort and stock sutures in the most efficient way possible and reduce waste.⁷⁰

Always **EXPECT MORE** from ETHICON.

Select Portfolio Optimisation



In the **SELECT** Module, we assess your clinical needs and optimize your suture portfolio. Working with the clinical staff, the number of different types of sutures within your portfolio can be reduced without compromise.⁷¹

SELECT means you will have the right products when and where needed while reducing wasted time and products.

Simplify Order Optimisation



SIMPLIFY will analyze your order pattern, streamline your ordering processes to decrease administration and increase efficiency, leaving more time for patients.

In addition, **SIMPLIFY** will reduce your environmental footprint and can be complemented with digital order management solutions.^{70,72}

Sort Lean Management



Everything in its right place with a place for everything – **SORT** will apply LEAN management tools to generate process improvements for nursing staff.

SORT will analyze each step of the process to identify opportunities for improvement and help you introduce tools like Visual Management, Kanban or First In First Out.

Stock Inventory Management



STOCK will introduce a selection of inventory management tools to keep track of the consumption in your hospital, automating orders based on demand and expiry dates.

STOCK can also be used to calculate cost per procedure and link that to each unique patient. **STOCK** uses technology to turn supplies into data and data into insights.

Caring for more



Plus Sutures: NICE Medical Technologies Guidance

In June 2021, the National Institute for Health and Care Excellence (NICE) issued new medical technologies guidance (MTG) recommending the use of ETHICON Plus Sutures in all surgeries when absorbable sutures are an appropriate option within the National Health Service (NHS) ²

The NICE report stated that 'by preventing surgical site infections, using Plus Sutures results in potential environmental benefits to the NHS in England' ²

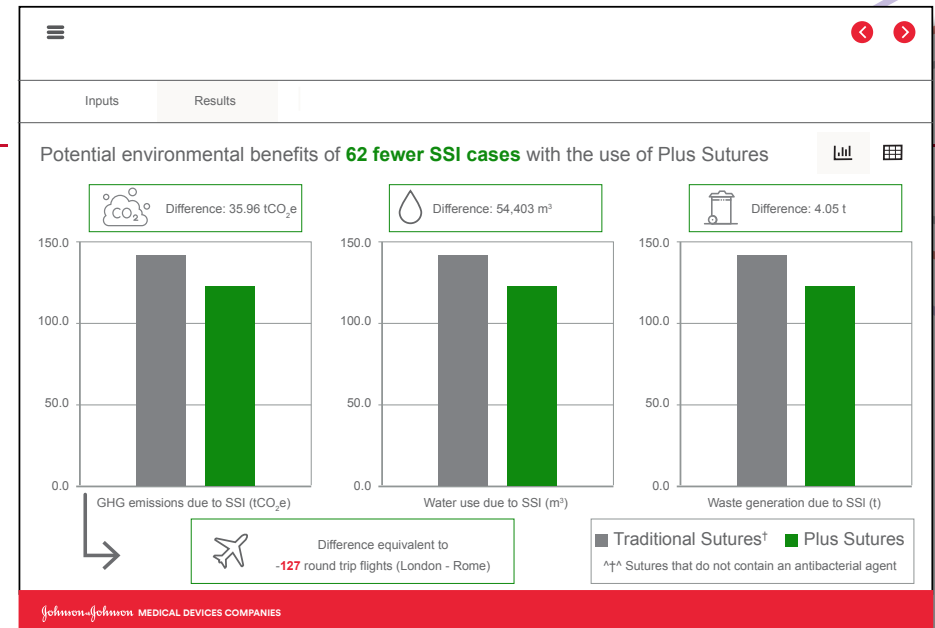
- ETHICON provided an analysis of the environmental impact of SSIs to NHS England as part of their submission
- Environmental saving were based on the Sustainable Care Pathways Guidance and included greenhouse gas emissions, freshwater use and waste generation

NICE guidance included the statement:

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the impact of implements NICE recommendation wherever possible.²

ETHICON Plus Antibacterial Sutures

Environmental sustainability



*Chart is for illustrative purposes only

ETHICON Plus Antibacterial Sutures Case Stories



- UK Case Story
- Czech Republic Case Story

Case results may vary depending on clinical practice, workflow, and individual patient factors. These are commercial programs and are in no way a direct indicator of individual patient results.

The Programs in the following case stories are NOT clinical investigations and there is no patient follow-up required.

Consequently, the presented data cannot be considered as a measure of clinical outcome, nor does it imply any safety or performance claim relating to a medical device. The following data is provided as examples and have not been re-assessed with more recent data.

ETHICON Plus Antibacterial Sutures UK Case Story



Data collected over 12 month
period in 15 surgical specialties

Number of
patients treated
using Plus
Antibacterial Sutures
5,086^{73,75}

Statistically significant
SSI reduction
25.7%^{76,i,ii}

66^{76,iii}
SSIs avoided

Estimated savings from reduced SSI rate:

£206,109^{76,77, iv}

ETHICON Plus Antibacterial sutures



Use of ETHICON Plus Antibacterial Sutures funded by the Innovation and Technology Payment (ITP) to support a reduction in Surgical Site Infection (SSI) within a National Health Service England (NHSE) Trust.

