Confident efficacy.
Full sterility.

BD’s extensive line of sterile patient preoperative skin preparation products raises the standard.
Significant challenges, important choices

Healthcare-associated infections (HAIs) are a major concern for hospitals everywhere

<table>
<thead>
<tr>
<th>The human and economic toll of HAIs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In the United States,</strong></td>
</tr>
<tr>
<td><strong>687,000 HAIs</strong></td>
</tr>
<tr>
<td><strong>in a single year</strong>¹</td>
</tr>
<tr>
<td><strong>As many as</strong></td>
</tr>
<tr>
<td><strong>~75,000 deaths</strong></td>
</tr>
<tr>
<td><strong>annually</strong>²</td>
</tr>
<tr>
<td><strong>Nearly</strong></td>
</tr>
<tr>
<td><strong>$10 billion</strong></td>
</tr>
<tr>
<td><strong>in annual costs</strong>³</td>
</tr>
</tbody>
</table>

HAI risks have led healthcare professionals to take a close look at preoperative skin preparation

- Alcohol-based preoperative skin antiseptics are recommended in the latest evidence-based infection guidelines published by preeminent health organizations:
  - **World Health Organization (WHO):** The panel recommends alcohol-based antiseptic solutions based on chlorhexidine gluconate (CHG) for surgical skin site preparation. (2016)⁴
  - **American College of Surgeons/Surgical Infection Society (ACS/SIS):** Alcohol-containing preoperative skin preparatory agents unless contraindication exists. (2016)⁵
  - **Centers For Disease Control and Prevention (CDC):** Perform intraoperative skin preparation with an alcohol-based antiseptic agent unless contraindicated. (2017)⁶

HAI risks due to intrinsic antiseptic contamination led the FDA to take action

- Non-sterile preoperative skin antiseptics run the risk of intrinsic contamination during manufacturing⁷
- Infectious outbreaks from intrinsic contamination have resulted in morbidity and mortality⁸,⁹
- Because of this risk, the Food and Drug Administration (FDA) requested that preoperative skin antiseptics be labeled as sterile or non-sterile to allow for informed decisions⁷

“In past years, outbreaks associated with the use of contaminated topical antiseptics have led to some product recalls...”⁷

— FDA Drug Safety Communication
BD has the solutions
High-quality products backed by highly qualified professionals

A portfolio of alcohol-containing, sterile antiseptic products

Chlorhexidine gluconate/Isopropyl alcohol
BD ChloraPrep™ Patient Preoperative Skin Preparation with Sterile Solution

Elevating the standard in skin antiseptic sterility

An effective alternative when a chlorhexidine gluconate plus alcohol is not ideal
BD PurPrep™ Patient Preoperative Skin Preparation with Sterile Solution


A dedicated team of skin preparation experts
Ready to assist you in building the optimal preoperative skin preparation portfolio
Advancing patient safety through product sterility

BD has achieved a breakthrough in antiseptic sterilization

Sterilizing antiseptic solutions is a difficult challenge
- Some manufacturers have asserted that it is “impossible or impractical”\textsuperscript{10}
- Conventional terminal sterilization processes such as high heat and radiation are not compatible with some common antiseptics, including CHG\textsuperscript{10,11}
- Can compromise the chemical integrity of the active ingredient\textsuperscript{10}

BD overcame the “impossible”\textsuperscript{10}
- Putting patient safety first, BD committed significant time and resources to develop patented sterilization technology\textsuperscript{12}

The lowest risk of intrinsic contamination available in the United States
- BD’s sterilization technology delivers 1,000 times the required minimum sterility assurance\textsuperscript{12}

Maintains the efficacy and purity of the antiseptic solution\textsuperscript{12}

Less than 1-in-a-million chance that a viable microorganism can exist in a BD ChloraPrep™ product\textsuperscript{12}

Sterility assurance level of $10^{-6}$—the same level required for injectable products\textsuperscript{12}

The commitment behind the achievement

| 6 years | >50,000 R&D hours | 3 patents | 7 teams |
A winning combination for complete sterility

BD’s sterile antiseptics come in proprietary sterile applicators that help prevent extrinsic contamination.

