

## Understanding Fluid Containment in the Operating Room Setting

Capturing and handling large volumes of contaminated fluids is important during wet surgeries and examinations but it can be difficult to safely do so, especially in a busy operating room. One study showed that approximately 1 in 10 hospitalized patients will acquire an infection after admission, resulting in additional patient risks, inconvenience, and substantial costs for the healthcare provider.<sup>1</sup>

Hospital-acquired infections can arise by autoinfection from patients' endogenous flora, cross-infection from other patients and hospital staff, and transmission of pathogens from items in the hospital environment through air, food, drugs, and water, but water is the main stimulus for the development of microorganisms and its flow has important implications in the spread of contaminants.<sup>2</sup> Fluids can easily spread down surgical drapes and sloping floors, through instruments and equipment, and via surgical staff.

Fluid that contains *Pseudomonas aeruginosa* is most concerning because it is an opportunistic pathogen with a high incidence of hospital infection and a threat to immune-compromised patients.<sup>3</sup> When *P. aeruginosa* grows, it forms a thin slimy film—called biofilm—that adheres to surfaces. To assess the impact of *P. aeruginosa* on medical devices, Dr Blom and associates at Medibiome AB designed a trial to understand how biofilm formation and antimicrobial activity would behave on DryMax superabsorbent (sodium polyacrylate) medical devices and other devices. They mimicked the clinical situation by allowing biofilm to form<sup>4,5</sup> and found that DryMax superabsorbent medical device limited pyocyanin, a toxin that causes cellular damage and infects the *P. aeruginosa* host.<sup>4,6-8</sup> These findings are important because rendering *P. aeruginosa* avirulent may help prevent infections, even though viable cells may be present, may combat bacteria without inducing resistance,<sup>9</sup> and may simplify eradication of any bacterium by the human immune system.<sup>10</sup>

A separate study<sup>11</sup> was conducted to demonstrate the absorbency of the superabsorbent ABSORBEST core in the operating room product, DryMax 2.4. The outer layers of DryMax quickly transported 4 gallons of distilled water, 3 gallons of tap water, or 1 gallon of saline into the ABSORBEST core, effectively capturing and sequestering fluid that contained bacteria and other substances.<sup>11</sup>

DryMax superabsorbent products are flexible and able to absorb water-based liquids such as iodine solution, irrigation fluid, amniotic fluid, urine, and blood in a safe, hygienic way, which provides health care practitioners with a cleaner, drier, and safer operating room environment. When filled with absorbed content, DryMax superabsorbent products can be hygienically removed without dripping.

DryMax products are safe for the intended use and indications. The medical benefits outweigh the residual risks estimated during the risk management for these products.

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