Sage Products believes that evidence-based interventions lead to improved clinical outcomes. Our market-leading, innovative products solve real problems in the healthcare industry and are backed by proven clinical evidence. They make it easier for nurses to deliver essential patient care, helping to prevent healthcare-acquired infections and skin breakdown.
THE IMPORTANCE OF ORAL CARE IN ADDRESSING HAP AND VAP RISK FACTORS

Hospital-acquired pneumonias (HAPs), including ventilator-associated pneumonia (VAP), often start in the oral cavity. Bacteria, including dental plaque, can colonize in the oropharyngeal area, and these pathogens can be aspirated into the lungs, causing infection. VAP is the most frequent infection occurring in patients after admission to the intensive care unit (ICU). In a large European observational study, almost 25% of patients developed an ICU-acquired infection, and the respiratory site accounted for 80% of these infections. VAP can be linked with increased duration of ventilation, ICU and hospital length of stay, and significantly increased costs. Prevention of VAP is possibly one of the most cost-effective interventions currently attainable in the ICU.

THREE RISK FACTORS FOR VAP

- Colonization of dental plaque with respiratory pathogens
- Bacterial colonization of the oropharyngeal area
- Aspiration of subglottic secretions

* Positive suctioning extirnates oral secretions which can migrate to the subglottic area.

IMPLEMENTING ORAL CARE PROTOCOL IMPROVES OUTCOMES

There were zero episodes of VAP while the Q•Care™ system was in use. Compliance increased 25% when the Q•Care™ system was in use.

NURSING STAFF SATISFACTION

- 100% agreed that the Q•Care system saved nursing time
- 96% agreed that the protocol was easier to comply with when using the Q•Care system
- 88% agreed that using a one-piece instead of a two-piece tool allows for better compliance

BIOFILMS: A RISK FACTOR FOR PNEUMONIA

Biofilms are a thin, usually resistant layer of microorganisms (as bacteria) that form on and coat various surfaces. Biofilms have been found to be involved in up to 80% of infections. Dental plaque is one of the most common biofilms and is responsible for various periodontal diseases, including gingivitis.

BIOFILM FORMING OVER 12 HOURS

In addition to increased infection risk, the biofilm grows thicker and calcifies in the alveolus, rendering gases exchange ineffective. Subsequently, vital mechanical ventilators, the biofilm can potentially attach and accumulate in the endotrach lumen, increasing airway resistance and Work of Breathing (WOB).

PERCENTAGE OF PNEUMONIA OF OVERALL HEALTHCARE ASSOCIATED INFECTIONS IN GERMANY

20% Pneumonia

REFERENCES

BEATING BIOFILMS WITH COMPREHENSIVE ORAL CARE

Q•Care® Oral Care addresses key VAP risk factors with a comprehensive approach based on cleaning, debriding, suctioning and moisturising the entire oral cavity. The Q•Care brand incorporates 24-hour systems, innovative tools and clinically effective solutions, all while facilitating compliance to your oral care protocol.

PROFESSIONAL GUIDELINES

THE COMMISSION FOR HOSPITAL HYGIENE AND INFECTION PREVENTION (KRINKO) AT THE ROBERT KOCH INSTITUTE

4.5 Hygienische Mundpflege

Eine regelmäßige Mundpflege mit mechanischer Zahnreinigung unter Beachtung der Bilanzierung, der Thrombozytenzahl, Leukozytenzahl und antimikrobieller Mundpflege ist eine wichtige Maßnahme der Grundpflege.


Eine Mundpflege mit Polyvidon iod-Lösung erwies sich in einer Studie ebenfalls als effektiv.

Eine Reduktion der Letalität oder der Sepsis durch die Anwendung einer oralen antimikrobiellen Dekontamination konnte bisher nicht dargestellt werden. Auch wurde für die Anwendung von Chlorhexidin eine Eingrenzung bei der Herstellung der Chlorhexidin in einem Bereich sicherer wirksam als im grampositiven Spektrum.


