

Design Interface's XSONX Wound Hygiene System Named Finalist in Prestigious IDSA/IDEA Awards

Developed in Collaboration with Dr. Wade Farrow

Case Study

1. Overview

XSONX is a revolutionary wound-cleaning system designed to significantly reduce pain while speeding up the healing process for patients with chronic wounds. It is equally beneficial for medical practitioners, offering a safer and more efficient method for cleaning wounds in-home or in clinical settings. The system is ideal for individuals suffering from conditions such as bedsores, deep burns, vascular ulcers, diabetic neuropathy, and even leprosy.

The **XSONX Wound Hygiene System (WHS)** consists of a battery-powered, reusable handpiece, disposable single-use sleeves, and interchangeable wound heads. The system also includes an Xscrub wound pad designed to gently scrub the wound and remove bacterial biofilm, a major barrier to wound healing. With its ease of use and innovative features, XSONX is set to redefine the standard of wound care.

2. Design Innovation

XSONX addresses a significant gap in wound care by offering a system that uses powerful vibrations to clean and debride wounds with reduced pain and bleeding. The traditional debridement method involves scalpels and gauze, which can be painful, imprecise, and dangerous. By contrast, XSONX provides a more controlled and consistent process.

One key innovation of the XSONX system is its **#1 scrubbing head**, which effectively disrupts bacterial biofilms, a persistent problem in chronic wounds. Studies have shown that biofilms can colonize up to 1-2 cm around the wound bed. XSONX is currently the only powered device capable of cleaning both the wound and the surrounding skin.

The system also features **#4 and #4S debriding heads** with rigid polycarbonate teeth, safely removing dead tissue with less bleeding risk. Its rapid vibrations—over 500 micro-scrubs per second—allow for thorough cleaning, which is impossible to achieve by hand. This controlled debridement technique ensures better wound hygiene while minimizing pain.

3. Benefit to the User

XSONX provides a range of benefits for both the patient and medical practitioners:

- **Better patient outcomes:** XSONX leads to cleaner wounds and better debridement, improving overall healing.
- **Time efficiency:** XSONX saves significant time compared to traditional methods. Clinical studies show reduced procedure times, allowing healthcare workers to treat more patients in less time.



Wound cleaning scalpel vs. XSONX



More pain using scalpel

Less pain using XSONX vibration

- **Less pain and anxiety:** Patients report less discomfort with XSONX compared to traditional scalpel or curette debridement. This is mainly due to the device's micro-vibrations, which stimulate analgesia and cause less trauma to the wound.
- **Higher safety margin:** The vibrating heads minimize the risk of cutting too deeply, a danger associated with sharp instruments. This makes the procedure safer for both practitioners and patients.
- **Biofilm removal:** XSONX is the first product specifically designed to scrub both wounds and surrounding skin to remove bacterial biofilm, improving the wound environment for healing.

4. Benefit to Client/Brand

From a business perspective, XSONX meets the growing demand for portable, affordable wound care solutions. Unlike most debridement devices that are costly and restricted to clinics, XSONX can be used in the home, making it accessible to a broader range of patients. Its **portable and reusable design** with disposable single-use heads makes it both cost-effective and hygienic.

By focusing on ease of use, the design team ensured that the **ergonomically shaped handle** is simple to manipulate, even in challenging wound environments. The system's disposable heads are injection-molded for precision and versatility, reducing production and shipping costs while maintaining high standards of care. Traditional wound debridement systems that rely on saline sprays are cumbersome, expensive, and risk aerosolizing contaminants. XSONX's fluid-resistant design avoids these pitfalls, making it a safer option for both patients and healthcare providers.

5. Benefit to Society

XSONX's ability to reduce pain and anxiety during wound cleaning could have far-reaching implications for healthcare. Many patients, particularly those suffering from chronic conditions, delay treatment out of fear of painful procedures like debridement with scalpels. By offering a **low-cost, less painful alternative**, XSONX can encourage consistent wound care, leading to better patient outcomes and lower infection rates.

The device is also easy to use and requires no specialized training, meaning that **nurses and home-health aides**—even those without qualifications in surgical debridement—can effectively treat wounds. This makes XSONX an ideal solution for remote or underserved areas with limited access to specialized medical care.

The system is highly portable and can be used in developing countries to combat high rates of wound infections and complications. It offers a simple yet effective solution at a fraction of the cost of current alternatives.

6. Aesthetic Design

The aesthetic design of the XSONX handpiece was carefully considered to reflect its functionality. Its **white and blue color palette** evokes a sense of cleanliness and calm, essential for alleviating patient anxiety. The **high-gloss finish** is easy to disinfect, and its form was designed for smooth integration with the single-use sleeves, preventing accidental punctures.

The system's small size makes it **easily portable** and enables fine control during procedures. The **wound heads** are color-coded for ease of use: curettes are made of purplish medical-grade plastics, while scrubbing heads remain white. This visual distinction helps clinical staff avoid errors in selecting the appropriate wound head.

The handpiece and wound heads were engineered with user comfort in mind, providing functional control and **ergonomic ease** for extended use.

7. Cost

The **handpiece** retails for **\$449** and can be used for approximately **600 uses**, which averages out to more than **\$90 per billable debridement**. The **single-use wound heads** range from **\$16.25 to \$34.99** each, depending on the type and volume ordered. Comparatively, other single-use disposables are significantly more expensive; for example, a **hydrojet product** for debridement costs around **\$650 per use**.

XSONX is redefining how chronic wounds are treated, making wound care less painful, safer, and more efficient for both patients and practitioners.

XSONX's goal is to establish a new standard of care for wound cleaning.

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