Designed to improve antiseptic application
- Eliminates variability to help make life easier for clinicians and ensure a consistent, appropriate technique for patients

Single step
As easy as "Pinch. Apply. Let Dry."

Single handed
Does not require burdensome two-handed technique

Single use
Helps reduce risk of cross-contamination with no ability to manipulate the solution.

All-in-one, single-use applicator promotes a thorough, aseptic, "no touch" technique

Proprietary wing design makes activation quick and easy

Proprietary tinting process provides enhanced visualization for added assurance

Foam sponge helps control solution flow and enables a gentle scrubbing motion for thorough coverage.
BD ChloraPrep™ Patient Preoperative Skin Preparation with Sterile Solution

Elevating the standard in sterile preoperative skin antisepsis

The only CHG-based, sterile solution antiseptic skin preparation product commercially available in the United States

- A dual formulation of 2% CHG and 70% isopropyl alcohol (IPA)
- Comes ready to use in a proprietary sterile applicator for even greater peace of mind
- Broad spectrum, rapid, persistent antimicrobial activity for at least 48 hours$^{13-15}$

Meets FDA requirements for antimicrobial activity$^{15,16}$

In the abdomen
Achieves a 2-log reduction in microbial flora per square centimeter$^{15}$

In the groin
Achieves a 3-log reduction in microbial flora per square centimeter$^{15}$

- Reductions within 10 minutes$^{15}$
- Maintained for 48 hours$^{15}$

Backed by more than 50 studies
- Studied more than any other skin antiseptic brand*$^{*}$
- Offers unsurpassed evidence of consistently dependable efficacy and safety*$^{*}$

* Data on file.

Trusted by hospitals for more than 18 years
- Supported by evidence-based guidelines published by the WHO, CDC, and ACS/SIS$^{4-6}$
- More than 4 billion applicators used to date
Superior antimicrobial performance vs. iodine- and alcohol-based products\textsuperscript{17,18}

\begin{itemize}
  \item \textbf{2X} more effective for eliminating bacteria than DuraPrep\textsuperscript{™17}
  \item \textbf{4X} more effective for eliminating bacteria than iodine scrub and paint\textsuperscript{17}
\end{itemize}

Significantly lower positive culture rates vs. PVP-I and DuraPrep\textsuperscript{™17,18}

Results from two prospective, randomized studies (level 1 evidence)

Data from Saltzman et al.\textsuperscript{18}

\begin{itemize}
  \item \textbf{7\%} (P<0.0001 vs. PVP-I; P=0.01 vs. DuraPrep\textsuperscript{™})
  \item \textbf{19\%}
  \item \textbf{31\%}
\end{itemize}

Data from Ostrander et al.\textsuperscript{17}

\begin{itemize}
  \item \textbf{23\%} (P=0.05)
  \item \textbf{45\%}
  \item \textbf{30\%} (P<0.01)
  \item \textbf{65\%}
\end{itemize}

“The potential properties that make chlorhexidine highly effective are a strong affinity for binding to the skin, high antibacterial activity, and prolonged residual effects.”\textsuperscript{18}

BD ChloraPrep™ Patient Preoperative Skin Preparation with Sterile Solution

Unparalleled flexibility for your wide range of patients and procedures

Lets you tailor your choice to the surface area, type of site, and skin color
- Allows for standardized skin preparation and associated cost savings

BD ChloraPrep™ family of products

Can be used with or without a drape
- When allowed to fully dry per the DFU, BD ChloraPrep provides effective drape utilization

Available in all surgical packs and through all distribution partners
- Providing exceptional convenience to accommodate your varying surgical needs
Make your own comparisons

See how your preoperative skin antiseptic stacks up

<table>
<thead>
<tr>
<th>Attribute</th>
<th>IPA</th>
<th>Iodophors (iodine-based)</th>
<th>CHG</th>
<th>Iodine + IPA</th>
<th>CHG + IPA</th>
<th>BD ChloraPrep™ with Sterile Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad spectrum¹⁹⁻²²</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fast acting¹⁹⁻²²</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Persistent¹⁹⁻²²</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sterile solution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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</tbody>
</table>