AACH PROCEDURE MANUAL FOR CRITICAL CARE—ORAL CARE INTERVENTIONS, 2010

“Initiate oral hygiene with a pediatric or adult (soft) toothbrush, at least twice a day. Gently brush patient’s teeth to clean and remove plaque from teeth.”

“In addition to brushing twice daily, use oral swabs with a 1.5% hydrogen peroxide solution to clean mouth every 2 to 4 hours.”

“After each cleansing, apply a mouth moisturizer to the oral mucosa and lips to keep tissue moist.”

CDC GUIDELINES FOR PREVENTING HEALTHCARE-ASSOCIATED PNEUMONIA

“Develop and implement a comprehensive oral-hygiene program (that might include use of an antiseptic agent) for patients in acute-care settings or residents in long-term care facilities who are at risk for healthcare-associated pneumonia.”

SOCIETY FOR HEALTHCARE EPIDEMIOLOGY OF AMERICA (SHEA)

A Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care Hospitals

Strategies to Prevent Ventilator-Associated Pneumonia in Acute Care Hospitals

“Perform regular antiseptic oral care in accordance with product guidelines.”

PROVEN CLINICAL OUTCOMES

REDUCING VENTILATOR-ASSOCIATED PNEUMONIA THROUGH ADVANCED ORAL-DENTAL CARE: A 48-MONTH STUDY

33.3% reduction in VAP

VENTILATOR-ASSOCIATED PNEUMONIA AND ORAL CARE: A SUCCESSFUL QUALITY IMPROVEMENT PROJECT

90% reduction in VAP rate over 3 years

PREVENTION OF VENTILATOR-ASSOCIATED PNEUMONIA BY MECHANICAL ORAL CARE OCCURRING SEVERAL TIMES PER DAY

25% reduction in VAP

19% decrease in cost of antibiotic usage despite a 27% increase in patients treated

REFERENCES:
INNOVATIVE TOOLS AND SOLUTIONS PROVEN EFFECTIVE AGAINST VAP AND HAP RISK FACTORS

Q•Care® delivers a comprehensive approach based on cleaning, debriding, suctioning and moisturizing the entire oral cavity. This complete system incorporates innovative tools and solutions to produce proven clinical outcomes.

### TOOTHTETTE® SUCTION TOOTHBRUSH
Helps remove dental plaque, debris and oral secretions, all known to harbor potential respiratory pathogens.1-6

- Available with sodium bicarbonate to mechanically cleanse.
- Swab on back of brush helps deliver cleansing solution.
- User-friendly thumb port provides easy suction control.
- Three suction ports to avoid clogging. Keeps open path for debris.

### TOOTHTETTE® SUCTION SWAB
Helps remove debris and oral secretions while stimulating oral tissues1,7,8 between brushings.

- Available with sodium bicarbonate to mechanically cleanse.
- Soft foam heads gentle on delicate oral tissues.
- User-friendly thumb port provides easy suction control.
- Non-suction swabs available.

### COVERED YANKAURER
Helps remove debris and secretions.

- Soft tip gentle on fragile oral tissues.
- User-friendly, one-piece design.

### Q•CARE® 24-HOUR SUCTION SYSTEMS
For mechanically ventilated patients

Suctioning and removal of biofilm plus enhanced protocol compliance. Convenient q4° and q8° packaging for complete 24-hour care.

- Intuitive packaging lays out each step of oral care to easily match your q4° or q8° protocol.
- Ready to perform oral care in under 10 seconds.
- Suction Toothbrush helps remove biofilm (plaque) and oral secretions. Suction Swab helps remove debris and secretions between brushings. Both mechanically clean and refresh with sodium bicarbonate while stimulating oral tissue.
- User-friendly thumb port (6934-BP) provides easy suction control. Suction handle (6804-X) provides variable suction control and allows quick tool changes.
- Burst pouches release cleansing solution right in the package; no mixing needed.
- Mouth Moisturizer soothes and moisturises lips and oral tissues with vitamin E and coconut oil.