Always **EXPECT MORE** from ETHICON.

i. Eligible specialties: Bariatric, Breast Augmentation, Breast Reconstruction, CABG, Cardiac, Colorectal, General Surgery, Gynaecology, Hernia, HPB, Hysterectomy, Oncological Ablations, Thoracic, UGI, Urology. ii. Based on a Chi-square test; p value = 0.0016. Calculated using the total number of procedures in eligible specialties and the number of surgical site infections recorded in the implementation period and compared to the agreed SSI rate, procedure number and surgical site infections in the baseline period as defined in the ITP contract. iii. Based on the relative risk reduction of SSI with Plus Antibacterial Sutures in the subject NHS trust (25.74%), the SSI rate in the subject NHS trust with Plus Antibacterial Sutures (3.79%) and the number of patients during July 18 – June 19 (5086). iv. Number of surgical site infections AVOIDED in eligible specialties multiplied by £3122.86 – NICE's estimation of the average cost of managing a single patient with an SSI.⁷⁶

Case results may vary depending on clinical practice, workflow, and individual patient factors. These are commercial programs and are in no way a direct indicator of individual patient results. The Programs in the following case stories are NOT clinical investigations and there is no patient follow-up required. Consequently, the presented data cannot be considered as a measure of clinical outcome, nor does it imply any safety or performance claim relating to a medical device. The following data is provided as examples and have not been re-assessed with more recent data.

UK Case study



About the NHS Trust

The subject NHS Trust is one of the largest integrated care trusts in the country and comprises four hospitals in the south of England serving a population of approximately 1 million people.⁷⁹

The Trust wanted to reduce its SSI rate, and the Innovation and Technology Payment (ITP) funding enabled them to implement PLUS Antibacterial Sutures within their infection prevention care bundle to support them in achieving this goal.

About the ITP

The Innovation and Technology Payment (ITP) programme supports the NHS to adopt innovations by removing financial and procurement barriers to introduce new technologies, where the existing evidence supports a clear benefit to the NHS.⁸⁰

The subject NHS trust had access to reimbursement of the additional premium of PLUS Antibacterial Sutures to the value of £35,000⁸¹, making the switch cost neutral.

ETHICON Plus Antibacterial Sutures were successfully awarded funding ITP by NHS England in 2018-19, 2019-20⁸⁰ and again in 2020-21.⁸²

The Burden of Surgical Site Infection (SSI)

Surgical Site Infections (SSI)^{15,83}

- 37% of hospital acquired infections in surgical patients are SSIs
- Patients with an SSI are twice as likely to spend time in an intensive care unit
- Patients with an SSI are five times more likely to be readmitted after discharge
- Patients with an SSI are twice as likely to die
- 40-60% of surgical site infections may be preventable
- Get It Right First Time (GIRFT), an NHS improvement programme, also acknowledge the SSI burden stating that 'post-surgery infections can cause significant harm to patients and result in increased hospital stay, readmissions and re-operations. They are also a significant cost to the NHS'.⁸⁴

Case results may vary depending on clinical practice, workflow, and individual patient factors.

These are commercial programs and are in no way a direct indicator of individual patient results.

The Programs in the following case stories are NOT clinical investigations and there is no patient follow-up required.

Consequently, the presented data cannot be considered as a measure of clinical outcome, nor does it imply any safety or performance claim relating to a medical device.

The following data is provided as examples and have not been re-assessed with more recent data.

ETHICON Plus Antibacterial Sutures Czech Republic Case Story



Data collected over 12 month
period for Colorectal Surgery

Value-based
agreement on infection
prevention care bundle

42%^{85,86}
reduction SSI rate

Each SSI leads
on average to an
increased stay of

3.5 Days⁸⁷
in ICU*

Each SSI leads
on average to an
increased stay of

8.5 Days⁸⁷
of standard
in-hospital stay*

Additional cost of sutures per patient
in the care bundle is

<€8⁸⁸

compared to previous sutures used

Use of ETHICON Plus Antibacterial sutures

as part of an infection prevention care bundle in a value-based agreement to support a Surgical Site Infection (SSI) reduction program in a Czech Republic university teaching hospital.

* The hospital reported that, on average, superficial and deep infections led to an increased stay in ICU of 3.5 days, and of standard in-hospital stay of 8.5 days.

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Case results may vary depending on clinical practice, workflow, and individual patient factors.

These are commercial programs and are in no way a direct indicator of individual patient results.

The Programs in the following case stories are NOT clinical investigations and there is no patient follow-up required.

Consequently, the presented data cannot be considered as a measure of clinical outcome, nor does it imply any safety or performance claim relating to a medical device.

The following data is provided as examples and have not been re-assessed with more recent data.

Czech Republic case story



SSI reduction achieved by a 4-step program, in partnership between ETHICON and the university teaching hospital

1. SSI rate baseline assessment

- Internal audit of patient records to determine current SSI rates (July 2017– June 2018, 112 patients)
- Review of current SSI prevention practices
- Hospital and ETHICON agree to target SSI rate reduction

2. SSI prevention protocol development

- Co-creation of SSI prevention care-bundle protocol, compliant with WHO guidelines
- SSI care-bundle protocol includes the use of **Plus Antibacterial Sutures for all tissue layers** closed during the procedure

3. SSI care-bundle Implementation and monitoring

- In-depth training of hospital staff on SSI prevention care-bundle and use of the protocol
- Ongoing monitoring of compliance to the protocol, with quarterly reporting of data during the 1st full year (May 2019 – July 2020, 103 patients)

4. Economic impact and assessment

- If target SSI rate reduction is achieved hospital continues with protocol, including the use of Plus Sutures
- If target SSI rate reduction is not achieved, **ETHICON reimburses the price difference between Plus Sutures and those sutures previously used**

Case results may vary depending on clinical practice, workflow, and individual patient factors. These are commercial programs and are in no way a direct indicator of individual patient results. The Programs in the following case stories are NOT clinical investigations and there is no patient follow-up required. Consequently, the presented data cannot be considered as a measure of clinical outcome, nor does it imply any safety or performance claim relating to a medical device. The following data is provided as examples and have not been re-assessed with more recent data.

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Please refer always to the Instructions for Use /Package Insert that comes with the device for the most current and complete instructions.
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