Ordering information

<table>
<thead>
<tr>
<th>Applicator</th>
<th>SKU#</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>1 mL clear</td>
<td>930480</td>
<td>60 app/carton 4 cartons/case</td>
</tr>
<tr>
<td>Frepp™ 1.5 mL clear</td>
<td>930299</td>
<td>20 app/carton 25 cartons/case</td>
</tr>
<tr>
<td>3 mL clear</td>
<td>930400</td>
<td>25 app/carton 4 cartons/case</td>
</tr>
<tr>
<td>3 mL Hi-Lite Orange™</td>
<td>930415</td>
<td>25 app/carton 4 cartons/case</td>
</tr>
<tr>
<td>10.5 mL clear</td>
<td>930700</td>
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</tr>
<tr>
<td>10.5 mL Hi-Lite Orange™</td>
<td>930715</td>
<td>25 app/carton 4 cartons/case</td>
</tr>
<tr>
<td>10.5 mL Scrub Teal™</td>
<td>930725</td>
<td>25 app/carton 4 cartons/case</td>
</tr>
<tr>
<td>26 mL clear</td>
<td>930800</td>
<td>25 app/case</td>
</tr>
<tr>
<td>26 mL Hi-Lite Orange™</td>
<td>930815</td>
<td>25 app/case</td>
</tr>
<tr>
<td>26 mL Scrub Teal™</td>
<td>930825</td>
<td>25 app/case</td>
</tr>
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BD PurPrep™ Patient Preoperative Skin Preparation with Sterile Solution

A sterile, simple, and effective alternative when a CHG + alcohol solution is not ideal

The first and only fully sterile iodine-based skin prep applicator available in the United States

- A dual formulation of PVP-I (0.83% available iodine) and 72.5% IPA
- In clinical studies, PVP-I has demonstrated broad spectrum antimicrobial properties23
- Comes ready to use in a proprietary sterile applicator for even greater peace of mind
- An option when CHG is contraindicated or for patients with CHG allergies/sensitivities

Aligns with current preoperative skin prep guidelines from leading U.S. health organizations

- CDC and ACS/SIS recommendations support use of alcohol-based antiseptic formulations unless contraindicated5,6

Designed to improve antiseptic application over standard scrub and paint methods2,17,18

Dual formulations are more effective at killing bacteria17,18

Single-use applicator can shorten application times24,25

Features a fluid-resistant, film-forming polymer that facilitates drape adhesion and easy removal26

- Helps create a durable antimicrobial barrier27
- Helps iodine bind to the skin for residual antimicrobial activity
- Facilitates drape adherence while permitting gentle drape removal
- Requires no separate remover—potentially reducing extra time and cost

Ordering information

<table>
<thead>
<tr>
<th>Applicator</th>
<th>SKU#</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 mL PurPrep™</td>
<td>960120</td>
<td>25 app/carton</td>
</tr>
</tbody>
</table>
BD: Your partner in preoperative skin prep

Personalized assistance and plentiful resources

A dedicated team of skin preparation experts who care about your success

- These highly trained specialists know our products inside and out, as well as the current guidelines for preoperative skin prep
- They are available expressly for you to answer any product questions you may have
- They can help to ensure the right BD product is being used at the right time

A partnership that includes ongoing training and support

- In-service training and educational materials
- Can help to improve the standard of care for preoperative skin antisepsis in your operating room by working directly with your team to:

  - Identify and address practice gaps and process variability
  - Standardize aseptic technique
  - Supports recommendations of current clinical standards and guidelines
  - Enhance clinician knowledge to help improve patient care

Our robust online resources are available for you 24 hours a day, 7 days a week, 365 days a year

www.bd.com/infectionprevention:

- To find out about more preoperative skin preparation tools
- To see the in-service video
- To contact sales and support
- To view product labels
References


24 BD PurPrep™ patient preoperation skin preparation with sterile solution IFU.

25 BD wet PVP-1 small procedure preoperative skin prep tray IFU.