### Sage Oral Solution
- Promotes oral hygiene
- Cleans and refreshes oral cavity
- Burst pouch allows for consistent dosing

**Ingredients:** Water (aqua), alcohol, glycerin, PEG-40 sorbitan dioleate, aroma, chlorhexidine digluconate, sodium saccharin, Blue 1 (CI 42090)

### Perox-A-Mint® Solution
- Mechanically cleans and debries with 1.5% hydrogen peroxide

### Alcohol-Free Mouthwash
- Cleans and refreshes oral cavity with pleasant mint flavor

### Mouth Moisturiser
- Soothes and moisturises with vitamin E and coconut oil
- Water-based formula can be used inside mouth

### Sage Germany
- sage.germany@sageproducts.com
THE THREAT OF HEALTHCARE-ACQUIRED INFECTIONS

Interventions designed to reduce Hospital-Acquired Infections (HAIs) including those from Multiple Drug Resistant Organisms (MDROs) are vital to reduce risk from morbidity and mortality.

The European Centre for Disease Prevention and Control (ECDC) estimates that on any given day, about 80,000 patients, i.e. one in 18 patients, in European hospitals have at least one healthcare-associated infection. Of particular significance are bacteremia, a leading cause of HAIs. Patients with bacteremia have nearly twice the mortality rate, significantly longer hospital stays, and significantly higher median hospital costs.5

RISK FACTORS FOR MRSA HAI COLONIZATION5

- Severe underlying illness or comorbid conditions
- Prolonged hospital stay
- Exposure to broad-spectrum antimicrobials
- Presence of foreign bodies such as central venous catheters
- Frequent contact with the healthcare system or healthcare personnel

PERCENTAGE OF BSI & SSI OF OVERALL HEALTHCARE-ASSOCIATED INFECTIONS IN GERMANY

5% Bloodstream Infections (BSI)1

22% Surgical Site Infection (SSI)1

ANTIMICROBIAL EFFICACY OF THE ANTISEPTIC CHLORHEXIDINDIGLUCONAT SAGE 20 MG/ML IMPRÄGNIERTES TUCH1

METHODS:


- The Department of Infectious Diseases at Heidelberg University Hospital counts on having one of the largest collections of German clinical isolates. This study analyzes a sample of multi-drug resistant pathogens coming from clinical isolates of this hospital’s patients.
- To strengthen the clinical applicability of this analysis, the formulation was tested at a 75% reduction of concentration. The original formula uses a 20 mg/ml of Chlorhexidine digluconate to kill pathogens mixed with variety of skin emollients and an acidic pH that resembles the pH of the skin. Therefore, the results shown below used a dilution of the manufacturer’s formulation at 5 mg/ml of Chlorhexidine digluconate.

RESULTS:

<table>
<thead>
<tr>
<th>Exposure Concentration</th>
<th>Clinical Strain</th>
<th>Percent Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 sec / 0.5%</td>
<td>Clinical Strain</td>
<td>Percent Reduction</td>
</tr>
<tr>
<td>3 min / 0.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Strain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XDR P. aeruginosa</td>
<td>99.97% - 100.00%</td>
<td></td>
</tr>
<tr>
<td>XDR K. pneumoniae</td>
<td>99.99% - 100.00%</td>
<td></td>
</tr>
<tr>
<td>XDR E. coli</td>
<td>99.94% - 100.00%</td>
<td></td>
</tr>
<tr>
<td>XDR A. baumannii</td>
<td>99.89% - 100.00%</td>
<td></td>
</tr>
<tr>
<td>XDR = Extensively drug-resistant, classified as described</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION:

- Previous studies demonstrated Chlorhexidine digluconate’s cumulative effect, meaning that its concentration increases with repeated applications on patient’s skin.
- Pharmaceutical products follow specific pharmaco-dynamics that involve controlling their dosage. Similarly, this product is designed to provide a 20mg/ml of active ingredient and a specific amount of Chlorhexidine digluconate (500mg) per cloth.
- By using a conservative testing scenario, this drug formulation showed a large safety buffer in its utilization and easily demonstrated its efficacy to kill Gram negative bacteria isolated from German hospitals.

REFERENCES:


PROFESSIONAL RECOMMENDATIONS

BEFORE & AFTER ANTISEPTIC TREATMENT

- By using a conservative testing scenario, this drug formulation showed a large safety buffer in its utilization and easily demonstrated its efficacy to kill Gram negative bacteria isolated from German hospitals.

TRUST THE LICENSED PRODUCT

Chlorhexidindigluconat SAGE 20 mg/ml imprägnierte Tuch is a licensed, medicinal product for general skin antiseptics and skin antisepsis as part of an advanced preoperative cleansing regimen.

- Granted marketing authorisation April 2013.
- Licence number Zul.-Nr. BI162.00.90.
- Proven to reduce resistant organisms including MRSA, VRE, Acinetobacter Baumannii, Pseudomonas aeruginosa and more on your patients’ skin.6

Be sure you’re getting the most from your product with approved claims that deliver real infection prevention outcomes.

EFFECTIVE AGAINST PREVALENT GRAM-NEGATIVE PATHOGENS6

- Acinetobacter baumannii
- Bacteroides fragilis
- Enterobacter aerogenes
- Escherichia coli
- Klebsiella pneumoniae
- Proteus mirabilis
- Pseudomonas aeruginosa
- Serratia marcescens

6 In vitro testing
EVIDENCE-BASED SOLUTION:

**TARGETED VERSUS UNIVERSAL DECOLONIZATION TO PREVENT ICU INFECTION**

*Published in the New England Journal of Medicine*

**STUDY METHODOLOGY:**
- Multi-center trial
- 74,256 patients
- 43 hospitals
- 74 Intensive Care Units

**STUDY TAKE-AWAY:**
Universal decolonization was more effective than targeted decolonization or screening and isolation in reducing rates of MSRA clinical isolates and bloodstream infection from any pathogen.

**GROUP 1:** Screening and Isolation
- No significant reduction of BSI

**GROUP 2:** Targeted Decolonization
- 21% BSI reduction for any pathogen

**GROUP 3:** Universal Decolonization
- 44% BSI reduction for any pathogen

**COST AND PROLONGED LENGTH OF STAY OF CENTRAL VENOUS CATHETER-ASSOCIATED BLOODSTREAM INFECTIONS (CVC BSI)**

*Published in the Journal Infection*

The matched cohort designed study was performed at the Charité University Medical Center. The Charité is a 3,213-bed tertiary care university hospital in Berlin, Germany. The surveillance method of the German nosocomial infection surveillance system (Krankenhaus Infections Surveillance System, KISS) was used to find cases of CVC BSI. The study determined the higher costs and length of stay (LOS) of patients with ICU-acquired CVC BSI.

**STUDY TAKE-AWAY:**
Universal decolonization was more effective than targeted decolonization or screening and isolation in reducing rates of MSRA clinical isolates and bloodstream infection from any pathogen.
PAEDIATRIC PATIENTS BENEFIT FROM BATHING WITH CHLORHEXIDINDIGLUCONAT SAGE 20 MG/ML IMPRÄGNIERTES TUCH

DAILY CHLORHEXIDINE BATHING TO REDUCE BACTERAEMIA IN CRITICALLY ILL CHILDREN: A MULTICENTER, CLUSTER-RANDOMISED, Crossover Trial

THE LANCET

RESULTS:
- Unmasked, cluster-randomised, two-period crossover trial.
- Ten paediatric ICUs at 5 hospitals in the USA.
- Admitted patients older than 2 months were randomly assigned either standard bathing practices or a daily bathing routine using a cloth impregnated with 2% CHG for a 6-month period.
- Units switched to the alternative bathing method for a second 6-month period.

METHODS:
- In a 9-year UK study, introduction of Antiseptic Body Cleansing Washcloths in 2007 has been associated with sustained reduction and near elimination of MRSA bacteraemia and additional reduction in MRSA acquisitions.2

PROVEN RESULTS:
AGAINST MRSA, VRE & ACINETOTBACTER
PRESENTED AT SCCM CRITICAL CARE CONFERENCE

PATIENTS WITH MRSA - 2002 THROUGH 2010

REFERENCES:
BATHING WITH CHLORHEXIDINDIGLUCONAT SAGE 20 MG/ML IMPRÄGNIERTES TUCH REDUCE SSI RISK

CHLORHEXIDINE REDUCES INFECTIONS IN KNEE ARTHROPLASTY

**JOURNAL OF KNEE SURGERY**

**METHODS:**
- Records were reviewed over a 3-year period (2007-2010) to identify deep incisional and periprosthetic infections.
- 478 patients used CHG cloths.
- 1,735 patients did not use CHG cloths.

**RESULTS:**
- Patients using Chlorhexidine Gluconate 2% w/v Impregnated Pads the evening before and morning of surgery had fewer SSIs compared to patients undergoing in-hospital perioperative skin preparation only.

73% DECREASE in SSI ($p=0.021$)

PRE-ADMISSION CUTANEOUS CHLORHEXIDINE PREPARATION REDUCES SURGICAL SITE INFECTIONS IN TOTAL HIP ARTHROPLASTY

**JOURNAL OF ARTHROPLASTY**

**METHODS:**
- Records of total hip arthroplasty patients were reviewed over a 3-year period (2007-2010) to determine the incidence of deep incisional and periprosthetic infections.
- 557 patients used CHG cloths.
- 1,901 patients did not use CHG cloths.

**RESULTS:**
- The incidence of SSIs was significantly lower for patients using Chlorhexidine Gluconate 2% w/v Impregnated Pads protocol compared to the patients who received only in-hospital perioperative skin preparation.

71% DECREASE in SSI ($p=0.0428$)

HCAI TECHNOLOGY INNOVATION PROGRAMME SHOWCASE HOSPITALS REPORT NUMBER 9 SAGE 2% CHLORHEXIDINE GLUCONATE CLOTH

- Sage 2% CHG cloths were used prior to caesarean section delivery (CSD) in seven NHS Showcase Hospitals for four months. The overall rate of Surgical Site Infections (SSIs) following CSD fell from 10.4% to 7.6% with use of the Sage 2% CHG cloths, a reduction in incidence of 27%.

39% DECREASE in the risk of developing an SSI

Rates of infection with and without Chlorhexidine Gluconate 2% w/v Impregnated Pads

CHLORHEXIDINDIGLUCONAT SAGE 20 MG/ML IMPRÄGNIERTES TUCH

Our skin-friendly CHG Impregnated Pads are easy to use and deliver a uniform dose of CHG to the skin. Fast-acting, broad-spectrum and alcohol-free, our 2% CHG stays on the skin to help prevent infection:
- Premoistened and ready to use right from the package. No additional supplies needed.
- 2% CHG solution requires no rinsing and stays on the skin for maximum antimicrobial persistence.
- Proven to rapidly reduce bacteria that can cause infection, including E. Coli, P. aeruginosa, K. pneumoniae, K. oxytoca, etc.1 Provides a cumulative antiseptic effect with multiple applications.
- Easily enhances skin decolonization efforts for a wide range of immunocompromised patients.
- Helps reduce risk of transmitting pathogens from colonized patients to staff, other patients, visitors, and surrounding environment.
- Large, thick washcloths hold the maximum amount of CHG solution for consistent CHG coverage. Makes it easier to cleanse difficult-to-reach areas.


**REFERENCES:**
HOSPITAL TAP WATER: A PROVEN SAFETY RISK

More than 29 studies incriminate the hospital water system as the source of serious waterborne hospital-acquired infections.1

- Reports recommend minimizing exposure to tap water for all patients who are immunocompromised, have fresh surgical wounds, or are at higher risk for infections.1
- Biofilm-forming pathogens can create potent biofilms in hospital pipes, hot water tanks, sinks and even touchless faucets, contaminating water on contact.2

BIOSKILL: ANOTHER INFECTION SOURCE

- Biofilm: häufigste natürliche mikrobielle Lebensform
- Ansiedlung von Mikroorganismen an Grenzflächen (z.B. Flüssig-/Festphase)

VORTEILE FÜR MIKROORGANISMEN

- Verbesserte Substratversorgung
- Schutz adhäsierter Zellen
- Interaktionen
- Antibiotika-Resistenz
- Desinfektionsmittel-Resistenz

WICHTIGE BIOFILM-BILDENDE MIKROORGANISMEN

- Pseudomonas aeruginosa
- Klebsiella spp.
- Pantoea agglomerans
- Enterobacter cloacae
- u. a.

FAKTOREN FÜR ERHÖhte EMPFÄNGLICHKEIT GEGENÜBER WASSerraSSOZIERTEN INFEKtionEN

- Immunsuppression
- Wunden / Verbrümmungen
- Schlußbeschwerden / fehlender Schluckreflex
- Katheter / Fremdkörper
- Antibiotikatherapie

36–42% der nosokomialen Pseudomonas aeruginosa-Infektionen sind auf hauptsächlich durch Wasserhähne kontaminiertes Leitungswasser zurückzuführen.5

CONTAMINATION OF TAPS AND WATER SYSTEMS

A CONSTANT THREAT

PSEUDOMONAS IN INTENSIVE CARE1

- Anteil Intensivstation: 9–23 %
- Anteil Intensivstation: 11,5 %
- Anteil Intensivstation: 7 %

AMBULANT ERWORBENE INFEKTIONEN

- Dermatitis
- Otitis extern (swimmer’s ear)
- Keratitis

A PROBLEM THAT NEEDS ATTENTION

GERMANY

- A study conducted in a Surgical Intensive Care Unit and 12 peripheral wards found Pseudomonas aeruginosa in 150 of 259 (58%) tap water samples taken from patient rooms.2

- The same study concludes, “tap water from faucets contaminated with P. aeruginosa plays an important role in the propagation of this pathogen among patients. A high number of transmissions were shown to occur both from faucet to patient and from patient to faucet.”3

FILTER SYSTEMS DIMINISH BUT DO NOT ELIMINATE THE THREAT OF PSEUDOMONAS2

<table>
<thead>
<tr>
<th>P. aeruginosa (%)</th>
<th>Pf-Pf-Path (p=0.0004)</th>
<th>Pf-Pf-Path (p=0.028)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>20</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

AABB. 1 Rückgang von P. aeruginosa-besiedelten und -influßen Patienten (%)/P. aeruginosa-infizierten Patienten (1000 Patiententage vor und nach Einführung der endständigen Wasserfiltration auf einer operativen Intensivstation [22].

REFERENCES:

COMFORT BATH® CLEANSING WASHCLOTHS: A MICROBIOLOGY-TESTED® ALTERNATIVE TO WATER AND BASINS

Comfort Bath eliminates the contamination risk from standard baths and helps facilities comply with CDC infection control guidelines.4

Comfort Bath’s formula contains USP/EP purified water,2 so you never have to worry about contaminated tap water. These disposable washcloths also eliminate cross-contamination because each body area is cleansed separately. An AJCC study found that Comfort Bath effectively cleaned while offering fewer opportunities to recontaminate the skin.4

OUTCOMES:

SKIN CONDITION & SATISFACTION

- One hospital study found 96% of patients said they preferred Comfort Bath over baths. 100% felt clean afterward, 96% said their skin felt soft, and 97% said it was warm, comfortable and easy to use.4

SKIN-FRIENDLY WASHCLOTH

Even so-called neutral soaps have a pH too high for patient’s skin. The end result being that soap has the tendency of drying the skin. The ultra-soft, thick washcloth delivers the right amount of cleanser and moisturizer to the skin.

* Sage data on file.

OUTCOMES:

Basins were completely eliminated from two medical/surgical units, and were replaced with Comfort Bath. This reduced CAUTI rates to zero within one month and remained at zero for five months.5

REMOVE WATER, SOAP & BASINS: REDUCE CAUTI RISK FACTORS

- Basins were completely eliminated from two medical/surgical units, and were replaced with Comfort Bath. This reduced CAUTI rates to zero within one month and remained at zero for five months.5

REFERENCES:

2. Meets standards set by the United States Pharmacopeia (USP) 

Washcloths are gentle even on fragile skin

Formula’s pH is closest to normal, healthy skin

Washcloths moisturise with Aloe & Vitamin E

Trust the brand that offers quality certifications

If requested, Sage Products offers a certificate of analysis that includes microbiological testing results.